

CURRICULUM VITAE

Jannick P. Rolland (-Thompson), Ph.D.

Brian J. Thompson (endowed chair) Professor of Optical Engineering www.optics.rochester.edu

Director, NSF I/UCRC Center for Freeform Optics <http://CenterFreeformOptics.org>

Joint Appointment in the Center for Visual Science

Joint Appointment in the Department of Biomedical Engineering

University of Rochester, Rochester, NY 14627

Phone: (585) 752-1013

Institution e-mail: rolland@optics.rochester.edu

Other: rolland.jannick@gmail.com

FIELDS OF MAJOR CURRENT RESEARCH

Freeform Optics: Nodal aberration theory; Freeform optics aberration theory; Optical design; Optical metrology and testing; Innovation in optical instrumentation: from conception and design, fabrication and test, to field use. Compact and wide field of view cameras, imagers, telescopes from UV-VIS/NIR-MWIR/LWIR; Compact and high-speed spectrometer design; Wide-angle viewers and eyepieces; Compact and high NA microscope objectives; Compact relay Optics; Coronagraphs.

Metasurfaces and Metaform Optics: from conception and design, fabrication and test, to field use.

Augmented and Virtual Reality: Human Centric near-eye displays and associated technologies; waveguides and free-space heads-up displays; Human perception.

Biophotonics: Optical coherence tomography & elastography (OCT/OCE).

3D Optical Imaging/Sensing/Measuring; Physics-based modeling; Statistical decision theory; Task-based image quality assessment.

EDUCATION

Ph.D., Optical Science, University of Arizona, Tucson, May 1990

Title: Factors Influencing Lesion Detection in Medical Imaging,

Advisor: Harry H. Barrett, Professor of Optical Science and Medical Imaging.

Master, Optical Science, University of Arizona, Tucson, May 1987

Diplôme Grandes Ecoles, Ecole Supérieure d'Optique (Orsay, France), Optical Engineering, July 1984.

The Ecole Supérieure D'Optique was renamed *Institut d'Optique – Graduate School*; This school combines Master of Eng. and Bachelor of Science unlike the US that may combine Master & PhD.

DUT Measures Physiques, Orsay, from IUT Measures Physiques, Sept. 1978-1980 (**Valedictorian**)

Baccalaureat (High School), Institut St Thomas de Villeuneuve (Chaville, France), Math/Phys, June 1978.

This degree is the equivalent of a High School Degree in the United States. Graduated at 17 yrs. old.

Admitted in Classes Préparatoires, Lycée Carnot, Paris & IUT Measures Physiques, Orsay.

SHORT BIOSKETCH

Jannick Rolland joined the University of Rochester January 1st, 2009 and was established as the Brian J. Thompson Professor of Optical Engineering in the spring of 2009. She founded and serves as the director (2013-present) of the NSF I/UCRC Center for Freeform Optics (www.centerfreeformoptics.org) which raise in average about one million annually side-by-side the partnership of corporate and government labs, which total 40+ combined since the center inception. Rolland also served as the director (2012-2025) of the R.E. Hopkins Center for Optical Design and

Engineering, which focuses on the education of undergraduate students but also supports graduate research. She currently holds joint appointments in the Center for Visual Science (CVS) and the Department of Biomedical Engineering (BME). Professor Rolland served from 2011-2015 as an invited Professor at the Institute of Optics in Paris, France, where she helped, from 2011-2013, launch a satellite optics institute in Bordeaux France with a focus area on Optics and Numerics. In 2012, she started a research collaboration with one of the other satellite laboratories of the French Institute of Optics in Saint Etienne, France in optical coherence tomography for corneal imaging with key collaborations over the University of Rochester Medical Center. Rolland served as a faculty member at CREOL at the University of Central Florida (UCF) where she served as Assistant Professor (1996-2001), Associate Professor (2001-2008), and Full Professor (2008).

Jannick Rolland received a Diplome Grandes Ecole equivalent to a master's degree in Optical Engineering from l'*Institut d'Optique Graduate School* in France in 1984. As part of her French Graduate School program, she worked at REOSC Corporation in France (a leading lens design, fabrication, and testing corporation for large mirror telescopes – now known as SAGEM/SAFRAN) and designed the optics for SPOT4 (Satellite for Observation of the Earth working in the Visible-IR region of the spectrum). Among 15 years of data collection and impact programs for the environment and global community, in 2011 the satellite captured a new volcanic eruption in Chile that triggered the evacuation of over 4,000 people.

Following the completion of her master's degree, while visiting the University of Arizona for an abroad experience, she was invited to join the Ph.D. program in 1984 - which she contemplated till spring 1987. Before joining the Ph.D. program at the Optical Sciences Center in spring 1987, she taught a laboratory course for Roland Shack, worked one semester in the optical fabrication shop with Robert Parks, conducted research in optical testing during two semesters with Chris Koliopoulos, designed during two semesters a space optical tracker mentored by Robert Shannon, and worked her summer 1987 at the University of Arizona Medical Center in Radiology on algorithms for systole and diastole quantification from medical CT images. During the summers of 1985 and 1986, she had an opportunity to work at PerkinElmer in the optical design groups in CT (under the leadership of late Raul Casas) and in CA (under the leadership of late Juan Rayces), respectively. She joined Professor Harry Barrett's research group in the fall of 1987 to pursue research in medical instrumentation/imaging and received her Ph.D. in Optical Science from the University of Arizona in May 1990.

From there, Dr. Rolland joined the Department of Computer Science at the University of North Carolina at Chapel Hill (UNC-CH) as a Postdoctoral Fellow to conduct research in optical design for 3D medical visualization using Augmented and Virtual Reality. She was appointed to the Research Faculty at UNC in 1992 and invited to lead the Vision Research Group, which she led until 1996. During this period, she supervised a small team of students working on human perception of medical 2D and 3D datasets, including perception in Augmented and Virtual Reality systems. In this role, responsibilities have included system engineering, such as the design of head-worn displays for investigating perception issues, the design of psychophysical experiments, and computer graphics C++ programming. In 1996, she accepted an invitation to join the CREOL faculty, where she formed the Optical Diagnostics and Applications Laboratory (ODALab) and has gone on to become the first women Full Professor at CREOL.

Professor Rolland holds 72 patents, has written 17 book chapters, and has over 225 peer-reviewed publications related to optical design with a focus on head-worn displays, vision, augmented reality and 3D visualization, biophotonics technology innovation and development related to optical coherence tomography, and image quality assessment for medical and biomedical imaging. She has authored and co-authored over 500 other publications related to the same topics with over 150 of them invited. She was on the Editorial Board of Presence (MIT Press) from 1996-2006 while also serving as Associated Editor of Optical Engineering 1999-2004. She served as a Guest Editor of the

Journal of Display Technology for a 2007 special issue on Medical Displays. She was on the Editorial Board of the Handbook for Visual Display Technology published in 2012 with a second edition in 2016. She served as Topical Editor of Optics Letters 2016-2022 and was a Guest Editor for a special issue on freeform optics for Optics Express in 2021. She helped the publication team at SPIE to explore having a special issue on Augmented and Virtual Reality for JOM. She has been serving as Associate Editor of the Journal Optica since 2022. She is a Fellow of the Optica (former OSA), SPIE, National Academy of Inventors (NAI), the European Academy of Sciences (EUAS), an inaugural member of the Virtual Reality Academy, and one of 101 first inductees in the XR Hall of Fame (Established by AWE). Among multiple awards, she is the recipient of the 2014 David Richardson Medal, the 2017 Edmund A. Hajim Outstanding Faculty Award, the 2019 University of Arizona Alumna of the Year Award, the 2020 Joseph Fraunhofer Award / Robert M. Burley Prize, the 2025 A.E. Conrady Award in Optical Engineering, and the 2025 Hajim Lifetime Achievement Award.

Professor Rolland's experience has been concentrated in three areas, Conception and Design of Optical Systems and Metrology, Biophotonics - Optical Coherence Microscopy Imaging and Elastography combined with Image Quality Assessment, and Physics-based Modeling of Medical Datasets combined with 3D Visualization and Perception Assessment. Over the years, she has been mentoring graduate and post-graduate students in the fields of Optics, Physics, and Computer Science. She has full responsibility for all aspects of the research activities at the ODALab including strategic directions, securing intellectual property, theoretical developments and reduction to practice, technical oversight, and technology transfer. In addition, she initiated and continues to participate in securing commercial and government funding for advancing the state of the art in her areas of research. Here she has either led or been a main contributor on proposals that were awarded to the ODALab in government funding from NSF, NIH, ONR, US ARMY, NASA, DARPA, and Industry. Several of her students have been supported under various Industry, Government, and Private Fellowships.

Prof. Rolland was an Awardee of the NYSTAR Foundation (2009-2012) that funded her research in Biophotonics and XRealities with a goal of commercialization. She co-founded LighTopTech Corp. in 2013. LighTopTech is a start-up that received two first rounds of funding from the NSF with a Phase I STTR and a Phase II SBIR towards the commercialization of Gabor-domain Optical Coherence Microscopy. LighTopTech has since also received multiple NIH SBIR/STTR Phase 1 and Phase 2 funding. LighTopTech was one of 10 winners of the LUMINATE competition Round 1 in 2017.

Professor Rolland served on the Board of Directors at Large of Optica (former OSA) (2011-2013) and developed in 2011 a new type of meetings called incubator meetings. The first incubator meeting on Freeform Optics led to the creation of the NSF I/UCRC Center for Freeform Optics that she established with a team of collaborators at the University of Rochester in collaboration with the University of North Carolina at Charlotte, which she is directing (CenterFreeformOptics.org). Her work with the incubator meeting also led to a new Topical meeting for Optica on Freeform Optics, for which she served Optica as program chair since its inception. Prof. Rolland previously served on the Optica Meeting Council and currently serves on the Board of Meetings at Optica.

EMPLOYMENT

2009-present	Brian J. Thompson (Chair) Professor of Optical Engineering, University of Rochester, NY Joint Appointment in the Center for Visual Science, University of Rochester, NY Joint Appointment in Biomedical Engineering, University of Rochester, NY
2013-present	Director of the NSF I/UCRC Center for Freeform Optics (CeFO)
2013-present	Founder and CEO (2013, 2026) and CTO (2014-2026) of LighTopTech Corp.
2025-present	Honorable Director of the R.E. Hopkins Center for Optical Design and Engineering
2012-2025	Director of the R.E. Hopkins Center for Optical Design and Engineering
2009-2012	Associate Director of the R.E. Hopkins Center for Optical Design and Engineering, Institute of Optics, University of Rochester, NY.
2011-2014	Visiting Professor, Institut d'Optique Théorique et Appliquée, Palaiseau France
2007-2008	Professor of Optics, CREOL, the College of Optics and Photonics, University of Central Florida (UCF), Orlando FL – Joint Appointment in the Medical School
Summer 2007	Visiting Professor, National University of Ireland, Galway Ireland (NUI – Applied Optics Laboratory, Professor Chris Dainty's Laboratory)
Summer 2006	Visiting Professor at the Ecole Nationale Supérieure des Télécommunications (ENST) – Medical Imaging Team (June-July 2006) Paris, France.
2004-2005	Visiting Professor, Institut D'Optique Théorique et Appliquée (IOTA), (UCF Sabbatical on Biophotonics – August 1st 2004-July 1st 2005) Orsay, France.
2001-2006	Associate Professor, College of Optics and Photonics, University of Central Florida (UCF) Orlando. Joint Appointment in the School of EE-CS since 1996. Joint Appointment in the Modeling and Simulation Program since 2003.
1996-2000	Assistant Professor, School of Optics/CREOL University of Central Florida (UCF), Orlando. Joint Appointment in School of EE-CS.
Summer 1998	Visiting Professor at El Centro de Investigaciones in Optica, Leon, Mexico.
Summer 1999	Visiting Professor at El Centro de Investigaciones in Optica, Leon, Mexico.
1992-1996	Research Assistant Professor, Head of the Vision Group 94-96, Computer Science, University of North Carolina at Chapel Hill (UNC-CH).
1990-1992	Postdoctoral Student, Computer Science, UNC-Chapel Hill.
1985-1990	Research Associate, Optical Science, University of Arizona.
Summer 1986	Optical Designer, Internship, Perkin Elmer Corp., LA-California.
Summer 1985	Optical Designer, Internship, Perkin Elmer Corp., Danbury-Connecticut.
1984	Teaching Assistant for Geometrical Optics, Optical Science, University of Arizona.
Spring 1984	Optical Designer, REOSC Corporation, Paris, France.
Summer 1983	Optical Engineer, Internship, El CISESE, Ensenada, Mexico.
Summer 1980	Optical Engineer, Internship, Institut D'Optique Théorique et Appliquée, Orsay, France.

TEACHING

Awards/Honor

In this section, Jannick Rolland's awards related to teaching as well as awards to students either in her research team or in her class are reported, as well as TA award in her classes.

- 2017 **Edmund A. Hajim Outstanding Faculty Award**
- 2012 **Director of the R.E. Hopkins Center for Optical Engineering** – University of Rochester
- 2011 **Teaching Assistant Award to Aaron Bauer (TA)** in OPT442 (taught by Dr. Rolland)
- 2010 **Teaching Assistant Award to Kyle Fuerschbach (TA)** in OPT442 (taught by Dr. Rolland)
- 2009 **Associate Director of the R.E. Hopkins Center for Optical Engineering** – University of Rochester
- 2007 **Grand Marshal** for the December 2007 UCF University Graduation.
- 2007 **Optical Research Associates Lens Design Competition Award** to Tobias Schmid. Based on Optical System Design (OSE 6265) Class Project conducted on Illumination Optics with Prof. Jannick Rolland who taught the class and Prof. Martin Richardson who provided the research context of Lithography for this work.
- 2006 **UCF Teaching Incentive Program (TIP) Award for Excellence in Teaching 2001-2006.**
- 2005 **Optical Research Associates in Optical System Design European Competition Award** to Olivier Jacques-Sermet for his design of a hybrid glass-diffractive optical element. Project conducted as part of a course developed and taught on 3D vision in Europe in spring 2005.
- 2004 **College of Optics and Photonics Excellence in Graduate Teaching Award.**
- 2004 **Meritorious Service Award from Lake Highland High School Prep.** "For outstanding contributions and many years of dedication to Science Education".
- 2003 **Distinguished Service Award** from Lake Highland High School Prep. "For your outstanding contribution and years of dedication to our ASPIRE Science Education Program".
- 2001 **Award of Optical Research Associates Lens Design Competition Award** to Ed and Charlene Sarver. Optical System Design (OSE 6265) Class Project related to Research conducted in Dr. Rolland's Laboratory.
- 1998 **Distinguished Service Award** from Lake Highland High School Prep. "For your outstanding dedication to science education".

Academic Courses

University of Rochester

- Special Topics on Augmented & Virtual Reality** (OPT438/ECE411) spring 2024, spring 2025
- Special Topics on Augmented & Virtual Reality** (OPT438) spring 2021, 2024 – symposium series
- The Practicum in Augmented and Virtual Reality** (ECE501-1)
- Augmented & Virtual Reality** (OPT410) fall 2020; fall 2021; fall 2022
- Freeform Optics** (OPT440) fall 2016 & 2017; spring 2019; fall 2020; fall 2022; fall 2024; fall 2025
- Aberrations and Optical Testing** (OPT242) fall 2011-2016; 2018; 2019
- Instrumental Optics** (OPT442) spring 2009-2014 & 2021, 2022
- Optics Labs** (OPT256) fall 2010
- Senior Design** (OPT310/311) fall 2018, faculty team leader for a group of three students working on a Zygo transmission sphere design for reduced retrace errors.
- Senior Design** (OPT310/311) fall 2017, faculty team leader for a group of four students working on an Optimax project related to quantifying the impact of mid-spatial frequencies created during optics manufacturing on image quality.
- Senior Design** (ME205) fall 2017, faculty mentor for a group of three students working on a rapid OPD scanning via a rotating cube for a Fourier transform spectrometer.

Senior Design (OPT310/311) fall 2010 and spring 2011, faculty team leader for a group of four students working on a QED Corporation project related to mid-spatial frequencies in optical fabrication with the MRF process.

Senior Design (BME295/296) fall 2012 and spring 2013, faculty in the role of the customer, working closely with a team of four students on a high-speed dual-axis MEMs scanning OCT probe.

Senior Design (ME205) spring 2014, Faculty in the role of the customer, working on a mount for a hexapod to hold the secondary mirror of a Ritchey Chretien Telescope to study the aberration fields of misaligned optics.

Senior Design (OPT310/311) fall 2017 and spring 2018, faculty team leader for a group of four students working on a QED Corporation project related to understanding the impact of mid-spatial frequencies on imaging performance and tolerancing.

Senior Design (OPT310/311) fall 2018 and spring 2019, faculty team leader for a group of three students working on a Zygo Corporation project related to retrace errors in interferometry.

University of Central Florida

Foundation of Bio-Imaging Science (IDS 5937), fall 2006, (IDS 5127) spring 2008 (New course co-taught with Dr. Steven Ebert, Associate Professor of the Biomedical Science Center).

Optics (PHY4424), University of Central Florida, fall 2005. (Senior undergraduate course)

Optical System Design (OSE6562), University of Central Florida, spring 2002, 2004, 2006, 2007

Optical System Design (EEL6446), University of Central Florida, spring 1997, 1998, 2000, 2001.

Fundamentals of Applied Optics (OSE 5203), spring 2003, fall 2003, spring 2008

Geometrical Optics (EEL5453), University of Central Florida, fall 1997, 1998, 1999 and 2000.

Lecture on Optics and Perception Issues in Virtual Environments, Comp239, Virtual Worlds, UNC, 1995.

Topics in Computer Science: Medical Image Display: Lecture on Mathematical Observers for Assessing Image Quality in Greyscale Images, Comp290-6, UNC, 1994.

Picture and Pattern Recognition: Lectures on Image Quality for Greyscale Images, Comp254, UNC, 1992 and 1994.

Basics of Geometrical Optics, Lab Course Assistant, University of Arizona, fall 1984 (Instructor was Professor Roland Shack).

New Courses Developed

UR-OPTBD Optics for XR being developed in the spring 2026.

UR-OPT411 This course was designed in the fall 2023 to be in-person.

UR-OPT438 Created and contributed to the 2021 spring course with colloquium speakers.

UR-OPT410 This course in Augmented and Virtual Reality was conceived in the fall of 2020 and designed for online instructions with a two-week optics module.

UR-OPT440 This course started with the development of a full-day short course for SPIE first taught in 2014 and has been extended to a fall semester course for graduate students; This course was redesigned in the summer 2020 to go online and include both synchronous and asynchronous teacher presence.

UR-OPT442 A new version of this in-person course was designed in the fall/spring of 2009; an online version was designed fall 2020 to go online for fall/spring 2021.

UR-OPT242 A new version of this course was designed in the fall of 2011.

UCF-IDS5937/IDS5127 Foundation of Bio-Imaging Science. This new course conceived fall of 2005, was developed summer of 2006. Jannick Rolland was co-director of the course with Steven Ebert, Associate Professor of the Biomolecular Science Center. Also, Manuel Perez, Assistant Professor from the Nanoscience Center has joined in co-teaching this class. It was first offered in the fall of 2006. A second offering was in the spring of 2008 as IDS 5127

UCF-OSE5203 Fundamentals of Applied Optics - Helped with defining the course and prepared an appropriate set of notes that built in part on EEL5453.

UCF-EEL5453 Geometrical Optics: This course was redesigned in 1997 to provide students with an in-depth knowledge of the fundamentals of geometrical optics.

UCF-EEL6446 Optical System Design: This course was developed in 1996 to provide graduate students with an introductory course in lens design; Over the years it evolved to include 60% time with hands-on the computer performing design in the classroom to have full access to the professor while solving problems. Furthermore, it includes key guest speakers from industry.

Short Courses Developed and Taught

Freeform Optics:

- Full-day short course for SPIE 2014 on Applying Freeform Optical Surfaces in Imaging Optics - January 2014 - October 2015 – August 2016
- Course adapted for ESA on Space Optics Instrument Design and Technologies, Poltu Quatu 2016, 2018
- Full-day Freeform-Optics Tutorial – NARIT – Chiang Mai, Thailand – February 22, 2023
- Two-day Freeform-Optics Short Course – Suranaree University of Technology – August 18-19, 2025
- Lectures - Canary Islands Winter School of Astrophysics, Tenerife Spain, Nov. 16-23 (2025).

Virtual Reality at Institut d'Optique Theorique et Appliquee:

- Project Realite Virtuelle – October 22-26, 2012; January 7-11, 2013 (with Xavier Granier)
- Conception Optique – January 15-18 and May 20-24, 2013

Virtual/Augmented Reality:

- 3-day course, October 22,23&26 2012 at the Institute d'Optique in Bordeaux, France (with Xavier Granier, Pascal Guitton, Florent Berthaud).

Nodal Aberration Theory:

- ½ day Short Course at Galway Summer School 2010 organized by Professor Chris Dainty

Non-imaging Optics:

- 2½ day Short Course at UofR Summer School 2010 and 2011 on Non-Imaging Optics. Instructors: William Cassarly, Florian Fournier and I, Michael Morris, and Duncan Moore.

Head-worn Displays (HWD) Fundamentals and Applications:

- 4hr Short Course at ISMAR 2006. (International Symposium on Mixed and Augmented reality), Lead Instructor with Professor Robert Patterson, Andrei State, and Ozan Cakmakci
- 3hr Short Course at ISMAR 2009 (with Dr. Hong Hua)
- Full day Short Course at ISMAR 2010 (with Dr. Kevin Thompson).

Optics in Simulation and Training: Short Course at ITSEC 2006. Co-teaching with Cali Fidopiastis (my former student) as Lead Instructor (Total 4 instructors).

Systems of 3D Vision : Institut d'Optique Théorique et Appliquée. 15hrs, March-April, 2005.

3hr Module on 3D Visualization for Biophotonics. February 2005.

1hr Module on Image Formation, University of Louisville, Kentucky, April 2005.

Modeling and Applications for Medical Visualization: Augmented Reality: Aims and Challenges, Short Course Given at CASA03 (4hrs total, one of 5 Speakers) <http://dimacs.rutgers.edu/casa03/>, May 7 2003.

UCF WISE (women in science and engineering) Orlando Science Center Workshop: February 2003, 2004 (All Day Event for K-12 Students)

What Can You See? Fundamentals and Emerging Visual System Technologies: Short Course (2hrs) at ITSEC2002, Orlando Florida December 2nd, 2002.

Fundamentals of Geometrical Optics and Optical System Design: taught for 4 days at Allied Signal (Kansas City, Missouri): Summer Short Course 1998.

Fundamentals of Optics for Head-Mounted Displays: ½ day Tutorial at the Virtual Reality Annual International Symposium (VRAIS), 1995-1997, also at the 5th *Conference Internationale en Informatique* at Montpellier96 France, May 21-24, 1996; Course updated for Short Course for Annual Conference of Beckman Institute, spring 2000.

Optical System Design Workshop:(10hrs), El Centro de Investigaciones in Optica, Leon, Mexico, 1999.

Independent Study Courses Taught

UCF (1996-2008): >70 covering multidisciplinary topics from optical instrumentation, simulation of optical phenomena, image processing, medical image analysis, tracking, and internet2 high speed networking.

Also participated in mentoring graduate students through class projects: e.g. Software Engineering I Class (EEL5881); Supervised 2 groups of students spring 2003; 4 groups of students fall 2003.

UofR (2009-present):

BME (Cheng Bin Zhang; fall 2010)(Jerome Barczykowsi; spring 2012)(Nicole Tocha; fall 2012); (Lucy Ying-Ju Chu, spring 2014-2015);

Optics (Dennis Fantone; fall 2011); Anis Adrizovic (fall 2022); Chanseung Lee (fall 2022).

Master Essays Supervisor

Spring 2009

1. Stephen Goodridge, Stress birefringence and how it is modeled in CODE V
2. Katie Hasman - Polarization sensitive optical coherence tomography
3. Sophie Vo - Review of distortion mapping for symmetric and asymmetric maps
4. Bin Yang – The development of light microscopes in the nineteenth century
5. Xuefeng Zhang – Review on fluorescence, Raman and diffuse reflectance spectroscopy

Spring 2010

6. Keija Fang – Freeform optics

Spring 2011

7. Robert Gray – A survey of geometric algebra in optics geometrical algebra

Spring 2012

8. Dennis Fantone – Nodal aberration theory
9. Fanny Keller-Lussier – Properties and engineering of Airy beam patterns
10. Shuyuan Han - Image formation in confocal laser scanning microscopy

Spring 2014

11. Brett Sternfield – The modulation transfer function: An objective characterization and diagnostic tool for imaging optical systems
12. Jonas Ogien – Optical Coherence Tomography Elastography
13. Di Xu – Nodal aberration theory: properties and applications
14. Teddy Lambropoulos – Eyepiece design

Spring 2017

15. Michael Dupuis – Spectroscopic Optical Coherence Tomography
16. Erik page - Modern Design of Optical Head Mounted Displays

Spring 2018

17. Aniruddha Sonde – Potential for Freeform Optics in Spectrometer Design

Fall 2019

18. Nick Takaki – Freeform surface descriptions

Spring 2021

19. Emma Foley - Designing Augmented and Virtual Reality Optical Systems for Perceptual Realism
20. Kara Morse - A Comparison of Optical Test Methods for the LSST M2
21. Gary Ge - Investigation of Brain Elasticity in Aging and Neurodegeneration Enabled by OCT

Spring 2023

22. Sam Pentolino - Design of All-reflective Freeform Imaging Optical Systems

Spring 2025

23. Colin Zhou – Design of All-reflective Freeform Relay Optics.

Fall 2025 (essay changed to oral presentation)

24. Thomas Grcevic – Magnetorheological Finishing

International Undergraduate/Master Internships Supervised

1. Summer 1998, Design of a novel projective head-mounted display, David Poizat (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**).
2. Summer 1998, Eyetracking in head-mounted displays, Laurent Vaissie (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**). (As of year 2005, he completed his PhD in Optics).
3. 1998-1999, Statistical analysis of texture, Alexei Goon (**Exchange student from Moscow University Russia**). (As of year 2006, he completed his PhD in Physics).
4. Summer 1998, Modeling imaging in interferometry, Emmanuel Maillart (**Exchange student from Ecole Supérieure D’Optique, France**). (As of year 2004, he completed his PhD in Biophotonics).
5. Summer 1999, Assembly and investigation of a projective head-mounted display, Axelle Girardot (exchange student from France – 3 months internship – also selected for **REU program - France**).
6. Summer 1999, Development of a method for 9maging motion capture, Valerie Outters (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**).
7. Summer 1999, Calibration methods for augmented reality head-mounted displays, Brahim Gharib. (**Exchange student from L’Institut des Sciences de L’ingénieur in Clermond Ferrand, France**).
8. Summer 2000, Image processing methods for eyetracking in head-mounted displays, Alexandre Szasz (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**).
9. Summer 2000, Investigation of information handling in projective head-mounted displays, Olivier Fedkiw (**Exchange student from Institut du Petrol, France**).
10. Summer 2002, Investigation of noise sources in OCT, Laurent La Fenetre (**REU program – France**).
11. Summer 2003, Broadband source polarization-based spectral measurements, Maryam Chopra (**Exchange student from Ecole Supérieure D’Optique, France**).
12. Summer 2003, Charaterization of optical materials, Stephanie Catdevielle (**REU program – France**).
13. Summer 2003, Modeling of image quality for medical imaging, Tony Delemos (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**).
14. Spring 2004, Mathematical modeling of image quality in medical imaging, Aurelie Cartier (**Exchange student from from Ecole Supérieure D’Optique, France**).
15. Spring 2006, Lung modeling, Antonio Moreno (**Exchange student from Ecole Nationale Supérieure des Télécommunications (ENST) in Paris, France**).
16. Summer 2006, Lung modeling, Alexis Motir (**Exchange student from Ecole Spéciale des Travaux Publics, du Batiment, et de l’Industrie (ESTP) in Paris, France**).
17. Summer 2007, Modeling of alveolar gas exchange, Lisa Fluck (**Exchange student from Esil/Biomedical, Marseilles, France**).
18. Summer 2007, Optical coherence microscopy, Mayank Jain (**Exchange student from India Institute of Technology, Bangalore, India**).
19. Fall 2007-Spring 2008, Design of head-worn displays, Sophie Vo (**Exchange student from Institut d’Optique, Paris, France**).
20. Fall 2007-Spring 2008, Segmentation of clinical lung data, Charline Motir (**Study abroad after completion of her high school degree; Exchange student from Paris X University Nanterre, Paris, France**).
21. Summer 2008, Optical design of a dynamic focus lens, Sandrine Ricaud (**Exchange student from Institut d’Optique, Paris, France**).

22. Summer 2009, Pierre-Olivier Grau, MTF measurements (University of Poitiers, France)
23. Summer 2009, Beam Propagation with BSP module in CODEV, Charlotte Pachot (**Exchange student from Institut d'Optique, Paris, France**).
24. Summer 2009, Holographic display. Pimrapat I-lean Thanusutiyaorn (**Exchange student from Chulalongkorn University, Bangkok, Thailand**).
25. Summer 2010, Extended Depth of Focus and Full Field Optical Coherence Tomography, Kang Liu (**Exchange student from Institut d'Optique, Paris France**).
26. Summer 2010, Saroj Kumar Mahalik, Design of a Baker telescope and ultra-high resolution optical coherence tomography (**Exchange student from Cochin University Of Science and Technology" (CUSAT), Kerala, India**).
27. Summer 2010, Aurelie Besse, Ipad & augmented reality (**Exchange student from l'Institut des Sciences et Techniques d'Ingénieur d'Angers (ISTIA), Angers, France**).
28. Fall 2010-spring 2011, Patricio Fluxa, Lens design of an IR camera (**Visiting student from the Universidad Nacional de la Plata, Argentina**).
29. Spring 2011, Saroj Kumar Mahalik, Optical design for OCT (**Exchange student from Cochin University Of Science and Technology" (CUSAT), Kerala, India**).
30. Fall 2010-Fall2011, Bin Ma, Lens design with Forbes polynomial (**Visiting student from Beijing Institute of Technology (BIT), Beijing, China**).
31. Summer 2010, Pierre-Marie Le Gloahec, working on the AR structure project, (**Exchange student from l'Institut des Sciences et Techniques d'Ingénieur d'Angers (ISTIA), Angers, France**).
32. Fall 2011-Fall 2012, Johan Thivollet, Assembly of the Hilbert telescope (**Intern Institut d'Optique, France**)
33. Summer 2012-Fall2012, Fanny Keller-Lussier, Computer-aided and experimental validation of a new family of optical beams: Abruptly autofocusing Airy beams (**Intern Institut d'Optique, France**)
34. Summer 2013, Clement Apelian, Optimization of the controls for a 2D MEMs scanner (**Exchange student Institut d'Optique, France**)
35. **Summer 2013**, Solene Demay, Shadowing and pilot research in optical metrology and biomedical imaging (**Exchange student from Ecole Préparatoire Hoche, Versailles, France**)
36. **Summer 2014**, Pornthep Pongchalee (Racha), Broadband interferometry **OSA Foundation Fellow from Suranaree University of Technology in Thailand**.
37. **Summer 2014**, Eric Dongmo, Hands-on metrology in the RE Hopkins Center **OSA Foundation Fellow from Yaounde University in Cameroon**.
38. **Fall 2018**, Pornapa Artsang, Fourier transform interferometer (**Exchange student from Suranaree University of Technology(SUT), Thailand**).
39. **Fall 2018**, Nirawit Kunanta, Optical coherence tomography elastography **Exchange student from Suranaree University of Technology(SUT), Thailand**.
40. **Spring22**, Edith Hartmann, AOSLO project (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**).
41. **Spring 2025**, Antoine Pielot, Metasurface initiation and abroad experience (**Exchange student from IMT Atlantique), France**.
42. **Spring 2026**, Pichapop Paewpolsong, AI-based image analysis for biomedical research (**Exchange student from Saranaree University of Technology), Thailand**.
43. **March 8, 2026 – Feb 7 2027**, Nirawit Kunanta, Optical coherence elastography (**Exchange student from Saranaree University of Technology), Thailand**.

US Undergraduate Internships Supervised

1. 1995-1996, Visual search in angiograms – methodology, Chris Helvig (**UNC, Computer Science**).
2. 1998, Quantification of depth perception in virtual environments, Alexander Quinn (**UCF Honor Student, Psychology Major**).
3. 1999-2002, Internet2 technology assessment, Ben Del Vento (**UCF, Computer Science**).

4. Summer 2002, Monte Carlo simulation of light propagation in skin tissues, Harshal Deshmukh (**Exchange student from University of Memphis, Tennessee**).
5. 1999-2000, Internet2 technology assessment, Ami Sun (**UCF, Graphic Arts and Computer Animation**).
6. Summer 2000, Programming of eyetracking algorithm for eyetracking head-mounted display, Jeff Rice, (**REU summer program**).
7. Summer 2002, Optical digitization & 3D modeling, Angela Tygerson, (**REU**).
Angela Tygerson received her Master degree in 2005.
8. 2001-2004, Bioinformatics 3D visualization, Christopher Furhman (**UCF Honor Student**)
Chris received his Master Degree in 2006.
9. Summer 2003, Optical motion tracking, Jason Carpentier (**REU**).
10. Summer 2003, Modeling of deformable models, Amir Tal (**REU**).
Amir Tal received his Master in Optics in 2006.
11. Fall 2005-fall 2007, technical writing experience, Claire Bagelman, (**UCF Lab Intern**).
12. Fall 2005-spring 2006, biomedical imaging, Erin Thompson, (**UCF Lab Intern**).
13. Summer 2006-spring 2008, skin and lung cancer diagnosis, Nicolene Papp (**UCF Lab Intern**).
14. Summer 2009 Philip Vanderwall, 2-photon microscopy (**University of Michigan**)
15. Summer 2009-2010, Pai-Fong Kao, Nodal aberration in MatLab (**Optics, University of Rochester**)
16. Summer 2010, Dennis Fantone, Optical system design (**MIT**)
17. Summer and Fall 2010, Tom Karo, Distortion mapping for augmented reality (**UofR**)
18. Fall 2010 & spring 2011, Katelynn Sharma, designing a cell phone camera with Forbes aspherics shapes (**UofR**)
19. Summer 2011, Sarah Carlus, Creation of Airy beams using aberration theory and propagation for imaging applications (**REU**)
20. Summer 2011, Rebecca Stabile, Nondestructive subsurface analysis with optical coherence imaging, (**REU**).
21. Summer 2011, Mallory Smith, Testing optics towards assembling the Hilbert telescope (**REU**).
22. Summer 2012, Krysta Boccuzzi, 1st Controlled results to illustrate nodal aberration theory (**REU**)
23. Summer 2012, Joyce Wu, Testing optics towards assembling the Hilbert telescope (**REU**)
24. May2012-May2013, Nicole Tjota, Gabor domain optical coherence microscopy of skin (**BME, UofR**)
25. May2012-2014, Vasanthi Balaji, Gabor domain optical coherence microscopy of skin (**BME, UofR**)
26. May 2012-2013, Joseph Tocha, OCT elastography (**BME, UofR**)
27. May 2012-2013, Tianyu Li, 3D rendering and programming (**Optics, UofR**)
28. May 2012-2014, David Oles, Nonimaging optics (**Optics, UofR**)
29. May 2012-2014, Ke Xu, Optical metrology (**Optics, UofR**)
30. Fall 2012-2015, Isaac Trumper, MRF fab. and metrology of freeform optics (**Optics, UofR**)
31. Jan. 2013-2015, Jungeun Won, Optical metrology for biomedical research (**BME/Optics, UofR**)(**Xerox Fellow**)
32. Summer 2013, Taryn Kittel, Testing optics towards assembling the Hilbert telescope (**REU**)
33. Spring 2014, Fall 2014, Trevor Ivanov, Metrology of freeform optics (**Optics, UofR**) (**REU**)
34. Jan. 2014 - 2015, Nick Cirucci, Metrology of freeform optics (**Optics, UofR**) (**REU**)
35. June 2014-spring 2015, Rebecca Pettenski, Metrology of freeform optics (**Optics, UofR**) (**REU**)
36. Sept. 2014-2017, Zirui Zang, Metrology in the Hopkins Center (**Optics, UofR**) (**Xerox Fellow**)
37. Sept. 2014-2017, Mara Lanis, Optical coherence microscopy of skin” (**BME, UofR**) (**Xerox Fellow**)
38. Spring 2015-spring 2017, Brandon Dube, Design and metrology in the Hopkins Center (**Optics, UofR**)
39. Summer15, Stephen Weilkel, Freeform metrology with a Schmidt telescope (**Physics, REU**)
40. Summer15, Michaela Piel, Imaging the tear film of the human eye (**CVS summer Fellow**)
41. Fall15-spring16, Alexander Anderson, Freeform metrology with OCT (**Optics, UofR, REU**)
42. Fall15-spring16, Jessica Bernstein, Hilbert telescope metrology (**Optics, UofR**) (**REU**)
43. Summer16, Nick Montifiore, Designed and built an autocollimator (**Optics, UofR**)
44. Fall15-spring17, Johana Escudero, Imaging with Gabor domain OCM (**Optics, UofR**)

45. Fall15-spring16, Kameron Tinhkam, Freeform telescope (**Optics, UofR**)
46. Fall16-spring17, Wen Zhou, Optical computations (**Optics, UofR**)
47. Spring17-spring19, Yue Qi, Corneal imaging with Optical Coherence Tomography (**BME, UofR**)
48. Summer16-present, Nicholas Montifiore, Generation II autocollimator for metrology (Optics, Uof R, REU)
49. Summer17, Amanda Mietus, Optical coherence tomography calibration (**Optics, UofR, REU**)
50. Summer17, Xiaojing (grace) Huang, Metrology of toroidal surfaces (**Optics UofR**)
51. Spring18, David Lippman, Design of a miniature projection lens (**Optics UofR**)
52. Summer18, Alyson Fritzmann, Metrology with Ultrasurf (**REU**)
53. Summer18, Ann Ngo, Architecture of digital image processing in Gabor-domain optical coherence microscopy with fluorescence detection (**REU**)
54. Fall18, Eleanor Haase, Hyperion: Eikonal+ augmented reality platform (**Art & Sci, UofR**)
55. Fall18-Spring19, Li Zhang, Hyperion: Eikonal+ augmented reality platform (**Optics, UofR**)
56. Fall18-summer19, Samuel Tyler Phyllips, Hyperion: Eikonal+ AR platform (**Optics, UofR**)
57. Fall18-spring19, Nicole Naselaris, NURBS modeling (**Optics, UofR**)
58. Summer19, Anthony Plonczynski, Metasurfaces design and metrology (**REU**)
59. Fall18-summer20, Andres Coletto, Metrology of freeform optics with OCT (**Optics, UofR**)
60. Fall18-Spring20, Doran Teverovsky, Metrology of freeform surfaces with Ultrasurf (**REU**)
61. Spring21-Spring22, Alex Wansha, Reconfigurable CGH (**REU**)
62. Summer21, Ian Carter, Binodal astigmatism (**REU**)
63. Fall21-Spring22, Fall 22 Glory Linbach, AOSLO (**REU**)
64. Fall21-Spring23 Nicholas Gaitanis, OCE (**REU**)
65. Summer21-Fall21, Yuning Xia, Ultrasurf metrology (**Optics, UofR**)
66. Spring20-Spring22, Yuchen Wu, Hibert telescope NAT (**Optics, UofR**)
67. Fall21-Spring22, Madeleine LaChance, Hibert telescope NAT (**REU**)
68. Fall21-Spring22, Soh Hang Liu, AOSLO project (**Optics, UofR**)
69. Summer22-Fall23, Chanseung Lee, Freeform optics metrology (**START program/Optics, UofR**)
70. Summer22, Xiaojing (grace) Huang, Design of zoom lenses (**Optics, UofR**)
71. Spring 23, Madeleine LaChance, Reconfigurable freeform metrology (**REU**)
72. Summer23, Francis Bahk, Mathematics and optics (**REU**)
73. Fall22-Spring24, Jason Lau, Freeform optics measurements (**REU**)
74. Fall22-Spring24, Luke Park, Sparce optics optimization (**Optics/CS, REU**)
75. Summer23-Spring24, Josh Clement, Freeform optics metrology (**START program/Optics, UofR**)
76. Summer22-Spring24, Glory Linebach, Optics for AOSLO (**REU**)
77. Summer22-Spring24, Angelina Wang, Lens design for AOSLO display (**REU**)
78. Summer23-Spring25, Angelica Persaud, Freeform optical metrology (**REU**)
79. Summer24, Alyssa Almekinder, Automation of alignment of an eye-tracker and a large screen display (**REU**)
80. Fall24-Spring25, Cameron Lowe, Freefrom references and round robin (**UR Mech**)
81. Fall24-Spring25, Anjeli, Estrada Alvarez, Freefrom references and round robin (**UR Mech**)
82. Spring 24-Spring 26 Ethan Hundley, Extended range eyetracking (**UR Optics**)
83. Summer25, Nathan Hart, High -Speed Eyetracking (**REU**)
84. Fall25-Spring 26, Trevor Shooshan, Fine eyetracking during fixation (**UR Optics**)

Also from 1997-1998 I participated in the following undergraduates programs: the LEAD Scholars Program; 1996-2003; the UCF/CREOL REU summer-program through sponsoring students and offering seminars to the students; the UCF Women Research Center for the promotion of women in research. From 2010-present, I participated in the Xerox Undergraduate Program at Rochester. From 2013-present, I volunteer as a mentor for WISTEE-connect that promotes entrepreneurship for women in science and engineering and also serve on the board of WISTEE.

High-School Student Internships Supervised

- 2001, Optical Imaging Fundamentals, Masha Shikari, University High School, Orlando, FL.
 - 2002-2006 Scaling of Medical Models for Augmented Reality, Alexa Sider and Neha Hippalgaonkar, Lake Highland Preparatory School, FL
 - Won 3rd place at the County Science Fair 2003.
 - Won 1st place at the County and State Science Fairs 2004.
 - Won 2nd place at the County and State Science Fairs 2005 + Price from Yale University for the most creative project, Price from Kodak for best use of pictures, and Price from the US Armed Forces.
 - Won 4th place as teams at the International Science Fair in Phoenix Arizona (+\$500 prize); \$2,000 IBM Scholarship to split between Neha and Alexa spring 05.
 - IEEE Computer Society – 2nd place Award - \$400.00 prize for each team member. Spring 05.
 - One of 4 finalists in their category in Siemens Westinghouse Writing Essay Competition. Fall 2005.
- Alexa and Neha have now joined the University of Virginia and the University of California at Berkeley, respectively.
- John Tamkin, Gouy Phase, Junior at San Marino High School, CA
 - Yvan Scher, Building 3D models using photographs with GPS co-registration, summer 2010, Junior at Pittsford-Mendon High School, NY
 - Reid Ferguson, Alignment of a Telescope, spring 2013, New Jersey High School

Mentoring of Ph.D. and M.S. Students: The ODALab is inclusive, As a diverse group, we strive for rigor in the scientific method and excellence, together with innovation and impact.

<i>Student, Degree, Department Dissertation/Thesis Title</i>	<i>Degree Status</i>	<i>Job Status</i>
University of North Carolina at Chapel Hill (MS 1)		
Anantha Kancherla, M.S., CS Non-thesis Option Project: Calibration of Augmented Reality Head-Mounted Display	Graduated spring 1995	Microsoft Corporation Seattle95-present
Norbou Buchler Undergraduate Student 1994-1996 Project: Perception in HMDs	Graduated spring 1996	US Army Research Laboratory (Aberdeen Proving Ground, MD) Cognitive PhD Scientist 2009-present

University of Central Florida (MS 4; PhD 17)		
Yohan Baillot, M.S., CS Thesis: First implementation of the Virtual Reality Dynamic Anatomy (VRDA) Tool	Graduated spring 1999	Naval Research Lab / ITT Corp. Washington DC (1999-2010) 2011-present ARcortex
Charmaine Harris, M.S., Optics Thesis: Normalized Second-order Statistics for Texture Characterization	Graduated spring 1999	Life Touch Detroit 1999-present

Ricardo Martins, M.S., Optics Project: Wearable Outdoors Displays	Graduated spring 2003 (MS) fall 2010 (PhD)	Northrop Grumman 16-present
1. Larry Davis, Ph.D., ECE Thesis: Conformal Tracking for Virtual Environments	Graduated spring 2004	BCD Strategy Group 2025-present
2. Felix Hamza-Lup, Ph.D., CS Thesis: Dynamic Shared State Maintenance in Distributed Virtual Environments	Graduated summer 2004 (co-directed w. C. Hughes, CS)	Professor 2017-present Georgia Southern Univ.
3. Vesselin Shaoulov, Ph.D., Optics Thesis: Design and Assessment of Compact Optical Systems towards Special Effects Imaging	Graduated fall 2004	CTO/Management Consulting
4. Ceyhun A. Akcay, Ph.D., Optics Thesis: System Design and Optimization of Optical Coherence Tomography	Graduated summer 2005	LivaNova, 2025-present
Supraja Murali, M.S., Optics Thesis: Design of a Dynamic Focusing Microscope Objective for OCT Imaging	Graduated fall 2005	PhD UCF
5. Anand Santhanam, Ph.D., CS Thesis: Modeling, Simulation, and Visualization of 3D Lung Dynamics	Graduated summer 2006 (Co-directed w. S. Pattanaik, CS)	ViewRay Systems 2025-present
6. Cali Fidopiastis, Ph.D., IEMS Thesis: User-Centered Virtual Environment Assessment and Design for Cognitive Rehabilitation Applications	Graduated summer 2006 (Co-directed w. P. Kincaid, IST)	Independent (2022-present)
7. Weiyao Zou, Ph.D., Optics Thesis: Curvature Sensing and Wavefront Estimation via Zonal	Graduated spring 2007	Zyconn (25-present)

Reconstruction		
8. Mohamed Salem, Ph.D., Optics Thesis: Effects of Polarization and Coherence on the Propagation and Detection of Stochastic Electromagnetic Beams	Graduated fall 2007 (co-directed w. E. Wolf, Univ. of Rochester)	2011- present Optical Consultant
9. Kit-Iu Cheong, Ph.D., Optics Thesis: Analysis of an Optical Coherence Imaging Modality on the Detection of an Abnormality in Biological Tissue with a Nanoparticle Contrast Agent	Graduated fall 2007 (co-directed w. E. Clarkson, Univ. of AZ)	Opt. Syst Design 2019-present
10. Jeff Covelli, Ph.D, IEMS Thesis: Field Of View Effects On Reflexive Motor Response In Flight Simulation	Graduated spring 2008 (co-directed w. P. Kincaid, IST)	SAIC 2020-present
11. Ozan Cakmakci, Ph.D., Optics Thesis: Meshfree Approximation methods for free-form optical surfaces with applications to head-worn displays	Graduated fall 2008	GoogleX 2014-present
12. Kye-Sung Lee, Ph.D., Optics Thesis: Optical Coherence Endoscopy	Graduated fall 2008	Korea Basic Sci. Inst. 2012-present
13. Supraja Murali, Ph.D., Optics Thesis: Optical Coherence Microscopy	Graduated summer 2009	Meta 2024-present
14. Florian Fournier, Ph.D., Optics Thesis: Freeform Reflector Design With Extended Sources	Graduated summer 2010	Apple (2014-present)
15. Tobias Schmid, PhD., Optics Thesis: Development of Nodal Aberration Theory and Application to the Alignment of Optical Systems	Graduated summer 2010	Keysight 2025-present

16. Panomsak Meemon, Ph.D. Optics Thesis: Development of Optical Coherence Tomography For Tissue Diagnostics	Graduated fall 2010	Suranaree University of Technol., Thailand - Professor
17. Ilhan Kaya, Ph.D., CS Thesis: Mathematical and computational methods for freeform optical shape description	Graduated fall 2013	VESTEL Turkey 13-present Özyeğin University 18-present

University of Rochester (MS 12; PhD 31)		
Sophie Vo, M.S., Optics Non-Thesis Option Project: Airy beams	Graduated spring 2009	PhD UofR Optics graduated 2025
Robert Gray, M.S., Optics Non-Thesis Option Project: Optical aberrations	Graduated spring 2011	PhD UofR Optics Graduated 2015
Chen Bin Zhang, M.S., BME Non-Thesis Option Project: OCT elastography	Graduated summer 2011	VA Boston Healthcare System
18. Cristina Canavesi, Ph.D., Optics Thesis: Subaperture Conics and Geometric Concepts Applied to Freeform Reflector Design for Illumination	Graduated fall 2013	LighTopTech 2014-2026
19. Kyle Fuerschbach, PhD., Optics Thesis: Freeform, ϕ -polynomial Optical Surfaces: Optical Design, Fabrication, and Assembly	Graduated spring 2014	Sandia National Labs 2014-present
Ying-Ju (Lucy) Chu, M.S. Thesis: Development of Crawling Wave Elastography	Graduated summer 2015	PhD at RIT graduated 2021

Zongjie (George) Chen, M.S. Thesis: Design and Illumination for a Cerny-Turner Spectrometer	Graduated summer 2015	Special Optics
20. Robert Gray, Ph.D., Optics Thesis: Investigation of the Field Dependence of the Aberration Functions of Rotationally Nonsymmetric Optical Imaging Systems	Graduated fall 2015	Vuzix 2016-present
21. Aaron Bauer, Ph.D., Optics Thesis: Optical design with freeform surfaces, with applications in head-worn display design	Graduated summer 2016	University of Rochester 2016-present Assistant Professor
22. Jinxin Huang, Ph.D., Physics Thesis: Task-based Assessment of OCT for Measuring the Tear Film Dynamic	Graduated summer 2016	Apple 2022-present
23. Jianing Yao, Ph.D., Optics Thesis: Optical Coherence Tomography Metrology of Gradient Refractive Index Material and Freeform Optical Surfaces	Graduated summer 2016	Meta 2019-present
Yifan Niu, MS, Optics Thesis: Hyperion: Augmented Reality Platform	Graduated summer 2018	DJI 2018-present
24. Nan Zhao, PhD, Optics and Mechanics Thesis: Nodal Aberration Theory with the Hilbert Telescope Assembly	Graduated summer 2018	Changchung Institute of Technology, China 2018-present
Jacob Reimers, MS, Optics Non-Thesis Option Freeform Optics in Spectrometers	Graduated summer 2019	Harris-L3 2017-present

25. Changsik Yoon, PhD, Optics Thesis: Gabor-domain Optical Coherence Microscopy Combined with Fluorescence Microscopy	Graduated summer 2019	LG Innotek 2025-present
26. Eric Schiesser, PhD, Optics Thesis: Design Methods for Two Regimes of Unobscured Reflective Optical Systems	Graduated fall 2019	Keysight 2025-present
27. Fernando Zvietcovich Zegarra, PhD, ECE Thesis: Dynamic Optical Coherence Elastography	Graduated fall 2019 (co-advised w. K.Parker, ECE)	Pontificia U. Católica del Peru 2024-present Assistant Professor
28. Daniel Nikolov, PhD, Optics Thesis: Software and Hardware Enabling the Next-Generation Near-Eye Displays	Graduated summer 2020 (co-advised with N. Vamivakas, Optics)	University of Rochester 2020-present Assistant Professor
Yiwen Fan, MS, Optics Thesis: Numerical calculation of Zernike polynomials and the sample selection method of NURBS spline generation	Graduated summer 2020	PhD program, UofR graduated 2026
Eric Kwasniewski, MS, Optics Thesis: Interferometric Null Optical Testing with a CGH	Graduated spring 2021	Teledyne-FLIR 2025-presnet
29. Di Xu, PhD, Optics Thesis: Cascade Optical Coherence Tomography (C-OCT) for Surface Form Metrology of Freeform Optical Components	Graduated fall 2020	Independent 2024-present
30. Nick Takaki, PhD, Optics Thesis: Orthogonal polynomials and mathematical surface descriptions in freeform optical design	Graduated spring 2021	Keysight 2025-present

Alen Philip, MS Optics Thesis: Real-time rendering of and interacting with optical systems in three-dimensions	Graduated summer 2021	Zeiss 2022-present
Chi Zhang, MS Optics Thesis: Robust numerical evaluation of Chebyshev polynomials and bridging optical design, visualization, and fabrication software	Graduated summer 2022	PhD Program, UofR
31. Romita Chaudhuri, PhD, Optics Thesis: Reconfigurable interferometric null test for freeform metrology using a high-definition spatial light modulator	Graduated fall 2022	ASML 2022-present
32. Jonathan Papa, PhD, Optics Thesis: Survey of Three- and Four Mirror Freeform Reflective Imagers Using Analytically Designed Starting Points	Graduated summer 2023	NASA 2021-present
33. Gary Ge, MD-PhD, Optics Thesis: Reverberant Elastography and Speckle Analysis for Brain Characterization	Graduated spring 2023(PhD) (co-advised with K. Parker, ECE) spring 2025(MD)	Portland, Oregon University of CA. SF Residency
34. Yuxuan Liu, PhD, Optics Thesis: Analytical aberration theory for plane-symmetric optical systems and its application in the analysis of distortion in freeform spectrometers	Graduated summer 2024	Apple 2024-present
Hangyue (Eric) Zou, MS Optics Thesis: Reference Structures for Freeform Optical Systems	Graduated summer 2024	PhD program, UofR
Woo Kim, MS Optics Illumination Optics	Graduated Summer 2024	ASML 2024-present

36. Jeremy Goodsell, PhD, Optics Thesis: Fundamentals of Waveguides in Augmented Reality	Graduated spring 2025	Keysight 2025-present
37. Pei Xiong, PhD, Optics (co-advisor) Thesis: Bridging the gap between metasurface nanophotonics and AR system engineering	Graduated summer 2025 (co-advised with N. Vamivakas, Optics)	Google 2025-present
38. Jessica Steidle, PhD, Optics Thesis: Optical Image & Pupil Aberrations	Graduated spring 2026	Soter 2026-present
39. <u>Yiwen Fan, PhD, Optics</u>	Estimated 2026	TBD
40. <u>Nikolas Romer, PhD, Optics</u>	Estimated 2026	TBD
41. <u>Renuka Manjula, PhD, Optics</u>	Estimated 2026	TBD
41. <u>Chi Zhang, PhD, Optics</u>	Estimated 2027	TBD
40. <u>Matthew Ferguson, PhD, Optics</u>	Estimated 2028	TBD
41. <u>Anis Idrizovic, PhD, Optics</u>	Estimated 2028	TBD
42. <u>Hangyue Zou, PhD Optics</u>	Estimated 2029	TBD
43. <u>Anes Macic, PhD Optics</u>	Estimated 2029	TBD
44. <u>Jade Barret, PhD, Optics</u>	Estimated 2030	TBD
45. <u>Hoatian (Terry) Zhou</u>	Estimated 2031	TBD

Other Graduate Students Supervised with Significant Publications

- Emily Edwards, 1992-1993 (Physics Major).
Project: *Miniature video camera design for virtual environments.*
- Richard Holloway, 1993-1995 (in part) (Advisor: Dr. Brooks).
Title of Ph.D. Dissertation: *Registration errors in augmented reality systems.*
- Chunyu Gao, 1999-2000 Mechanical Engineering / Optics,
Project: *Optomechanical design of a projective head-mounted display.*

Postdoctoral Fellows

- Liyun Yu, *Texture based image synthesis* 1996-1997
- Hong Hua, *Optical instrumentation for virtual environments* (1998-1999)
- Haocheng Zheng, *Optical coherence tomography instrumentation* (1999-2001)
- Yonggang Ha, *Optical instrumentation for virtual environments* (2000-2002)
- Pascale Parrein, *Optical coherence instrumentation and microscopy* (2001-2003)
- Felix Hamza-Lup, *Networked augmented reality environments* (2004-2005)
- Cali Fidopiastis, *User-centered virtual environment assessment and design for cognitive rehabilitation*, (2006-2007)
- Anand Santhanam, *Lung dynamics for radiation oncology*, (2006-2008)
- Kye-Sung Lee, *Optical Coherence Microscopy*, (2009-2010)

10. Panomsak Meemon, *Optical Coherence Microscopy* (2010-2011)
11. Natthani Meemon, *Clinical Imaging, Optical Coherence Microscopy* (2011)
12. Bin Ma, *1D Q-Forbes polynomials* (2012-2013)
13. Patrice Tankam, *Vision Science, Optical Coherence Microscopy* (2012-2014)
14. Cristina Canavesi, *Freeform Optics* (2014-2015)
15. Fei Cheng, *Metasurfaces* (2017-2018)
16. Aaron Bauer, *Freeform Optical Design* (2016-2017)
17. Daniel Nikolov, *Metaform* (2020-2021)
18. Hamidreza Asemani, *Optical Coherence Elastography* (2022-2025)

Research Associates/Senior Scientists/Research Faculty

- 1 Catherine Meyer, Ed.D., *Education and human factors* (1996-2003)
- 2 Yonggang Ha, Ph.D., *Optical design for virtual environments* (2002-2005)
- 3 Anand Santhanam, Ph.D., *Modeling and visualization of lung dynamics* (2008-present)
- 4 Christina Dunn, Ph.D., *Optical fabrication* (2009-2010)
- 5 Robert Gray, M.S., M.A., *Physics* (2009-2010)
- 6 Virgil Duma, Ph.D., *Optomechanics* (2009-2010)
- 7 Yong Song, Ph.D., *Optoelectronics* (2009-2010)
- 8 Kye-Sung Lee, Ph.D., *Optical Coherence Microscopy*, (2011-2013)
- 9 Martin Huarte-Espinosa, Ph.D., *Computational Physics* (2013-2014)
- 10 Adam Hayes, PhD., *Computational Science Engineer* (2014-2018)
- 11 Patrice Tankam, PhD., *Vision Science, Optical Coherence Microscopy* (2015-2017)
- 12 Cristina Canavesi, PhD., *Freeform Optics* (2015)
- 13 Aaron Bauer, PhD., *Freeform Optical Design* (2017-2021) – promoted to Research Assistant Prof. 2021
- 14 Kai Xin, PhD., *Freeform Optics Software* (2018-2021)
- 15 Fei Cheng, PhD., *Metasurfaces* (2019-2020)
19. Ozgur Karci, PhD., *Nodal Aberration Theory and Metrology* (2019-2021)
20. Daniel Nikolov, PhD., *Soft. And Opt. Engineer* (2021-2026)
21. Ibrahim Akkaya, PhD., *GDOCM-Fluorescence* (2023-2024)

Active Member / Mentor on other Students Dissertation Committees / Chair

Graduate Students

University of Rochester

- Blair Unger, PhD Dissertation, *Dimpled Planar Light Guides* (spring 2009) (Advisor: Duncan Moore)
- Ying (Melissa) Geng, PhD Dissertation, *Optimizing the Quality of Retinal Images in the Living Mouse Eye* (fall 2011) (Advisor: David Williams)
- John Harker, PhD Dissertation (Chair), *Measuring and Altering Ferroelectric Domain Structures in Lead Perovskite Single-Crystals* (fall 2011) (Advisor: David Quesnel)
- Abbie Tippie, PhD Dissertation, *Aberration Correction in Digital Holography* (spring 2012) (Advisor: Jim Fienup)
- Xinye Lou, PhD Dissertation, *Spatial Coherence interferometry and its applications* (fall 2012) (Advisor: Duncan Moore)
- Peter McCarthy, PhD Dissertation, *Gradient Index Materials, Design and Metrology for Broadband Imaging Systems* (fall 2014)(Advisor: Duncan Moore)
- Robin Sharma, PhD Dissertation, *In Vivo Two-Photon ophthalmoscopy: Development and Applications* (fall 2015) (co-Advisors: David Williams and Jennifer Hunter)
- Sivan Salzman, PhD Dissertation, *Optimal magnetorheological fluid for the finishing of chemical-vapor-deposited zinc sulfide* (summer 2016) (Advisor: John Lambropoulos)
- Justin Winkler, PhD Dissertation, *Weak-value Slow-light Interferometry* (fall 2017) (Advisor: John Howell)

Daniel Lum, PhD Dissertation, *Characterizing high-dimensional optical systems with applications in compressive sensing and quantum data locking* (spring 2019)(Advisor: John Howell)

Samuel Steven, PhD Dissertation, *Optical design of translational broadband reflective adaptive optics ophthalmoscopes* (spring 2020) (Advisor: Julie Bentley & Alfred Dubra)

Aaron Michalko, PhD Dissertation, *Advances in Optical Surface Metrology by Phase and Prescription Retrieval* (fall 2020) (Advisor: Jim Fienup)

Jiakai Lyu, *Wide-field wavefront control for virtual reality and peripheral vision, (Status: passed proposal)(spring 2022)(Advisor: Geunyoung Yoon)*

Tyler Godat, PhD Dissertation, *Functional Imaging and Classification of Retinal Ganglion Cells in the Living Primate Eye* (spring 2023) (Advisor: David Williams)

David Lippman, *Design and metrology of freeform gradient-index optics for imaging and illumination* (fall 2023) (Advisor: Duncan Moore & Greg R. Schmidt)

Quang Nguyen, *Controlling partially coherent light* (fall 2025) (Advisor: Nick Vamivakas)

Universidad de Madrid (Spain)

Pilar Urizar, PhD dissertation, *Low-cost and versatile optical biometer scanning components and binocular afocal projection system for use in cataract and presbyopia treatment planning* (fall 2023) (Advisors: Andrea Curatolo, Enrique Gamba Urralburu, Alberto de Castro Arribas)

IMT Atlantique Campus de Brest (France)

Soukaina Chakir, PhD Dissertation, *Wide field of view automotive head up display using foveal optics for augmented reality* (fall 2022) (Advisors: Jean Louis de Bougrenet de la Tocnaye & Kevin Heggarty)

Pierre Mermlot, *Challenges and development of an augmented reality head up display for the automotive* (fall 2025) (Advisor: Jean-Louis Bourgenet de la Tocnaye).

Antoine Pielot, *Conception et realisation de systemes de projection retinienne integrables dans une lentille de contact* (spring 2026) (Advisor: Jean-Louis Bourgenet de la Tocnaye).

Université Jean Monnet, Saint-Etienne (France)

Thomas Houllier, *Freeform imaging optical systems/Optical design and deflectometry for surface metrology* (spring 2021) (Advisor: Thierry Lepine)

Laboratoire d'Astrophysique de Marseilles (France)

Gregoire Hein, *Focal plane segmentation using freeform optics for high-resolution planetary observation, (Fall 2020)* (Advisor: Marc Ferrari)

University of Arizona

Kit-Iu-Cheong, Ph.D. Dissertation, *Analysis of an optical coherence imaging modality on the detection of an abnormality in biological tissue with a nanoparticle contract agent. (fall 07)(Advisor: Eric Clarkson, Mathematics, Univ. of Az)(I provided the topic and co-advised her throughout her dissertation)*

John M. Tamkin Sr., Ph.D. Dissertation, *A study of image artifacts caused by structured mid-spatial frequency fabrication errors on optical surfaces* (spring 2010) (Advisor: Tom Milster, Optics, Univ. of Az)

University of Central Florida

Andrey Krywonos, Ph.D. Dissertation, *Predicting surface scatter using a linear systems formulation of non-paraxial scalar diffraction* (fall 06) (Advisor: Jim Harvey, Optics, UCF).

Antonio Moreno, Ph.D. Dissertation, *Registration of PET and SPECT* (fall 06) (Advisor: Isabelle Bloch, ENST-Paris).

Pierre Lecaruyer de Lainsecq, Ph.D. Dissertation, IOTA-France, *Biochips design* (fall 06)
(Advisor: Michael Canva, IOTA-France).

Janet Milliez, Ph.D., *Up-conversion in rare earth doped micro-particles applied to 2D displays* (spring 06)
(Advisor: Michael Bass, College of Optics and Photonics: CREOL & FPCE).

Jiangjian Xiao, Ph.D. Dissertation, *Image-based view synthesis* (fall 04)
(Advisor: Murabak Shah, CS, UCF).

Chandran Reddy, Master Thesis, *A non-obtrusive head-mounted face capture system*
(summer 03) (Advisor: George Stockman, CS, Michigan State University).

Glenn Stellar, Ph.D. Dissertation, *High efficiency hyperspectral imaging (HEHSI)*, (spring 03) (Advisor:
Glenn Boreman).

Dijana Bugonovic, Master Thesis, *A non-paraxial scalar treatment of diffraction grating behavior* (summer
2002) (Advisor: James Harvey).

Patrick Thompson, Ph.D. Dissertation, *Optical performance of grazing incidence X-ray/EUV telescopes for
space science applications* (spring 2000) (Advisor: Dr. Harvey).

Ola Harrysson, Ph.D. Dissertation, *Development of a knee-joint prosthesis* (spring 2000)
(Advisor: Yasner Hosni).

Dimitrios Charalampidis, Ph.D. Dissertation, *Analysis of images based on wavelets and multifractals with
application to remote sensing* (spring 2000) (Advisor: Takis Kasparis).

Jui Lin Chen, Ph.D. Dissertation, *Development of a means of measuring and responding to the
navigational complexity of a virtual environment.* (fall 99) (Advisor: Kay Stanney).

Jason Schaeffer, Master Thesis, *Design of an infrared antenna characterization system* (spring 99)
(Advisor: Glenn Boreman).

Anita Kotha-Thompson, Ph.D Dissertation, *Scattering effects of machined optical surfaces* (spring 98)
(Advisor: James Harvey).

Curtis Lisle, Ph.D Dissertation, *A framework for distributed computation of recursive, physically-based
models* (spring 98) (Advisor: Rebecca Parsons).

Undergraduate Students (Thesis)

Nattorn Pongratananukul, Honors' Thesis, *Texture segmentation using fractal features*, (Honors B.S. in
ECE, spring 2000) (Advisor: Dr. Takis Kasparis).

Chris Ingrassia, Honors' Thesis, *Segmentation and tracking of the coronary arteries*, (Honors B.S. in CS,
spring 99) (Advisor: Dr. Shah).

Irene Snyder, Honors's Thesis, *The role of temporal proximity in grouping and object formation*, (Honors,
B.A. in Cognitive Psy, spring 94) (Advisor: Dr. C. Burbeck).

Charlotte deBos, Senior Thesis, *Comparison of cavity ring-down spectroscopy and existing trace gas
detection instrumentation*, spring 2017 (Co-advised with Prof. John Kessler).

International Academic Partnerships for Teaching

2025 *Suranaree University of Technology*. Thailand. Taught a two day short course August 18-19,
2025 on Freeform Optics

2022 *L'Ecole Supérieure Nationale de Physique in Marseilles* (France). Hosted a summer intern.

2014-2017 *Adjunct Professor of Beijing Institute of Technology*

2010-2012 *L'Ecole Supérieure D'Optique in Bordeaux* (France). Helped launch the creation of a new
satellite institute in Bordeaux focused on a Master in Optics and Numerics.

1998-present *L'Ecole Supérieure D'Optique in Orsay* (France). I offered second and third year students
one position for a 3-6 month internship in my laboratory.

1998-2008 *L'Ecole Supérieure Nationale de Physique in Marseilles* (France). I offered third year
students one position for a 6 month internship in my laboratory.

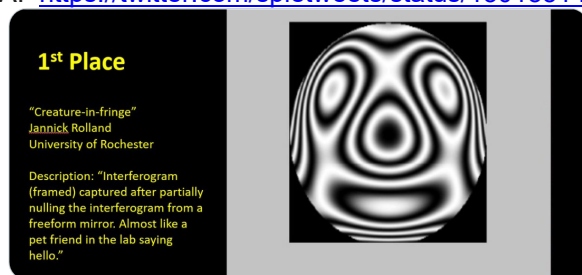
- 1998-2000 *L'Institut des Sciences de L'ingénieur in Clermont Ferrand* (France). Dr. Peuchot, Head of the Computer Vision Lab, and I collaborated on methods for augmented reality.
- 1998-2000 *El Centro de Investigaciones in Optica (CIO)*, Leon, Mexico. Taught a short course in Lens Design at CIO in April-May 99.

Mentoring of Graduate Students Towards Fellowships/AWARDS reported under Teaching or Research Awards.

RESEARCH (also see www.odalab-spectrum.org)

RECOGNITION AWARDS

- 2025 **Hajim Lifetime Achievement Award**
- 2025 **A.E. Conrady Award for Optical Engineering** (established by SPIE) “For pioneering contributions to the development and application of freeform optics”
- 2024 **One of 101 first inductees in the XR Hall of Fame** (established by AWE)
- 2022 **Inaugural Member of the Virtual Reality Academy** (established by IEEE VGTC)
- 2020 **Fellow of the National Academy of Inventors (NAI)**
- 2020 **Fellow of the EU Academy of Sciences (EUAS)**
- 2020 **Nominated to run for Vice-President of Optica (former OSA)**
- 2020 **Joseph Fraunhofer Award / Robert M. Burley Prize Recipient – awarded by OSA** “For innovative and significant contributions to the fields of optical instrumentation and system engineering”
- 2020 **1st place with “Creature-in-fringe”,** Fringe Art Competition of the SPIE Conference on Advanced Metrology, "Interferometry XX", SPIE Optics + Photonics 2020 meeting, August 23-27, 2020, CA, USA. <https://twitter.com/spietweets/status/1301551411365208064?lang=en>



- 2019 **Rochester Engineer Distinction Award**
- 2019 **Alumna of the Year in Optical Sciences at the University of Arizona**
- 2019 **ISCAS (International Society for Computer Aided Surgery) best paper award**
- 2018 **International Tissue Elasticity Conference (ITEC) – Avignon, France best paper award**
- 2018 **International Tissue Elasticity Conference (ITEC) – Avignon, France best poster award**
- 2018 **Renewed as Director of the NSF-I/UCRC Center for Freeform Optics 2018-2023**
- 2018 **Recognized by AWE as one of “8 influential women pioneers in Augmented and Virtual Reality** (<https://augmentedworldexpo.com/ar-vr-women-pioneers/>)
- 2017 **Edmund A. Hajim Outstanding Faculty Award**
- 2014 **David Richardson Medal – awarded “For visionary contributions and leadership in optical design and engineering, enabling noninvasive, optical biopsy”**
- 2013 **Director of the NSF-I/UCRC Center for Freeform Optics 2013-2018**
- 2012 **Director of the R.E. Hopkins Center for Optical Design and Engineering**
- 2012 **Recognized at “The Book” event, University of Rochester, for role as Associate Editor of Handbook of Visual Displays (2012)(new edition in 2015)**

- 2009 Endowed as the **Brian J. Thompson Professor of Optical Engineering** – Univ. of Rochester
- 2009 **Fellow of the NYSTAR Foundation** (Award 2009-2012)
- 2008 Recognized at **Women Making History Celebration 2008 – Faculty Women of Prominence.**
- 2008 **Joint Appointment in the College of Medicine** at UCF
- 2008 **Fellow of the SPIE**
- 2007 **Promotion to Full Professor of Optics with joint appointments in CS, ECE, and Modeling and Simulation** (all part of the College of Engineering).
- 2007 **Won 1st place** with student Ozan Cakmakci for the “EyeGlass Display” in the Technology and Fashion Show at CTIA Wireless 2007.
- 2005 **Honoree Women’s Research V “Honoring the Women of Physics” October 20, UCF.**
- 2004 **Fellow of the Optical Society of America.**
- 2001 **Distinguished Researcher Award** *for the UCF Centers and Institutes*, spring 2001.
- 2001 **Research Incentive Award**, UCF for Academic Year 2001.
- 2000 At the 2000 Photo Marketing Association (PMA) show in Las Vegas, Sm**ART**lens™ won the Digital Imaging Marketing Association (**DIMA**)’s **prestigious “Most Innovative Product Line” award**. As head of optics research for Sm**ART**lens Corporation, our contribution to the Award was the conceptual design of a compact relay lens for imaging texture in camera lenses, the associated optical texture phase plates, and the software “Voila!” for modeling of painterly effects in photographs. Other companies honored for their innovative digital products were Canon U.S.A. Inc., Fuji Photo Film U.S.A. Inc., Eastman Kodak Co., Astron Systems Inc., Sony Electronics Inc.
- 1998 **Research selected as Meritorious Application for Internet2 Research at UCF** which contributed to UCF receiving in Spring 99 a High Performance Connection grant (ANI-9729623) from the National Science Foundation’s Advanced Networking Infrastructure and Research (ANIR) program to support a connection to the vBNS (very-high-speed Backbone Network Service), a high-performance network that interconnects NSF supercomputing centers and research institutions that are selected under NSF’s High-Performance Connections program.
- 1997 **NIH First Award (Career/R29) (5 years).**

RECOGNITION AWARDS TO STUDENTS I MENTORED

- 2026 Finalist in the AR Challenge Competition & 2nd Place, SPIE Photonics West, Renuka Naranayan
- 2026 Finalist in the AR Challenge Competition & 3rd Place, SPIE Photonics West, Yiwen Fan
- 2026 Finalist in the AR Challenge Competition, SPIE Photonics West, Chi Zhang
- 2025 Best paper award, Optica Freeform Optics Topical Meeting, Denver, CO to Renuka Naranayan
- 2024 The Walt and Bobbi Makous Prize to Angelina Yang (undergraduate)
- 2023 The Walt and Bobbi Makous Prize to Glory Linebach (undergraduate)
- 2023 Kevin P. Thompson Optica Design Innovator Award to Eric Schiesser, Optica (\$5,000)
- 2022 Finalists in the Rochester SPIE Chapter competition
- 2020 Robert S. Hilbert Memorial Optical Design Competition to Nick Takaki (\$2,000)
- 2020 2020 Outstanding Dissertation Awarded to Fernando Zvietcovich
- 2020 SPIE-Franz Hillenkamp Postdoctoral Fellowship Awarded to Fernando Zvietcovich
- 2020 Kevin P. Thompson Optical Design Innovator Award to Aaron Bauer, OSA (\$5,000)
- 2019-20 Fellowship to Di Xu, Corning Corporation (\$30,000)
- 2019 Kidger Memorial Scholarship Award 2019 to Nick Takaki (\$5,000)
- 2019 Kevin P. Thompson Optical Design Innovator Award to Kyle Fuerschbach, OSA
- 2018 Best paper award for Reverberant 3D Optical Coherence Elastography, 1st place, at The Sixteenth International Tissue Elasticity Conference, Sept. 9-12 (2018), Fernando Zvietcovich

2018 Best poster award for Gaussian Shear Wave Propagation in Viscoelastic Media: Validation of an Approximate Forward Model, 1st place, at The Sixteenth International Tissue Elasticity Conference, Sept. 9-12 (2018), Fernando Zvietcovich

2017 Kidger Memorial Scholarship Award 2017 to Jonathan Papa (\$5,000)

2016-19 NASA Fellowship to Jonathan Papa (\$223,000)

2016 LINK Foundation Fellowship to Daniel Nikolov (\$28,500)

2015 The Walt and Bobbi Makous Prize to Jungeun (Jenny) Won (undergraduate)

2015 Outstanding Dissertation Award, University of Rochester to Kyle Fuerschbach

2015 Donald M. and Janet C. Barnard Fellowship 2011 to Daniel Nikolov (\$2000)

2015 CYC student prize for Excellence at the Institute of Optics to Jianing Yao won (\$500)

2015 Optical Research Associates Lens Design Competition Award to Jacob Reimers for his design of a compact freeform spectrometer (\$2,000)

2015 Kidger Memorial Scholarship Award 2015 to Eric Schiesser (\$5,000)

2014-19 LLE Fellowship to Eric Schiesser (\$29,100 annual for 5 years)

2014 Optical Fabrication and Testing (OFT) Travel grant to Jianing Yao for her work on metrology of freeform optics (\$1,500)

2014 Optical Research Associates Lens Design Competition Award to Aaron Bauer for his design of a freeform optics head worn display (\$2,000)

2014 Aaron Bauer, Hilbert Travel Award (\$1,000)

2014 Aaron Bauer, SPIE Fellowship in optical science and engineering (\$2,000)

2013 Jinxin Huang, SPIE Fellowship in optical science and engineering (\$2,000)

2013 Cristina Canavesi won 1st place in the Simon Games business simulation and received a full-tuition scholarship (2013-2015) for the Executive MBA program at Simon School (~\$80,000)

2013 Cristina Canavesi won CYC student prize for Excellence at the Institute of Optics (\$500)

2012 Best paper award for Null Test Freeform at Optical Fabrication and Testing, OFT 2012, 1st place, Kyle Fuerschbach

2012 McAIN Business Competition – Cristina Canavesi wins 1st place (\$10,000)

2012 William H. Price SPIE Scholarship to Cristina Canavesi (\$5,000)

2011 Kidger Memorial Scholarship Award 2011 to Kyle Fuerschbach (\$5,000)

2011 Award of Synopsys in Optical System Design USA Competition to Bin Ma (\$2,000)

2011-14 Carl Zeiss Fellowship to Aaron Bauer and Robery Gray (\$120,000)

2010-13 Synopsys Fellowship to Cristina Canavesi (\$130,000)

2010-13 NASA GSRP Fellowship to Robert Gray (\$90,000)

2010 Best paper award on Non-imaging Optics, 1st place, IODC 2010, Florian Fournier

2010 Best paper award on Alignment of Optical Systems, 2nd place, OFT 2010, Tobias Schmid

2010 SPIE Fellowships in Optical Science and Engineering to Florian Fournier (\$4,000)

2010 SPIE Fellowships in Optical Science and Engineering to Sophie Vo (\$2,000)

2010 Optical Research Associates Lens Design Competition Award to Kyle Fuerschbach, for his design of a lithographic lens (\$5,000)

2009-14 LLE Fellowship to Kyle Fuerschbach (\$125,000)

2008 Kidger Memorial Scholarship Award 2008 to Tobias Schmid (\$5,000)

2008 William H. Price SPIE Scholarship to Ozan Cakmakci (\$3,000)

2008 LINK Foundation Fellowship to Ilhan Kaya (\$25,000)

2008 SPIE Fellowships in Optical Science and Engineering to Florian Fournier (\$2,500), Kye Sung Lee (\$2,500), Supraja Murali (\$2,000).

2007 Incubic/Milton Chang Travel Award to Panomsak Meemon (\$1,000)

2007-09 NASA Fellowship to Jon Harben (\$30,000/yr)

2007-10 Optical Research Associates Fellowship to Florian Fournier (\$30,000/yr)

2007 Best Paper Award in Optical System Design to Florian Fournier at the Annual Meeting of the Optical Society of America. (2007).

2007	Kidger Memorial Scholarship Award 2007 to Florian Fournier (\$5,000) (1 award/yr from the Memorial Kidger Fund, International Award for Optical System Design).
2007	UCF I ² Lab 2007 Fellowship for Interdisciplinary Research to Panomsak Meemon (\$25,000)
2007	Won 2 nd place in the UCF I ² Lab Poster Competition 2007 for Supraja Murali.
2007	LINK Foundation Fellowship to Ozan Cakmakci (\$25,000)
2007	Won 1 st place for the “EyeGlass Display” in the Technology and Fashion Show at CTIA Wireless 2007. (Scholarship to Ozan Cakmakci of 10K)
2006	William H. Price Scholarship to Costin Curatu (1 award per year – International Award) (\$3,000)
2006	UCF I ² Lab Fellowship to Supraja Murali for Interdisciplinary Research (\$25,000)
2005	UCF Graduate Research Forum, Best presentation in category winners Engineering, Computer Science, Optics, Physical Sciences, Mathematics, Simulation and Modeling to Anand Santhanam.
2005	Kidger Memorial Scholarship Award 2005 to Ozan Cakmakci (\$5,000) (1 award/yr from the Memorial Kidger Fund, International Award for Optical System Design).
2005	Award of Optical Research Associates in Optical System Design USA Competition to Supraja Murali, regarding her dynamic focusing microscope objective design done for her Master Degree.
2005	LINK Foundation Fellowship to Anand Santhanam (\$25,000)
2005	NSF Fellowship K-12 Program to Cali Fidopiastis (\$30,000)
2005	SPIE Fellowship to Kye-Sung Lee (\$1,200)
2004	LINK Foundation Fellowship to Cali Fidopiastis (\$25,000)
2004	SPIE Fellowships to Weiyao Zou (\$1,700).
2004	William H. Price Scholarship to Vesselin Shaoulov (1 award per year International Award)(\$3,000)
2003	LINK Foundation Fellowship to Felix Hamza-Lup (\$25,000)
2003	SPIE Fellowship to Ceyhun A. Akcay (\$2,000).

FUNDING AWARDS

Current Support as PI or co-PI (does not include CeFO projects funded by membership)

2025	PumpPrimer II (\$74,901 including 10k in-kind in student support and travel)
2025-2030	CXR Center in AR/VR (\$2,000,000)
2025-2026	Industry/DOD Metrology (\$61,200)
2025-2026	Industry- Space Optics (\$76,896)
2024-2027	GM (\$240,00)
2023-2025	REU (\$405,000)
2023-2028	NIH – Myopia (\$2,825,000)
2023-2026	Coherent/II_VI Foundation (\$235,412)
2023-2025	University of California Irvine – freeform microscope (\$153,726)
2023-2028	NSF IUCRC Phase III University of Rochester: Center for Freeform Optics (CeFO)(\$350,000) + Industry ~\$ 800k annual
2022-2025	Industry/DOD – freeform objective (\$304,027)
2021-2025	Center of Excellence in Data Science/Empire State Development (\$305,000)
2021-2025	NASA: 20-ASTRO20-0006 (\$135,000)

Completed Awards as PI or co-PI

2025	Industry – AR/VR (\$151,032)
2021-2024	AR program (\$1,182,698) (industry)
2021-2024	NRT – Fellowship – Industry (\$120,000) (industry)
2020-2023	CEIS/LTT (\$97,249)
2020-2023	NIH/R21 Advanced Brain OCT Elastography (\$275,000)

2021-2022 AR program Industry **(\$394,904)**
 2019-2025 NSF NRT program **(\$1,560,000)**
 2018-2024 NSF I/IUCRC Phase II: Center for Freeform Optics **(\$4,059,842)**
 2016-2021 AR program Industry/CEIS **(\$925,340/\$30,000)**
 2019-2021 AOS **(\$71,034)**
 2020-2021 SAPhotonics **(\$45,000)**
 2018-2019 Center of Excellence in Data Science/Empire State Development **(\$49,162)**
 2018-2019 University Research Award **(\$52,579)**
 2015-2016 CEIS/LTT **(\$143,870)**
 2016-2018 University Research Award **(\$75,000)**
 2013-2018 NSF I/IUCRC Center for Freeform Optics **(\$495,000)** **(REU SUPP (\$24,000))**
 2013-2018 Industry Funding for Center for Freeform Optics **(\$6,945,534)**
 2016-2018 II-VI Foundation, Optical Metrology **(\$295,000)**
 2018 Lucyd **(\$107,318)**
 2017 Pumpprimer I & 2 **(\$15,000; \$5,000)**
 2014-2017 PerkinElmer **(\$387,070)**
 2016-2017 ARRI **(\$126,653)**
 2013-2016 II-VI Foundation, Metrology of Freeform Optics **(\$295,000)**
 2013-2015 DOE, Launching the Next Generation of Optical Systems **(\$350,000)**
 2010-2015 NSF-GOALI: Enabling Freeform Optics, **(\$358,052); REU SUPP (\$54,000);**
 2014 CEIS/LTT **(\$94,630)**
 2013-2014 INTEL **(\$204,975)**
 2014 Invincea/DARPA **(\$100,000)**
 2013 UMASS **(\$11,000)**
 2012-13 NSF/-IUCRC, Planned Center for Freeform Optics **(\$14,500)**
 2012-2013 NSF/I-Corps, Optics for Photodynamic Therapy, **(\$50,000)**
 2011-2012 DSO National Labs, Far-Field Visual Imaging Using Lenslet Array **(\$55,952)**
 2010-2013 II-VI Foundation, Optical Design, Fab. and Testing of Polynomial Surfaces **(\$299,843)**
 2011-2012 RevisionEyewear, assessment of freeform technology in design **(\$85,000)**
 2009-2012 NYSTAR/UR Career Development Award, Biotechnology. **(\$949,883)**
 2010-2013 DARPA, development of metrology for GRIN optics **(\$622,000) (Phase I)**
 2010-2011 Multidisciplinary Provost grant, Augmented Reality for the Structural Conservation of Archaeological Monuments **(\$27,100)**
 2010 UMASS Amherst **(\$8,000)**
 2009-2010 Optical Research Associates, Support for Interns **(\$25,000)**
 2008-2010 Optical Research Associates, Light Tools Optical Test Cases **(\$15,000).**
 2009-2010 NOAO, LSST Telescope Alignment **(\$25,518)**
 2009-2010 ZCorp., Computational Methods for Testing **(\$122,578)**
 2009-2010 ONR/ORO – STTR: Development of Low-Cost Augmented Reality Head-Mounted Display **(\$28,000)**
 2008-2010 HEDZOPT Eyeglass Display. HEDZOPT. **(\$143,216).**
 2008-2010 I4 Corridor in relation to the James and Esther King Biomedical Research Program **(Anand Santhanam, PI; Rolland Co-PI \$320,000)** [Remains with UCF Lab]
 2008-2010 James and Esther King Biomedical Research Program **(\$949,717 Patrick Kupelian- Project Director; \$662,358 to UCF Rolland, UCF-PI).**[Remains with UCF Lab]
 2008 Distortion mapping. Phase I. Anhui Huadong Photoelectron Research Institute **(\$14,210).**
 2008-09 Center of Excellence for Imaging **(\$5.45M) (PI: Murabak Shah)(Rolland one of 15 Co-PIs)**(Recommended for Funding)
 2008-09 I4 Corridor in relation to MD Anderson Cancer Center Orlando **(\$76,338).**
 2007-08 ASRC/NASA Kennedy Space Center. Design of a Lunar Soil Instrument: II **(\$45,000).**

2007-09 US Army Medical Research and Materiel Command. Human in Vitro Lung Model for Infectious Disease (**\$999,969/yr with \$225,000 to Rolland**, one of 4 Co-PIs; Pappachan Kolattukudy, PI).

2007-08 Disney Imagineering. Design of eyeglass displays (**\$39,957**).

2007-08 REI Optronics. Design of eyeglass display Phase I (**\$46,000**).

2007-09 I4 Corridor matching funds in relation to VDC contract (**\$68,000**).

2006-08 VDC Display Systems. LED Illumination System. (**\$137,528**).

2006-09 MD Anderson Cancer Center. Dynamic Medical Imaging Analysis: Application to Radiotherapy. (**\$172,214**).

2006 Royalty from Tech Transfer (After all UCF cost deductions). (**\$18,962**).

2005-08 Optical Research Associates, Test Macro Development, (**\$40,000**).

2003-08 National Science Foundation “IIS/HCI: Collaborative Research: Development and assessment of head-mounted fovea-contingent display technology” (**\$375,000**).

2006-07 LINZ University (Vienna). Institute für Pervasive Computing. Eyeglass Display. (**\$76,194**).

2004-07 Florida Photonics Center of Excellence Award on 3D Displays (**\$175,000**).

2004-07 Florida Photonics Center of Excellence Award on Biophotonics Imaging (**\$200,000**).

2004-07 SHANDs Hospital, University of Florida, Biophotonics Imaging (**\$100,000**).

2006-07 ASRC/NASA Kennedy Space Center. Design of a Lunar Soil Instrument. (**\$73,000**)

2006-07 Army RDE Command, Virtual Technologies and Environments (VIRTE) for Advanced Research on Agents and Teams, (PIs: D. Nicholson, S. Burke, S. Fiore, C. E. Hughes, G. Martin, **J. Rolland**, E. Salas, E. Smith, C. B. Stapleton) – **\$2,137,500**, 2006-2007. (Credit: 5% = **\$106,875**).

2004-06 METI, 3D Display for Medical and Engineering Visualization, (**\$100,000**).

2005-06 US ARMY SBIR phase 1 through Nvis Corporation, “Wide angle HMD” (**\$17,000**).

2004-06 NASA/Adastralabs SBIR phase 1 “Teleportal face-to-face collaboration,” (**\$10,000**).

2004 UCF Foundation/Motion Analysis. Donation (**\$10,000**).

2003-05 ONR, “Research in Augmented and Virtual Environment Systems(RAVES): HMDs” (**\$400,000**).

2002-05 US ARMY SBIR phase 1 & 2 through Nvis Corporation, “Head Mounted Display for Cockpit” (**Phase 1: \$20,000**); (**Phase 2: \$200,000 to UCF**).

2002-05 ONR STTR phase 1&2 through Nvis Corporation, “Improved Head Mounted Display for Close Quarter Battle Training,” (**Phase 1: \$22,000**); (**Phase 2: \$148K to UCF**).

2000-04 National Science Foundation, ITR/HCI: “Development of Head-Mounted Displays for Distance Collaboration,” (**\$204,984**).

2002-03 ONR, “Immersion Center: Achieving Excellence in Multimodal Interactive Systems Design,” (**PI: Brian Godiez; Co-PIs: Jannick Rolland and Kay Stanney**) (**\$966,000**).

2002-03 Army-Stricom, “Organic-based See-Through HMD for Outdoor Augmented Reality,” (**\$68,002**).

2002-03 Army-Stricom, “Deployable 3D Trauma Training Center: Modules One and Two,” (**\$200,000**).

2001-03 Army-Stricom (NAWCTSD), “Development of a Projection Head-Mounted Display for Integration with the Mannequin for the Military Medics,” (**\$415,000**).

2001-03 Office of Naval Research (ONR), “VIRTE: Analysis and Development of a Full Immersion Projective Head-mounted Display for Dismounted Infantry Training,” (**\$145,000**).

2001 ELF Exploration Production “An interferometer for curvature measurement,”(**\$34,914**).

2000-01 In-House Research Award, UCF (**\$7,500/year**).

2001 UCF Research Grant, “ Investigation of Non-Invasive Diagnosis of Cervical Cancer Using Optical Coherence Tomography,” (**\$7,500**).

1997-02 National Institutes of Health First Award, “3D Dynamic Anatomy: a Virtual Reality Prototype,” (**\$500,000**).

1999-03 National Science Foundation, “Interactive Distributed Physical Modeling and Augmented Virtual Reality,” **(\$176,928)** (Co-principal investigators: Charles E. Hughes).

1999-01 SmARTlens Corp./ I4-Corridor “Redefining Photography: Simulating Painterly Effects in Images,” **(\$254,000)**.

2000 ELF Exploration Production “Development of Optical Coherence Tomography for 3D Imaging,” **(\$34,914)**.

1999-00 Michigan State University, “Design of an Ultra-Light Weight Projective Head-Mounted Display,” **(\$37,000) (+ \$8,000 in kind donation)**.

1999 ELF-France-Aquitaine, “Research Support Grant - Phase 1: Design of a Light-Weight Projective Head-Mounted Display,” **(\$33,304)**.

1999 Lockheed-Martin, “Augmented Reality Research and Instrumentation Grant,” **(\$31,125)**.

1997-99 Artificial Reality Corporation, “Design of a High-Speed Optical Tracker,” **(\$15,000)**.

1997-98 Tacom US Army Research Laboratory, “Stereoscopic and HMD System Test Development,” **(\$47,416)**.

1998 Florida Hospital, “Optical Colposcopy,” **(\$16,000)**.

1998 I4-Corridor, “Investigation of Vection in a Rotating Drum,” **(\$40,000)**.

1997-98 UCF Research Grant, “Texture Based Segmentation,” **(\$7,500)**.

1994-98 Office of Naval Research Grant Award, “Psychophysical Investigations of See-Through Head-Mounted Displays for 3D Visualization,” **(\$459,626)**.

Completed Awards as Investigator

2013 Postdoctoral CVS Fellowship Awarded to Patrice Tankam and Jannick Rolland (PI).

2010-present part of NIH core grant in Center for Visual Science at URM, Rochester

2010-pre part of NIH core grant in Center for Dermatology at URM, Rochester

2006-09 ONR, Virtual Technologies and Environments (VIRTE) for Advanced Research on Agents and Teams. (\$1,000,000 - **\$50,000 to Rolland**, one of multiple investigators).

2003-04 ONR, “research in Augmented and Virtual Environment Systems (RAVES): Rendering” **(\$3,876)**.

2002-03 Army-Stricom, “Development of a Holographic Single Element Head Mounted Display,” **(\$62,000)**.

2000 CONACYT, “Investigations on Physical Optics and Geometrical Optics,” PI: Oreste Stavroudis **(\$15,000)**.

1998 NSF/UCF InternetII at UCF, Rolland’s Research was Selected as One of Two Meritorious Applications from UCF, Total Award Amount to UCF **(\$2,220,800)**. **(free Internet2 connection to ODALab and University Support for Internet2)**.

1996-97 UCF grant, “A Research Center Proposal to the University of Central Florida: Phase I,” PI: Michael Moshell (CS and IST) **(\$50,000)**.

1995 *Junior Faculty Development Award*, “A Novel Virtual Reality Tool for Teaching Dynamic 3D Anatomy,” PI: Donna Lee Wright **(\$3,000)**.

U.S. Academic Partnerships Focused on Research

2024-present **University of California Irvine**. Dr. Eric Potma. Collaborate on a freeform microscope.

2018-2024 **New Jersey Institute of Technology**. Dr. Biocca. Dean. collaborate on virtual environment technology design and assessment.

2016-present **Rochester Institute of Technology**. Via Center for Freeform Optics.

2013-present **University of North Carolina at Charlotte**. Via Center for Freeform Optics.

2011-2018 **Newhouse School of Communication at Syracuse University**. Dr. Biocca, Endowed Chair Professor of Telecommunication Technologies and Information Services, also Director of the Media Interface & Network Design (M.I.N.D.) laboratory, and I collaborate on virtual environment technology design and assessment.

- 2010-2015 **UCLA, CA**, Dr. Anand Santhanam, collaborating on 3D Medical technologies
- 2009 **Armstrong Atlantic University**, Dr. Felix Hamza-Lup, collaborating on Virtual Reality technologies.
- 2003-2008 **University of Florida**, Electrical Engineering Department, Dr. Xie, Ph.D., collaborating on MEMS for optical coherence imaging.
- 2003-2006 **University of Florida**, Shands Hospital Core (Cardiac) Lab, Dr. Marco Costa (MD/PhD) and Paul Guilmore (MD) collaborating on coronary optical imaging.
- 2001-2005 **Columbia University**, Medical School, Dr. Celina Imielinska, Ph.D., collaborating on 3D medical models rendering.
- 2002-2005 **University of Pittsburgh**, Cancer Institute, Dr. Robert Ferris, PhD/MD, collaborating on OCT and skin cancer diagnosis.
- 1998-2013 **Optical Sciences Center and Radiology Department at the University of Arizona**. Dr. E. Clarkson and I have been collaborating on mathematical methods for imaging.
- 1993-2010 **Communication Department at Michigan State University**. Dr. Biocca, Ameritech Professor of Telecommunication Technologies and Information Services, also Director of the Media Interface & Network Design (M.I.N.D.) laboratory, and I collaborate on virtual environment technology design and assessment.
- 1993-2000 **Radiology Department at the University of North Carolina at Chapel Hill**. Dr. Wright, Assistant Professor and Dr. Renner, M.D., both in the Radiology Department at the University of North Carolina at Chapel Hill, are current medical partners on developing the Virtual Reality Dynamic Anatomy (VRDA) tool for visualization and teaching of dynamic anatomy.

International Academic Partnerships for Research

- 2025-present **Rothschild Foundation Hospital**, Paris, France.
- 2023-present **LIOM**, Teneriffe, Spain
- 2023 **NARIT**, Chiang Mai, Thailand.
- 2010-present **Suranaree University of Technology (SUT)**, Thailand.
- 2009-2014 **Institute d'Optique and BiiGC Lab** – St. Etienne, France
- 2011-2015 **Institute d'Optique - LP2N and INRIA**, Bordeaux France
- 2007-2008 **National University of Ireland, Galway**. Professor Chris Dainty, Collaborating on optical instrumentation applied to astronomy and biophotonics
- 2006-2008 **University of LINZ, Austria**, Simon Vogt and Loi Ferscha, Collaborating on the design of eyeglass displays
- 2005-2008 **Institut d'Optique et Théorique et Appliquée**. Michael Canva, Head of the Biophotonics team. Collaboration on methods for biochips design and measurements.
- 2006-2008 **Ecole Nationale Supérieure des Télécommunications**. Isabelle Bloch, Head of the Medical Imaging team. Collaboration on application of 3D Lung Dynamics to Registration of PET and SPECT images for Radiation Oncology.
- 1997-1999 **L'institut des Sciences de L'ingénieur at Clermont Ferrand (France)**. Dr. Peuchot, Head of the Computer Vision Lab. Collaboration on methods for augmented reality.
- 1996 **Centro de Investigaciones in Optica (CIO)**, Leon, Mexico. Collaboration with Dr. Stavroudis on differential geometry.

Industrial Partnerships

- 2013-present **CeFO** members
Freeform optics)(www.centerfreeformoptics.org)
- 2025-present **Sagittal Optics**
Freeform optics optomechanics

2024-present	AOM CGHs
2023-present	Trestle Optics Freeform optics microscopy
2023	Samsung Freeform optics XR
2023-2025	VisionProducts Freeform optics DOD
2022-present	MorphOptics Freeform optics fabrication DOD
2020	SAPhotonics Freeform optics design for manufacture – visual instrument - DOD
2020	AOS, USA Freeform optics design for manufacture – space optics
2015-2025	Facebook Reality Labs XR academic forum
2015-2019	ARRI, Germany Freeform optics from design to manufacture
2014-2016	PerkinElmer, USA Freeform optics design
2013-present	Optipro, USA Freeform metrology
2013-present	Ball Aeropsace / BAE Freeform optics design
2013-present	LighTopTech, Rochester NY Gabor domain optical coherence microscopy (GDOCM) and OCT
2013-2014	Intel, USA Optical system design
2013-present	Thales, France Freeform optics design and fabrication
2011-2026	Zeiss, Germany Nodal aberration theory and freeform optics design and fabrication
2011-2012	Revision Military, Quebec Canada Freeform optics XR
2010- present	Optipro Corporation, Webster NY Freeform optics fabrication and metrology
2010	QED Corporation, Rochester NY Aspherics and freeform optics design and metrology
2009-2014t	II-VI Corporation, Saxonburg Pennsylvania Freeform optics metrology
2009-2010	Rochester Photonics Optics, Rochester NY Development of a catheter for OCT
2007-2008	Disney Imagineering, Glendale, CA development of displays
2007-2012	Revision Eyewear/Hedzopt, Montreal, Quebec, Canada Development of head-worn displays
2006-2007	Silhouette, LINZ, Austria Development of displays
2006-2009	VDC Displays, Orlando FL Collaboration on the development of LED-based illumination for projector systems
2005-present	Optical Research Associates, Pasadena CA

2004-present Collaboration on macro development for software related to optical simulation
Optimax Corporation, Webster NY
 Collaboration on optical fabrication

2004-06 **METI Corporation**, Sarasota FL
 Collaboration of the development of a biomathematical model of breathing

2003-04 **ADASTRA LABs LLC**, Orlando FL
 Collaboration on the design of head-mounted displays

2003-04 **Uni-pixel Displays, Inc.**, Georgetown, Texas
 Collaborating on the design of microdisplays for head-mounted displays

2002-06 **Nvis. Inc.**, Washington DC
 Development of head-mounted displays

2001-02 **Microvision Corporation**, Seattle WA
 Development of retinal scanning displays

2000 **SmARTlens Corporation**, Tampa, FL
 Developing innovative technology for special effects in photography/movies

2000 **RSK Assessments Inc.**, Orlando FL
 Investigation of vection via texture patterns presentation in virtual environments

1998-99 **Air Instruments and Measurements Inc.**, Baldwin Park, CA
 Design of a telescope for pollution monitoring working in the IR and UV

1998-99 **Naval Warfare Center**, Orlando, FL
 Review of phase II SBIR Award to Laser Power Corp. (CA) and design of assessment of experiments

1997-99 **Supervision International**, Orlando FL
 Supervised design of a fiber optics illumination system

1996-06 **RSK Assessments, Inc.**, Orlando FL
 Research advisor on assessment technology for virtual environments

1997-98 **Artificial Reality Corporation**, Vernon, CT
 Design of an anamorphic lens for optical tracking

1997-98 **TACOM US ARMY Research Lab**, Detroit, MI
 Investigation of eyepoint location in head-mounted displays

1995 **Design Magic**, Raleigh, NC
 Optics for virtual reality theater

1991-93 **Ocutech**, Chapel Hill, NC
 Design of a miniature telescope for low-vision aids

1992 **Boeing**, Seattle, Washington State
 Research advisor on head-mounted display design

PEER-REVIEWED PUBLICATIONS

Google Scholar Citations updated 5/23/2026: 26293 citations, h-index = 80, i10-index=320

Articles in Refereed Journals

(This list is built from earliest to most recent)

1990

1. Myers, K.J., J.P. Rolland, H.H. Barrett, and R.F. Wagner, "Aperture optimization for emission imaging: effect of a spatially varying background," *J. Opt. Soc. Am. A* **7**(7), 1279–1293 (1990).

1991

2. Rolland, J.P. and H.H. Barrett, "Ideal versus human observer for long-tailed point-spread functions: Does deconvolution help?" *Phys. Med. Bio.* **36**(8), 1091–1109 (1991).

1992

3. Robinett, W. and J.P. Rolland, "A computational model for the stereoscopic optics of a head-mounted display," *Presence: Teleoperators and Virtual Environments (MIT Press)* **1**(1), 45-62 (1992).
4. Barrett, H.H., T. Gooley, K. Girodias, J.P. Rolland, T.A. White, and J. Yao, "Linear discriminants and image quality," *Image and Vision Computing* **10**(6), 451-460 (1992).
5. Rolland, J.P. and H.H. Barrett, "Effect of random background inhomogeneity on observer detection performance," *J. Opt. Soc. Am. A*, **9**(5), 649-658 (1992).

1993

6. Barrett, H.H., J. Yao, J.P. Rolland, and K. J. Myers, "Model observers for assessment of image quality," *Proc. Natl. Acad. Sci.* **90**(21), 9758–9765 (1993).

1995

7. Rolland, J.P., D. Ariely, and W. Gibson, "Towards quantifying depth and size perception in virtual environments," *Presence: Teleoperators and Virtual Environments (MIT Press)* **4**(1), 24-49 (1995).
8. Hemminger, B.H., R.E. Johnston, J.P. Rolland, and K.E. Muller, "Introduction to perceptual linearization of video display systems for medical image presentation," *Journal of Digital Imaging* **8**(1), 21-34 (1995).
9. Wright, D.L., J.P. Rolland, and A.R. Kancherla, "Using virtual reality to teach radiographic positioning," *Radiologic Technology* **66**(4), 167-172 (1995).

1996

10. Burbeck, C.A., S.M. Pizer, B.S. Morse, D. Ariely, G.S. Zauberman, and J.P. Rolland, "Linking object boundaries at scale: a common mechanism for size and shape judgments," *Vision Research* **36**(3), 361-372 (1996).
11. Marshall, J.A., C.A. Burbeck, D. Ariely, J.P. Rolland, and K.E. Martin, "Occlusion edge blur: A cue to relative visual depth," *J. Opt. Soc. Am. A* **13**(4), 681-688 (1996).

1997

12. Rolland, J.P. and R. Strickland, "An approach to the synthesis of biological tissue," *Optics Express* **1**(13), 414-423 (1997).

1998

13. Rolland, J.P., A. Goon, and L. Yu, "Synthesis of textured complex backgrounds," *Optical Engineering* **37**(7), 2055-2063 (1998).

14. Rolland, J.P., A. Yoshida, L. Davis, and J.H. Reif, "High resolution inset head-mounted display," *Applied Optics* **37**(19), 4183-4193 (1998).
15. Schachar, R.A., D.P. Cudmore, T.D. Black, J.C. Wyant, V.W. Shung, T. Huang, R.T. McKinney, and J.P. Rolland, "Paradoxical optical power increase of a deformable lens by equatorial stretching," *Annals of Ophthalmology* **30**(1), 10-18 (1998).
16. Biocca, F. and J.P. Rolland, "Virtual eyes can rearrange your body: adaptation to virtual eye location in see-thru head-mounted displays," *Presence: Teleoperators and Virtual Environments (MIT Press)* **7**(3), 262-277 (1998).

1999

17. Goon, A. and J.P. Rolland, "Texture classification based on comparison of second-order statistics I: Two-point probability density function estimation and distance measure," *J. Opt. Soc. Am. A* **16**(7), 1566-1574 (1999).

2000

18. Rolland, J.P., V. Vo, B. Bloss, and C.K. Abbey, "Fast algorithms for histogram matching: application to texture synthesis," *Journal of Electronic Imaging* **9**(1), 39-45 (2000).
19. Rolland, J.P., "Wide angle, off-axis, see-through head-mounted display," *Optical Engineering - Special Issue on Pushing the Envelope in Optical Design Software* **39** (7), 1760-1767 (2000).
20. Baillot, Y., J.P. Rolland, K. Lin, and D.L. Wright, "Automatic modeling of knee-joint motion for the virtual reality dynamic anatomy (VRDA) tool," *Presence: Teleoperators and Virtual Environments (MIT Press)* **9**(3), 223-235 (2000).
21. Rolland, J.P. and H. Fuchs, "Optical versus video see-through head-mounted displays in medical visualization," *Presence: Teleoperators and Virtual Environments (MIT Press)* **9**(3), 287-309 (2000).
22. Rolland, J.P., M. Krueger, and A. Goon, "Multifocal planes head-mounted displays," *Applied Optics* **39**(19), 3209-3215 (2000).
23. Hua, H., A. Girardot, C. Gao, and J.P. Rolland, "Engineering of head-mounted projective displays," *Applied Optics* **39**(22), 3814-3824 (2000).

2001

24. Kasparis, T., D. Charalampidis, M. Georgiopoulos, and J.P. Rolland, "Segmentation of textured images based on fractals and image filtering," *Pattern Recognition* **34**(10), 1963-1973, (2001).
25. Rolland, J.P., V. Shaoulov, and F.J. Gonzalez, "The art of back-of-the-envelope paraxial raytracing," *IEEE Transactions in Education* **44**(4), 365-372 (November 2001).
26. Zou, W. and J.P. Rolland, "Generalized figure Control Algorithm for large segmented Telescope Mirrors," *J. Opt. Soc. Am. A* **8**(3), 638-649 (March 2001).

2002

27. Rolland, J.P., L. Davis, Y. Ha, C. Meyer, V. Shaoulov, A. Akcay, H. Zheng, R. Banks, and B. DelVento, "3D Visualization and Imaging in Distributed Collaborative Environments," *IEEE Computer Graphics and Applications* **22**(1), 11-13 (2002).
28. Rolland, J.P., C. Meyer, K. Arthur, and E. Rinalducci, "Methods of adjustments versus method of constant stimuli in the quantification of accuracy and precision of rendered depth in head-mounted displays," *Presence: Teleoperators and Virtual Environments* **11**(6), 610-625 (2002).
29. Argotti, Y., L. Davis, V. Outters, and J.P. Rolland, "Dynamic superimposition of synthetic objects on rigid and simple-deformable objects," *Computers and Graphics* **26**(6), 919-930 (2002).
30. Akcay, C.A., P. Parrein, and J.P. Rolland, "Estimation of longitudinal resolution in optical coherence imaging," *Applied Optics* **41**(25), 5256-5261 (2002).
31. Ha, Y. and J.P. Rolland, "Optical Assessment of Head-Mounted Displays in Visual Space" *Applied Optics* **41**(25), 5282-5289 (2002).

2003

32. Hua, H., Y. Ha, and J.P. Rolland, "Design of an ultra-light and compact projection lens," *Applied Optics* **42**(1), 97-107 (2003).
33. Hamza-Lup, F., L. Davis, C. Hughes, and J.P. Rolland, "Where Digital meets Physical - Distributed Augmented Reality Environments," *ACM / Crossroads / Xrds9-3 / Where Digital Meets Physical: Computer-based Distributed Collaborative Environments* (2003) [online]. <http://www.acm.org/crossroads/xrds9-3/dare.html>
34. Davis, L., J.P. Rolland, F. Hamza-Lup, Y. Ha, J. Norfleet, B. Pettitt, and C. Imielinska, "Enabling a Continuum of Virtual Environment Experiences," *IEEE Computer Graphics and Applications* **23**(2), 10-12 (February 2003).
35. Akcay, C.A., J.P. Rolland, and J. Eichenholz, "Spectral Shaping to Improve the Point Spread Function in Optical Coherence Tomography," *Optics Letters* **28**(20), 1921-1923 (October 2003).
36. Shaoulov, V. and J.P. Rolland, "Design and assessment of microlenslet array relay optics," *Applied Optics* **42**(34), 6838-6845 (December 2003).

2004

37. Shaoulov, V., R. Martins, and J.P. Rolland, "Compact microlenslet array-based magnifier," *Optics Letters* **29**(7), 709-711 (April 2004).
38. Hamza-Lup, F.G. and J.P. Rolland "Scene Synchronization for Real-Time Interaction in Distributed Mixed Reality and Virtual Reality Environments," Special issue on Collaborative Virtual Environments, *Presence: Teleoperators and Virtual Environments (MIT Press)* **13**(3), 315-327 (June 2004).
39. Rolland, J.P., Y. Ha, and C. Fidopiastis "Albertian errors in head-mounted displays: I. Choice of eye-points location for a near- or far-field task visualization," *J. Opt. Soc. Am. A* **21**(6), 901-912 (2004).
40. Shaoulov, V. and J.P. Rolland, "Model of Wide-angle Optical Field Propagation using Scalar Diffraction Theory," *Special Issue of Optical Engineering on Illumination Engineering* **43**(7), 1561-1567 (July 2004).
41. Hamza-Lup F., J.P. Rolland, and C. Hughes, "A Distributed Augmented Reality System for Medical Training and Simulation," *Energy, Simulation-Training, Ocean Engineering and Instrumentation: Research Papers of the Link Foundation Fellows* **4**, 213-235, Rochester Press (2004).

2005

42. Rolland, J.P., J. O'Daniel, T. Delemos, A. Akcay, K. Lee, K. Cheong, E. Clarkson, R. Chakrabarti, and R. Ferris, "Task-based optimization and performance assessment in optical coherence imaging," *J. Opt. Soc. Am. A* **22**(6), 1132-1142 (2005).
43. Rolland, J.P., F. Biocca, F. Hamza-Lup, Y. Ha, and R. Martins, "Development of Head-Mounted Projection Displays for Distributed, Collaborative Augmented Reality Applications," *Presence: SI Immersive Projection Technology* **14**(5), 528-549 (2005).
44. Fidopiastis, C.M., C. Fuhrman, C. Meyer, and J.P. Rolland, "Methodology for iterative evaluation of prototype head-mounted displays in virtual environments: visual metrics," *Presence: SI Immersive Projection Technology* **14**(5), 550-562 (2005).
45. Lee, K.S., A.C. Akcay, T. Delemos, E. Clarkson, and J.P. Rolland, "Dispersion control with Fourier-domain optical delay line in a fiber optic imaging interferometer," *Applied Optics* **44**, 4009-4022 (July 2005).
46. Akcay, A.C. and J.P. Rolland, "Effect of source spectral shape on task-based assessment of detection and resolution in Optical Coherence Tomography" *Applied Optics* **44**(35), 7573-7580 (2005).
47. Zou, W. and J.P. Rolland, "Iterative zonal wavefront estimation algorithm for optical testing with general-shaped pupils," *J. Opt. Soc. Am. A* **22**(5), 938-951 (2005).

2006

48. Curatu, C., G. Curatu, and J.P. Rolland, "Tolerance analysis method for Shack-Hartmann sensors using a variable phase surface," *Optics Express* **14**, 138-147 (2006).
49. Hua H., P. Krishnaswamy, and J.P. Rolland, "Video-based eyetracking methods and algorithms in head-mounted displays, *Optics Express* **14**(10), 4328-4350 (May 2006).
50. Fidopiastis, C.M., C.B. Stapleton, J.D. Whiteside, C.E. Hughes, S.M. Fiore, G.A. Martin, J.P. Rolland, and E.M. Smith, "Human experience modeler: Context-driven cognitive retraining to facilitate transfer of learning," *CyberPsychology & Behavior* **9**(2), 183-187 (2006).
51. Akcay, A.C., K.S. Lee, L.R. Furenli, M.A. Costa, and J.P. Rolland, "Compact low-cost detection electronics for optical coherence imaging," *Optical Engineering Letters* **45** (7) 070504:1-3 (July 2006).
52. Zou, W. and J.P. Rolland, "Quantification of error propagation in slope-based wavefront estimations" *J. Opt. Soc. Am. A* **23** (10), 2629-2630 (October 2006).
53. Cakmakci O. and J.P. Rolland, "Head-worn displays: A review," *IEEE/OSA Journal of Display Technology* **2**(3) 199-216 (September 2006). **(Invited)**
54. Lecaruyer, P., E. Maillart, M. Canva, and J.P. Rolland "Generalization of the Rouard Method to an Absorbing Thin-film Stack and Application to Surface Plasmon Resonance," *Applied Optics* **45**(33), 8419-8423 November (2006).

2007

55. Hamza-Lup, F.G., A. Santhanam, C. Imielinska, S. Meeks, and J.P. Rolland, "Distributed augmented reality with 3D lung dynamics – A planning tool concept," *IEEE Transactions on Information Technology in Biomedicine* **11**(1) 40-46 (2007).
56. Rolland, J.P., O. Cakmakci, J. Covelli, C. Fidopiastis, F. Fournier, R. Martins, F. Hamza-Lup, and D. Nicholson. "Beyond the Desktop: Emerging Technologies for Supporting 3D Collaborative Teams." *International Journal on Interactive Design and Manufacturing* **4**(1) (2007). **(Invited)**
57. Lecaruyer, P., M. Canva, and J.P. Rolland, "Metallic film optimization in a surface plasmon resonance biosensor by the extended Rouard method," *Applied Optics* **46** (12), 2361-2369 April (2007).
58. Santhanam, A.P., F. Hamza-Lup, and J.P. Rolland "Simulating 3D lung dynamics using a programmable graphics processing unit," *IEEE Transactions on Information Technology in Biomedicine* **11**(5), 497-506 (2007).
59. Cakmakci, O. and J.P. Rolland, "Design and Fabrication of a Dual-Element Off-Axis Near-Eye Optical Magnifier" *Optics Letters* **32**(11), 1363-1365 (June 1, 2007).
60. Martins, R., V. Shaoulov, Y. Ha, and J.P. Rolland, "A mobile head-worn projection display," *Optics Express* **15**(22), 14530-14538 (2007).
61. Hua, H., C.W. Pansing, and J.P. Rolland, "Modeling of an eye-imaging system for optimizing Illumination schemes in an eye-tracked head mounted display," *Applied Optics* **46**(31) 7757-7770 November (2007).
62. Cakmakci, O. and J.P. Rolland, "A comparative analysis of doublets versus single-layer diffractive optical elements in eyepiece design," *Applied Optics* **46**(33). November 20 (2007).
63. Murali, S., K.S. Lee, and J.P. Rolland. "Invariant resolution dynamic focus OCM based on liquid crystal lens," *Optics Express* **15**(24), 15854-15862 November (2007).

2008

64. Zou, W., K.P. Thompson, and J.P. Rolland, "Differential Shack-Hartmann curvature sensor: local principal curvature measurements," *J. Opt. Soc. Am. A* **25**, 9, 2331-2337 (2008).
65. Fournier, F. and J.P. Rolland, "Optimization of freeform lightpipes for LED projectors," *Applied Optics* **47**(7), 957-966 (2008).
66. Fournier, F. and J.P. Rolland. "Design Methodology for High Brightness Projectors. *Journal of Display Technology* **4**(1), 86-91 (2008).

67. Cakmakci, O., B. Moore, H. Foroosh, and J.P. Rolland, "Optical local shape description for rotationally non-symmetric optical surface design and analysis," *Optics Express* **16**(3), 1583-1589 (2008).
68. Santhanam, A.P., C. Imielinska, P. Davenport, P. Kupelian, and J.P. Rolland, "Modeling real-time 3-D lung deformations for medical visualization," *IEEE Transactions on Information Technology in Biomedicine* **12**(2), 257-270 (2008).
69. Meemon, P., S. Murali, K.S. Lee, and J.P. Rolland, "Optical design of a dynamic focus catheter for high resolution endoscopic optical coherence tomography," *Applied Optics* **47**(13), 2452-2457 (2008).
70. Cakmakci, O., S. Vo, H. Foroosh, and J.P. Rolland, "Application of Radial Basis Functions to Shape Description in a Dual-Element Off-Axis Magnifier," *Optics Letters* **33** (11), 1237-1239 (2008).
71. Fournier, F, W.J. Cassarly, and J.P. Rolland, "Method to improve spatial uniformity with lightpipes," *Optics Letters* **33**(11), 1165-1167 (June 1) (2008).
72. Lee, K.S. and J.P. Rolland, "Bessel-Beam Spectral-Domain High-Resolution OCT with Microoptics Axicon Providing Extended Focusing Range," *Optics Letters* **33**(15), 1696-1698 (2008). Also Selected to be published in the Virtual Journal of Biomedical Opticshttp://vjbo.osa.org/virtual_issue.cfm
73. Hippalgaonkar, N., A. Sider, A. Santhanam, F. Hamza-lup, B. Jagannathan, and J.P. Rolland. "Generating classes of 3D virtual mandibles for AR-based medical simulation," *Journal of Simulation in Health-care* **3**(2), 103-110 (2008).
74. Meemon, P., M. Salem, K.S. Lee, M. Chopra, and J.P. Rolland, "Determination of the coherency matrix of a broadband stochastic electromagnetic light beam," *J. of Modern Optics* **55**, 2765-2776 (2008).
75. Santhanam, A., T. Willoughby, I. Kaya, A. Shah, S.L. Meeks, J.P. Rolland, and P. Kupelian, "A display framework for visualizing real-time 3D lung tumor radiotherapy," *IEEE Journal of Display Technology, Special issue on Medical Displays* **4**(4), 473-482 (2008). (**Invited**)
76. Moreno, A., S. Chambon , A.P. Santhanam, J.P. Rolland, E. Angelini, and I. Bloch, "Combining a breathing model and tumor-specific rigidity constraints for registration of CT-PET thoracic data," *Computer aided surgery: official journal of the International Society for Computer Aided Surgery* **13**(5), 281-298 (2008).
77. Mohamed, S. and J.P. Rolland, "Effects of coherence and polarization changes on the heterodyne detection of stochastic beams propagating in free space," *Optics Communications* **281**(20), 5083-5091 (15 October 2008).
78. Cakmakci, O, S. Vo, K.P. Thompson, and J.P. Rolland, "Application of Radial Basis Functions to Shape Description in a Dual-Element Off-Axis Eyewear Display: Field of View Limit," *Journal of the Society of Information Display (SID)* **16** (11), 1089-1098 (2008).
79. Thompson, K.P., T. Schmid, and J.P. Rolland, "The misalignment induced aberrations of TMA telescopes," *Optics Express* **16** (25), 20345–20353 (2008).

2009

80. Murali, S., K.P., Thompson, and J.P. Rolland, "Three-dimensional adaptive microscopy using embedded liquid lens," *Optics Letters* **34**(2), 145–147 (2009).
81. Thompson, K.P., T. Schmid, O. Cakmakci, and J.P. Rolland, "A real ray-based method for locating individual surface aberration field centers in imaging optical systems without symmetry," *J. Opt. Soc. Am. A* **26**(6) 1503-1517 (2009).

2010

82. Rolland, J.P., P. Meemon, S. Murali, K.P. Thompson, and K.S. Lee, "Gabor-based fusion technique for Optical Coherence Microscopy," *Optics Express* **11**(4), 3632-3642 (2010).

83. Fidopiastis, C., A. Rizo, and J.P. Rolland, "User-centered virtual environment design for virtual rehabilitation," *Journal of NeuroEngineering and Rehabilitation* **7**(11) (2010).
<http://www.jneuroengrehab.com/content/7/1/11>
84. Fournier, F., W.J. Cassarly, and J.P. Rolland, "Fast freeform reflector generation using source-target maps" *Optics Express* **18**(5), 5295-5304 (2010).
85. Lee, K.S., P. Meemon, W. Dallas, and J.P. Rolland, "Dual Detection Full Range Frequency Domain Optical Coherence Tomography," *Optics Letters* **35**(7), 1058-1060 (2010).
86. Salem, M. and J.P. Rolland, "Heterodyne efficiency of a detection system for partially coherent beams," *J. Opt. Soc. Am. A* **27**(5), 1111-1119 (2010).
87. Covelli, J.M., J.P. Rolland, M. Proctor, J.P. Kincaid, and P.A. Hancock, "Field of View Effects on Pilot Performance in Flight," *The International Journal of Aviation Psychology* **20**(2), 197-219 (2010).
88. Schmid, T., K.P. Thompson, and J.P. Rolland, "A unique astigmatic nodal property in misaligned Ritchey-Chretien telescopes with misalignment coma removed," *Optics Express* **18**(5), 5282-5288 (2010).
89. Schmid, T., K.P. Thompson, and J.P. Rolland, "Misalignment-induced nodal aberration fields in two-mirror astronomical telescopes," Special Issue on 400 Years of Optical Instrumentation, Editors: Daniel Malacara, Joanna Schmit, Malgorzata Kujawinska, and Mitsuo Takeda; *Applied Optics* **49**(16), D131-144 (2010).
90. Murali, S., M. Panomsak, K.S. Lee, W.P. Kuhn, K.P. Thompson, and J.P. Rolland, "Assessment of a liquid lens enabled in vivo optical coherence microscope," Special Issue on 400 Years of Optical Instrumentation, Editors: Daniel Malacara, Joanna Schmit, Malgorzata Kujawinska, and Mitsuo Takeda; *Applied Optics* **49**(16), D145-156 (2010).
91. Schmid, T., J.P. Rolland, A. Rakich, and K.P. Thompson "Separation of the effects of astigmatic figure error from misalignments using Nodal Aberration Theory (NAT)" *Optics Express* **18**(16), 17433-17447 (2010).
92. Meemon P., K.S. Lee, and J.P. Rolland, "Doppler imaging with dual-detection full-range frequency domain optical coherence tomography," *Biomedical Optics Express* **1**(2), 537-552 (2010).
93. Meemon P. and J. P. Rolland, "Swept-source based, single-shot, multi-detectable velocity range Doppler optical coherence tomography" *Biomedical Optics Express* **1**(3), 955-966 (2010).
94. Santhanam, A.P., Y. Min, S.P. Mudur, A. Rastogi, B.H. Ruddy, A. Shah, E. Divo, A. Kassab, J.P. Rolland, and P. Kupelian, "An inverse hyper-spherical harmonics-based formulation for reconstructing 3-D volumetric lung deformations", *Comptes Rendus Mécanique: Inverse Problems* **338**(7-8), 461-473 (2010).
95. Lee, K.S., K.P. Thompson, and J.P. Rolland, "Broadband astigmatism-corrected Czerny-Turner spectrometer," *Optics Express* **18**(22), 23378-23384 (2010).
96. Vo, S., K. Fuerschbach, K.P. Thompson, M.A. Alonso, and J.P. Rolland, "Airy beams: a geometric optics perspective," *J. Opt. Soc. Am. A* **27**, 2574-2582(2010).
97. Canavesi, Cristina, Florian Fournier, William J. Cassarly, Thomas H. Foster, and Jannick P. Rolland, "Illumination devices for photodynamic therapy of the oral cavity" *Biomedical Optics Express* **1**(5), 1480-1490 (2010).
98. Hsu, Kevin Panomsak Meemon, Kye-Sung Lee, Peter J. Delfyett, and Jannick P. Rolland, "Broadband Fourier-Domain Mode-Locked Lasers", *Photonics Sensors* **1**(3) 222-227, (2010).

2011

99. Choi, Jiyeon, Kye-Sung Lee, Jannick P. Rolland, Troy Anderson, Martin C. Richardson, "Nondestructive 3-D imaging of femtosecond laser written volumetric structures using optical coherence microscopy", *Applied Physics A* **104**:289-294 (2011).
100. Lee, K. S., K. P. Thompson, P. Meemon, and J. P. Rolland, "Cellular resolution optical coherence microscopy with high acquisition speed for *in-vivo* human skin volumetric imaging", *Optics Letters* **36**(12), 2221-2223 (2011).

101. Canavesi C., W.J. Cassarly, T.H. Foster, and J.P. Rolland, "Lightpipe device for delivery of uniform illumination for photodynamic therapy of the oral cavity", *Applied Optics* **50**(16), 2322-2325 (2011).
102. Duma, V., K.S. Lee, P. Meemon, J.P. Rolland, "Experimental investigations of the scanning functions of galvanometer-based scanners with applications in OCT", *Applied Optics* **50**(29), 5735-5749 (2011)
103. Yadav, Rahul , Kye-Sung Lee, Jannick P. Rolland, James M. Zavislan, James V. Aquavella, and Geunyoung Yoon, "Micrometer axial resolution OCT for corneal imaging", *Biomedical Optics Express* **2**(11), 3037-3046 (2011).
104. Ma, B., L. Li, K.P. Thompson, and J.P. Rolland, "Applying slope constrained Q-type aspheres to develop higher performance lenses", *Optics Express* **19**(22), 21174-21179 (2011).
105. Fuerschbach, K., J.P. Rolland, and K.P. Thompson, "A new family of optical systems employing ϕ -polynomial surfaces", *Optics Express* **19**(22), 21919-21928 (2011).
106. Kaya, Ilhan, Kevin P. Thompson, and Jannick P. Rolland, "Edge clustered fitting grids for ϕ -polynomial characterization of freeform optical surfaces" *Optics Express* **19**(27), 26962-26974 (2011).

2012

107. Canavesi, C., W.J. Cassarly, and J.P. Rolland, "Observations on the linear programming formulation of the single reflector design problem, *Optics Express* **20**(4), 4050-4055 (2012).
108. Rolland, J.P., K.P. Thompson, K.S. Lee, J. Tamkin Jr., T. Schmid, and E. Wolf, "Observation of the Gouy phase anomaly in astigmatic beams", *Applied Optics* **51**(15), 2902-2908 (2012).
109. Song, Y., K. Zhang, Q. Hao, and J.P. Rolland, "Modeling and characterization of the electrostatic coupling intra-body communication based on Mach-Zehnder electro-optical modulation", *Optics Express* **20**(12), 13488-13500 (2012).
110. Bauer A., S. Vo, K. Parkins, F. Rodriguez, O. Cakmakci, and J.P. Rolland, "Computational optical distortion correction using a radial basis function-based mapping method", *Optics Express* **20**(14), 14906- 14920 (2012).
111. Gray, R.W., C. Dunn, K.P. Thompson and J.P. Rolland, "An analytic expression for the field dependence of Zernike polynomials in rotationally symmetric optical systems", *Optics Express* **20**(15), 16436-16449 (2012).
112. Canavesi, C. W. J. Cassarly, and J. P. Rolland, "Direct calculation algorithm for two-dimensional reflector design," *Optics Letters* **37**(18), 3852-3854 (2012).
113. Fuerschbach, K., J. P. Rolland, and K. P. Thompson, "Extending Nodal Aberration Theory to include mount-induced aberrations with application to freeform surfaces", *Optics Express* **20**(18), 20139–20155 (2012).
114. Kaya, I, K.P. Thompson, and J.P. Rolland, "Comparative assessment of freeform polynomials as optical surface descriptions", *Optics Express* **20**(20), 22683-22691 (2012).
115. Lee, K.S, H. Zhao, S. F. Ibrahim, N. Meemon, L. Khoudair, and J.P. Rolland, "Three-dimensional imaging of normal skin and nonmelanoma skin cancer with cellular resolution using Gabor domain optical coherence microscopy", *Journal of Biomedical Optics* **17**(12), 126006 (2012).

2013

116. Kaya, I. and J.P. Rolland, "Hybrid RBF and local ϕ -polynomial freeform surfaces" *Adv. Opt. Techn.* **2**(1), 81-88 (2013).
117. Meemon, P., J. Yao, K.S. Lee, K.P. Thompson, M. Ponting, E. Baer, and J.P. Rolland, "Optical Coherence Tomography Enabling Non Destructive Metrology of Layered Polymeric GRIN Material", *Sci. Rep.* **3**, 1709-1719 (2013).
118. Huang, J., K.S. Lee, E. Clarkson, M. Kupinski, K.L. Maki, D.S. Ross, J.V. Aquavella, and J.P. Rolland "Phantom study of tear film dynamics with optical coherence tomography and maximum-likelihood

- estimation”, *Optics Letters* **38**(10), 1721-1723, (2013); also in Virtual Journal for Biomedical Optics (VJBO). http://vjbo.osa.org/virtual_issue.cfm
119. Ma, B., K. Sharma, K.P. Thompson, and J.P. Rolland, “Mobile device camera with Q-type polynomials to achieve higher production yield”, *Optics Express* **21**(15), 17454-17463 (2013).
 120. Huang, J., E. Clarkson, M. Kupinski, K.S Lee, K.L. Maki, D.S. Ross, J.V. Aquavella, and J.P. Rolland, “Maximum-likelihood estimation in Optical Coherence Tomography in the context of the tear film dynamics”, *Biomedical Optics Express* **4**(10) 1806-1816 (2013)
 121. Kaya, I., and J. Rolland, “Acceleration of computation of ϕ -polynomials”, *Optics Express* **21**(23), 29065-29072 (2013).
 122. Canavesi C., W. J. Cassarly, and J.P. Rolland, “Target flux estimation by calculating intersections between neighboring conic reflector patches” *Optics Letters* **38**(23), 5012-5015 (2013).
 123. Yao, J., P. Meemon, K.S. Lee, and J.P. Rolland, “Nondestructive metrology by optical coherence tomography empowering manufacturing iterations of layered polymeric optical materials”, *Optical Engineering* **52**(11), 112111 (2013).
 124. Canavesi C., W. Cassarly, and J.P. Rolland, “Supporting conic design methods and conic intersection properties” *Special Issue of Optical Engineering* **53**(3), 031306 (2014).

2014

125. Fuerschbach, K., J. P. Rolland, and K. P. Thompson, “Interferometric measurement of a concave, ϕ -polynomial, Zernike mirror”, *Optics Letters* **39**(1), 18-21 (2014).
126. Tankam, P., A.P. Santhanam, K.S. Lee, J. Won, C. Canavesi, and J.P. Rolland, “Parallelized multi-graphics processing unit framework for high-speed Gabor-domain optical coherence microscopy” *Journal of Biomedical Optics* **19**(7), 071410-1 to 10 (2014).
127. Fuerschbach, K., K.P. Thompson, G.E Davis, and J.P. Rolland “Assembly of a freeform off-axis optical system employing three ϕ -polynomial, Zernike mirrors”, *Optics Letters* **39**(10), 2896-2899 (2014).
128. Bauer, A., and J.P. Rolland, “Visual space assessment of two all-reflective, freeform, optical see-through head-worn displays”, *Optics Express* **22**(11), 13155-13163 (2014). Also in http://vjbo.osa.org/virtual_issue.cfm
129. Fuerschbach, K., J.P. Rolland, and K.P. Thompson, “Theory of Aberration Fields for General Optical Systems with Freeform Surfaces” *Optics Express* **22**(22) 26585-26606 (2014).
130. Huang, J., Q. Yuan, B. Zhang, K. Xu, P. Tankam, E. Clarkson, M.A. Kupinski, H.B. Hindman, J.V. Aquavella, T.J. Suleski, and J.P. Rolland, “Measurement of a multi-layered tear film phantom using optical coherence tomography and statistical decision theory”, *Biomedical Optics Express* **5**(12), 4374-4386 (2014).

2015

131. Yao, J., Panomsak Meemon, Michael Ponting, and Jannick P. Rolland, “Angular scan optical coherence tomography imaging and metrology of spherical gradient refractive index preforms” *Optics Express* **23**(5) 6428-6443 (2015). Also featured in the Virtual Journal of Biomedical Optics.
132. Tankam, P., Zhiguo He, Y. Chu, J. Won, C. Canavesi, T. Lepine, H. B. Hindman, D. J. Topham, P. Gain, G. Thuret, and J.P. Rolland, “Assessing microstructures of the cornea with Gabor-domain optical coherence microscopy: pathway for corneal physiology and diseases” *Optics Letters* **40**(6), 1113-1116 (2015). Also featured in the Virtual Journal of Biomedical Optics.
133. Huang, J., J. Yao, N. Cirucci, T. Ivanov, and J.P. Rolland “Performance analysis of optical coherence tomography in the context of a thickness estimation task”, *Journal of Biomedical Optics* **20**(12), 121306-1:8 (2015).
134. Duma, V., P. Tankam, J. Huang, J. Won, and J.P. Rolland, “Optimization of galvanometer scanning for optical coherence tomography,” *Applied Optics* **54**(17), 5495-5507 (2015).

135. Yao, J., J. Huang, P. Meemon, M. Ponting, and J. P. Rolland, "Simultaneous estimation of thickness and refractive index of layered gradient refractive index optics using a hybrid confocal-scan swept-source optical coherence tomography system," *Optics Express* **23**(23), 30149-30164 (2015).
136. Gray, R., and J.P. Rolland, "Wavefront aberration function in terms of R.V. Shack's vector product and Zernike polynomial vectors", *J. Opt. Soc. Am. A* **32**(10), 1836-1847 (2015).
137. Bauer, A. and J.P. Rolland, "Design of a freeform electronic viewfinder coupled to aberration fields of freeform optics", *Optics Express* **23**(22), 28141-28153 (2015).
138. Kitt, A.L., J. P. Rolland, and A. N. Vamivakas, "Visible metasurfaces and ruled diffraction gratings: a comparison" *Optics Express* **5**(12), 2895-2901 (2015).

2016

139. Bauer, A., J. P. Rolland, and K. P. Thompson, "Ray-based optical design tool for freeform optics: coma full-field display," *Optics Express* **24**(1), 459-472 (2016).
140. Meemon, P., J. Widjaja, and J.P. Rolland "Spectral fusing Gabor domain optical coherence tomography", *Optics Letters* **41**(3), 508-512 (2016).
141. Meemon, P., J. Yao, Y. Chu, F. Zvietcovich, K.J. Parker, and J.P. Rolland, "Crawling wave optical coherence elastography" *Optics Letters* **41**(5), 847-850 (2016).
142. Huang, J., H. B. Hindman, and J. P. Rolland, "In vivo thickness dynamics measurement of tear film lipid and aqueous layers with optical coherence tomography and maximum-likelihood estimation," *Optics Letters* **41**(9), 1981-1984 (2016).
143. Tankam P., J. Won, C. Canavesi, I. Cox, and J. P. Rolland, "Optical Assessment of Soft Contact Lens Edge-Thickness", *Optometry & Vision Science* **93**(8), 987-996 (2016).
144. Cogliati, A., C. Canavesi, A. Hayes, P. Tankam, V.-F. Duma, A. Santhanam, K. P. Thompson, and J. P. Rolland, "MEMS-based handheld scanning probe with pre-shaped input signals for distortion-free images in Gabor-Domain Optical Coherence Microscopy", *Optics Express* **24**(12), 13365-13374 (2016).
145. Yao, J., K. Thompson, B. Ma, and J. P. Rolland, "Volumetric rendering and metrology of spherical gradient refractive index lens imaged by angular scan optical coherence tomography system" *Optics Express* **24**(17), 19388-19404 (2016).

2017

146. Reimers, J., A. Bauer, K.P. Thompson, and J.P. Rolland, "Freeform spectrometer enabling increased compactness" *Light: Science and Applications* **6** e17026 (2017).
147. Zvietcovich, F., J.P. Rolland, J. Yao, P. Meemon, and K.J. Parker, "Comparative study of shear wave based elastography techniques in optical coherence tomography", *Journal of Biomedical Optics* **22**(3) 035010-1: 035010-17 (2017).
148. Xu D., J.D. Owen, J.C. Papa, J. Reimers, T. J. Suleski, J. R. Troutman, M.A. Davies, K.P. Thompson, and J.P. Rolland, "Design, fabrication, and testing of convex reflective diffraction gratings" *Optics Express* **25**(13), 15252-15267 (2017).
149. Dube, B., R Cicala, A. Closz, and J.P. Rolland, "How good is your lens? Assessing performance with MTF full-field-displays" *Applied Optics* **56**(20), 5661-5667 (2017).
150. Zvietcovich, F., J.P. Rolland, and K.J. Parker, "An approach to viscoelastic characterization of dispersive media by inversion of a general wave propagation model" in *Journal of Innovative Optical Health Sciences (JIOHS)* **10**(6), 1742008-1: 1742008-16 (2017).
151. Mark D.P. Willcox, Pablo Argüeso, Georgi A. Georgiev, Juha M. Holopainen, Gordon W. Laurie, Tom J. Millar, Eric B. Papas, Jannick P. Rolland, Tannin A. Schmidt, Ulrike Stahl, Tatiana Suarez, Lakshman N. Subbaraman, Omür O. Uçakhan , Lyndon Jones, "TFOS DEWS II Tear Film Report" *Ocular Surface* **15**, 366-403 (2017).

2018

152. Bauer, A., E. M. Schiesser, and J. P. Rolland, "Starting geometry creation and design method for freeform optics," *Nature Communications* **9**, 1756 (2018).
153. Zhao, N., J.C. Papa, K. Fuerschbach, Y. Qiao, K.P. Thompson, and J.P. Rolland, "Experimental investigation in Nodal Aberration Theory (NAT) with a customized Ritchey-Chrétien system: third-order coma", *Optics Express* **26** (7) 8729-8743 (2018).
154. Yao, J., A. Anderson, and J.P. Rolland, "Point-cloud noncontact metrology of freeform optical surfaces" *Optics Express* **26** (8) 10242-10265 (2018).
155. Papa, J. C., J. M. Howard, and J.P. Rolland, "Starting point designs for freeform four-mirror systems" *Optical Engineering Special Issue on Advanced Design Methods* **57**(10), 101705 (2018).
156. Nikolov, D. K., F. Cheng, N. Basaran, A. Bauer, J.P. Rolland, and N. Vamivakas, "Long-term efficiency preservation for gradient phase metasurface diffraction gratings in the visible" *Optical Materials Express* **9**(8), 2125-2130 (2018).
157. Schiesser, E.M., S. Bahk, J. Bromage, and J.P. Rolland, "Gaussian curvature and stigmatic imaging relations for the design of an unobscured reflective relay" *Optics Letters* **43**(20), 4855-4858 (2018).
158. Jakob, E. M., S. M. Long, D. P. Harland, R. R. Jackson, A. Carey, M. E. Searles, A. H. Porter, C. Canavesi, and J. P. Rolland, "Lateral eyes direct principal eyes as jumping spiders track objects", *Current Biology* **28**(18), R1092–R1093 (2018). **Featured on the New York Times' ScienceTake video series on Nov. 6th, 2018.**
159. Takaki, N., A. Bauer, and J.P. Rolland, "Degeneracy in freeform surfaces described with orthogonal polynomials" *Applied Optics* **57**(35), 10348-10354 (2018).
160. Chen, F., L. Qiu, D. Nikolov, A. Bauer, J.P. Rolland, and A. N. Vamivakas, "Polarization-switchable holograms based on efficient, broadband multifunctional metasurfaces in the visible regime", *Optics Express* **26** (23), 30678-30688 (2018).

2019

161. Tankam, P., J. Soh, C. Canavesi, M. Lanis, A. Hayes, A. Cogliati, J.P. Rolland, S.F. Ibrahim, "Gabor-domain optical coherence tomography to aid in Mohs resection of basal cell carcinoma", *J. Am. Acad. Dermatol.* **80**(6) 1766-1769 (2019).
162. Takaki, N., A. Bauer, and J.P. Rolland, "On-the-fly surface manufacturability constraints for freeform optical design enabled by orthogonal polynomials" *Optics Express* **27**(5), 6129-6146 (2019).
163. Xu, D., R. Chaudhuri, and J.P. Rolland, "Telecentric broadband objective lenses for optical coherence tomography in the context of low uncertainty metrology of freeform optical components: from design to testing for wavefront and telecentricity", *Optics Express* **27**(5), 6184-6200 (2019).
164. Chaudhuri, R., J.C. Papa, and J.P. Rolland "System design of a single-shot reconfigurable null test using a spatial light modulator for freeform metrology" *Optics Letters* **44**(8), 2000-2003 (2019).
165. Tankam, P., Z. He, G. Thuret, H.B. Hindman, C. Canavesi, J.C. Escudero, T. Lépine, P. Gain, and J.P. Rolland, "Capabilities of Gabor-domain optical coherence microscopy for the assessment of corneal disease," *J. Biomed. Opt.* **24**(4), 046002 (2019).
166. Chen, F., L. Qiu, D. Nikolov, A. Bauer, J.P. Rolland, and A. N. Vamivakas, "Mechanically tunable focusing metamirror in the visible," *Optical Materials Express* **27**(11), 15194-15204 (2019).
167. Chen, F., L. Ding, L. Qiu, D. Nikolov, A. Bauer, J.P. Rolland, and N. Vamivakas, "Polarization-switchable holograms based on efficient, broadband multifunctional metasurfaces in the visible regime" *Optics Express* **26**(23), 30678-30688 (2019).
168. Zvietcovich, F., Baddour, N., Rolland, J. P., and Parker, K. J., "Shear wave propagation in viscoelastic media: validation of an approximate forward model," *Phys Med Biol* **64**(2), 025008 (2019).
169. Zvietcovich, F., G.R. Ge, H. Mestre, M. Giannetto, M. Nedergaard, J.P. Rolland, and K.J. Parker, "Longitudinal shear waves for elastic characterization of tissues in optical coherence elastography", *Biomedical Optics Express* **10**(7), 3699-3718 (2019).
170. Zhu, J, B. Zhang, W. Hou, A. Bauer, J. P. Rolland, and G. Jin, "Design of an oblique camera based on a field-dependent parameter" *Applied Optics* **58**(21), 5650-5655 (2019).

171. Schiesser, E., A. Bauer, and J.P. Rolland, "Effect of freeform surfaces on the volume and performance of unobscured three mirror imagers" *Optics Express* **27**(15), 21750-21765 (2019).
172. Yoon, C., A. Mietus, Y. Qi, J. Stone, J. C. Escudero, C. Canavesi, P. Tankam, H. B. Hindman, and J. P. Rolland, "Quantitative assessment of human donor corneal endothelium with Gabor domain optical coherence microscopy" *J. Biom. Opt.* **24**(8), 085001 (2019).
173. Zvietcovich, F., Pongchalee, P., Meemon P., Rolland, J.P., Parker K., "Reverberant 3D Optical Coherence Elastography maps the elasticity of individual corneal layers" *Nature Communications* **10**:4895 (2019).
174. Nikolov, D., F. Cheng, L. Ding, A. Bauer, N. Vamivakas, and J.P. Rolland, "See-through reflective metasurface diffraction grating", *Optical Material Express* **9**(10), 4070-4080 (2019).
175. Bauer, A., M. Pesch, J. Muschaweck, F. Leuplet, and J.P. Rolland, "All-reflective electronic viewfinder enabled by freeform optics", *Optics Express* **27**(21), 30597-30605 (2019).
176. Schiesser, E., A. Bauer, and J.P. Rolland, "Estimating field-dependent nodal aberration theory coefficients from Zernike full-field displays by utilizing eighth-order astigmatism", *J. Opt. Soc. Am. A* **36**(11) 2115-2128 (2019).
177. Canavesi, C. and J.P. Rolland, "Ten years of Gabor domain optical coherence microscopy", *Applied Science* **9**, 2565 (2019).
178. Yoon C., Y. Qi, H. Mestre, C. Canavesi, O.J. Marola, A. Cogliati, M. nedergaard, R.T. Libby, and J.P. Rolland, "Gabor domain optical coherence microscopy combined with laser scanning confocal fluorescence microscopy", *Biomedical Optics Express* **10**(12), 6242-6257 (2019).
179. Yoon, C., A. Bauer, D. Xu, C. Dorre, and J.P. Rolland, "Absolute linear-in-k spectrometer designs enabled by freeform optics", *Optics Express* **24**(25), 34593-34602 (2019).
180. Schiesser, E., S.-W. Bahk, J. Bromage, and J.P. Rolland, "Design and alignment of an all-spherical unobscured four-mirror image relay for an ultra-broadband sub-petawatt laser", *Applied Optics* **58**(35), 9514-9523 (2019).

2020

181. Canavesi C., A. Cogliati, A. Mietus, Y. Qi, J. Schallek, J.P. Rolland, and H.B. Hindman, "In vivo imaging of corneal nerves and cellular structures in mice with Gabor-domain optical coherence microscopy" *Biomedical Optics Express* **11**(2), 711-724 (2020).
182. Takaki, N., J. C. Papa, A. Bauer, and J.P. Rolland, "Off-axis conics as base surfaces for freeform optics enable null testability", *Optics Express* **28**(8) 10859-10872 (2020).
183. Xu, D., A. G. Coletto, B. Moon, J. C. Papa, M. Pomerantz, and J. P. Rolland, "Cascade optical coherence tomography (C-OCT)," *Optics Express* **28**(14), 19937-19953 (2020).

2021

184. Rolland, J.P., M.A. Davies, T.J. Suleski, C. Evans, A. Bauer, J.C. Lambropoulos, and K. Falaggis "Freeform optics for imaging" *Optica* **8**(2), 161-176 (2021).
185. Paczos, T., A. Bonham, C. Canavesi, J. P. Rolland, and R.O'Connell, "Near-histologic resolution images of cervical dysplasia obtained with Gabor domain optical coherence microscopy" *Journal of Lower Genital Tract Disease* **25**(2),137-141 (2021) **[has been recommended in Faculty Opinions as being of special significance in its field by Faculty Member Rosemarie Heyn]**
doi: 10.1097/LGT.0000000000000590
186. Xu, D., Z. Wen, A.G. Coletto, M. Pomerantz, J. C. Lambropoulos, and J.P. Rolland, "Verification of cascade optical coherence tomography (C-OCT) for freeform optics form metrology", *Optics Express* **29**(6), 8542-8552 (2021).
187. Nikolov, D.K., A. Bauer, F. Cheng, H. Kato, A. N. Vamivakas, J. P. Rolland, "Metaform optics: Bridging nanophotonics and freeform optics", *Science Advances* **7**(18), eabe5112 (2021).
188. Karci, O., E. Arpa, M. Ekinici, and J.P. Rolland, "Experimental investigation of binodal astigmatism in nodal aberration theory (NAT) with a Cassegrain telescope system" *Optics Express* **29**(13), 19427-19440 (2021).

189. Ge, G.R., K.J. Parker, and J.P. Rolland, "Speckle Statistics of Biological Tissues in Optical Coherence Tomography," *Biomedical Optics Express* **12**(7), 4179-4191 (2021).
190. Bauer, A., and J.P. Rolland, "Roadmap for the unobscured three-mirror freeform design space," *Optics Express* **29**(17), 26736-26744 (2021).
191. Liu, Y., A. Bauer, T. Viard, and J.P. Rolland, "Freeform hyperspectral imager design in a CubeSat format," *Optics Express* **29**(22), 35915-35928 (2021).
192. Kim, W., W. J. Cassarly, and J.P. Rolland, "Connecting tolerancing of freeform surface deformation in illumination optics with the Laplacian magic mirror," *Optics Express* **29**, 40559-40571 (2021).
193. Papa, J.C., J.M. Howard, and J.P. Rolland, "Survey of the four-mirror freeform imager solution space," *Optics Express* **29**(25), 41534-41551 (2021).

2022

194. Ge, G.R., B. Tavakol, D.B. Usher, D.C. Adler, J.P. Rolland, and K.J. Parker "Assessing corneal cross-linking with reverberant 3D optical coherence elastography" *Journal of Biomedical Optics* **27**(2), 026003 (2022). (14 February 2022).
195. N Kunanta, N., F. Zvietcovich, K.J. Parker, J.P. Rolland, and P. Meemon, "Performance of Shear Wave Speed Measurements by Using Reverberant Optical Coherence Elastography" *CHIANG MAI JOURNAL OF SCIENCE* (2022).
196. Takaki, N., G.W. Forbes, and J.P. Rolland, "Schemes for cubature over the unit disk found via numerical optimization," *Journal of Computational and Applied Mathematics* **407**, 114076 (2022)
197. Falaggis, K., J. Rolland, F. Duerr, and A. Sohn, "freeform optics: Introduction", *Optics Express* **30**(4), 6450-6455 (2022).
198. Karci, Ö, M. Yeşiltepe, E. Arpa, Y. Wu, M. Ekinici, and J. P. Rolland, "Experimental investigation in nodal aberration theory (NAT): separation of astigmatic figure error from misalignments in a Cassegrain telescope," *Optics Express* **30**(7), 11150-11164 (2022).
199. Goodsell, J., V. Blahnik, and J. P. Rolland, "Method for minimizing lens breathing with one moving group," *Optics Express* **30**(11), 19494-19509 (2022).
200. Ge, G.R., W. Song, M. Nedergaard, J.P. Rolland, K.J. Parker, "Theory of sleep/wake cycles affecting brain elastography" *Physics and Medicine and Biology* **67**(22), 225013 (2022). Nov 16
201. Ge, G. R., J. P. Rolland, and K. J. Parker, "Local Burr distribution estimator for speckle statistics," *Biomed. Optics Express* **13**(4), 2334-2345 (2022).
202. Chaudhuri, R., A. Wansha, R. Porras-Aguilar, and J.P. Rolland, "Implementation of a null test for freeform optics using a high-definition spatial light modulator" *Optics Express* **30**(24), 43938 (2022).
203. Gbur G., G. Agarwal, M. Alonso, P.S. Carney, A.T. Friberg, P. Knight, J.P. Rolland, and T. Shirai, "100 years of Emil Wolf: introduction," *J. Opt. Soc. Am. A* **39**, EW1-EW2 (2022).

2023

204. Goodsell, J., P. Xiong, D.K. Nikolov, A.N. Vamivakas, and J.P. Rolland, "Metagrating meets the geometry-based efficiency limit for AR waveguide in-couplers," *Opt. Express* **31**, 4599-4614 (2023).
205. Liu, Y. J. Steidle, and J.P. Rolland, "Intrinsic aberration coefficients for plane-symmetric optical systems consisting of spherical surfaces," *J. Opt. Soc. Am. A* **40**, 378-387 (2023).
206. Ge, GR, J.P. Rolland, W. Song, M. Nedergaard, and K.J. Parker, "Fluid compartments influence elastography of the aging mouse brain - *Physics Med. Biol.* **68**(9), 095004 (2023).
207. Bauer, A., C. Zhang, and J.P. Rolland, "Exit pupil quality analysis and optimization in freeform afocal telescope systems," *Opt. Express* **31**(15), 24691-24701 (2023).
208. Ge, G.R., W. Song, J.P. Rolland, M. Nedergaard, and K.J. Parker "Corrigendum: Theory of sleep/wake cycles affecting brain elastography" *Phys. Med. Biol.* **67**, 225013 (2023).
209. Xiong, P. D.K. Nikolov, F. Cheng, J.P. Rolland, A.N. Vamivakas, "All-dielectric hybrid VIS-NIR dual-function metasurface" arXiv preprint arXiv:2310.09393 (2023).

210. Yeşiltepe, Y., A. Bauer, Karci, Ö, and J.P. Rolland, "Sigma vector calculations in nodal aberration theory (NAT) and experimental validation using a Cassegrain Telescope" *Opt. Express* **31**(25), 42373-42387 (2023).

2024

211. DeMars L.A., A. Bauer, B.D. Stone, J.P. Rolland, and T.J. Suleski, "Workflow for modeling of generalized mid-spatial frequency errors in optical systems," *Opt. Express* **32**(2), 2688-2703 (2024).
212. Moon, B., M. Poletti, A. Roorda, P. Tiruveedhula, S.H. Liu, Glory Linebach, M. Rucci, and J.P. Rolland, "Alignment, calibration, and validation of an adaptive optics scanning laser ophthalmoscope for high-resolution human foveal imaging" *Applied Optics* **63**, 730-742 (2024)
213. Rolland, J.P., and J. Goodsell "Waveguide-based augmented reality displays: a highlight" *Light Sci Appl* **13**, 22 (2024).
214. Bauer, A. C. Zhang, Y. Liu, and J.P. Rolland, "Multiconfiguration afocal freeform telescopes" *Opt. Express* **32**(4), 6154-6167 (2024).
215. Goodsell, J., D.K. Nikolov, A.N. Vamivakas, and J.P. Rolland," Framework for optimizing AR waveguide in-coupler architectures, *Opt. Express* **32**(6), 9967-9981 (2024).
216. Asemini H., J.P. Rolland, and K.J. Parker, "Angular Integral Autocorrelation for Speed Estimation in Shear Wave Elastography" *Acoustics* **6**, 413-438 (2024).
217. Fan Y., G.W. Forbes, and J.P. Rolland, "Speed Zernike Fitting of Freeform Surfaces Using Gauss-Legendre Quadrature" *Opt. Express* **33**(11), 20011-20023 (2024).
218. Kim W., W.J. Cassarly, and J.P. Rolland, "Method of Estimating Irradiance with an Extended Source without Monte Carlo Simulation" *Opt. Express* **32**(12), 20959-20975 (2024).
219. Ge, G.R., W. Song, M.J. Giannetto, J.P. Rolland, M. Nedergaard, and K.J. Parker, "Mouse Brain Elastography Changes with Sleep/Wake Cycles, Aging, and Alzheimer Disease" *NeuroImage* Jul. 15., 295:120662 (2024).
220. Xiong, P., D. Nikolov, F. Cheng, J.P. Rolland, and A.N. Vamivakas "All-dielectric hybrid VIS-NIR dual-function metasurface" *J. Opt.* **26**, 075104 (2024).
221. Prahalad, K., A.M. Clark, B. Moon, A. Roorda, P. Tiruveedhula, W. Harmening, A. Gutnikov, S.K. Jenks, S. Kapisthalam, M. Rucci, Jannick P. Rolland, M. Poletti "Investigating the relationship between foveal cone density and its interaction with foveal crowding" *Invest. Ophthalmol. Vis. Sci.* **65**(7):3367 (2024).
222. Steidle, J., J. Howard, and J.P. Rolland, "Constraining first-order pupil locations of rotationally symmetric imaging systems" *JOSA A* **41**(9), 1713-1722 (2024).
223. Moon, B., G. Linebach, A. Yang, S. Jenks, M. Rucci, M. Poletti, and J. Rolland, "High refresh rate display for natural monocular viewing in AOSLO psychophysics experiments," *Opt. Express* **32**(18), 31142-31161 (2024).
224. Swain, B.R., M.A. Qadeer, C. Dorrer, R. Manjula Narayanan, J.P. Rolland, and J. Qiao "Wavefront sensing with optical differentiation powered by deep learning" *Optics Letters* **49** (18), 5216-5220 (2024).
225. Bauer, A., J.P. Rolland, S. Clark, E. Potma, and A. Hanninen, "All-reflective freeform microscope objective for ultra-broadband microscopy," *Opt. Express* **32**(27), 47893-47907 (2024).
226. Romer, N., N. Zhao, Ö. Karci, and J.P. Rolland, "Alignment of a Ritchey-Chrétien Telescope with Primary Mirror Figure Error Guided by Rapid Measurement of Binodal Astigmatism", *Opt. Express* **32**(27), 48525-48540 (2024).

2025

227. Ochs, L., M.A. Davies, B.S. Dutterer, A. Bauer, J.P. Rolland, and G.D. Boreman "Optical image quality testing and correction of a 250-mm freeform telescope" *Opt. Continuum* **4**(1), 59-74 (2025).

228. Asemani, H., J. P. Rolland and K. J. Parker, "Integrated Difference Autocorrelation: A Novel Approach to Estimate Shear Wave Speed in the Presence of Compression Waves," in *IEEE Transactions on Biomedical Engineering* **72**(2), 586-594, Feb. (2025).
229. Liu, Y., and J.P. Rolland, "Analytical aberration theory for plane-symmetric optical systems and its application in the analysis of distortion in freeform spectrometers" *JOSA A* **42**(3), 362-377 (2025).
230. Liu, Y., and J.P. Rolland, "Analytical aberration theory for plane-symmetric optical systems and its application in the analysis of distortion in freeform spectrometers: erratum" *JOSA A* **42**(12), 1881-1883 (2025).
231. Zhang, C., J.P. Rolland, and A. Bauer, "Continuous zoom freeform afocal telescope" *Optics. Letters* **50**(6), 1827-1830 (2025).
232. Goodsell, J., D. K. Nikolov, N. Vamivakas, and J.P. Rolland, "Beam interaction and targeted optimization methods for AR waveguide design" *Opt. Express* **33**(10), 21999-22018 (2025).
233. Akkaya I., O. Arslan, and J.P. Rolland "Automated and Highly Precise Surface Wetting Contact Angle Measurement with Optical Coherence Tomography Based on Deep Learning Model" *Measurement* **253**, Part D, 117788, ISSN 0263-2241 (2025). **Best Researcher Award.**
234. Kuhn, J. et al., "Creating ground-based telescopes for imaging interferometry: SELF and ELF" *Light: Advanced Manufacturing* **6**:33, 1-15 (2025).
235. Nikolov, D., H. Zou, Y. Fan, M. Ferguson, D. Brooks, J. Hall, J. Fourez, A. Sohn, and J.P. Rolland, "Towards Automated Manufacturing Process Chains for Freeform Optics with Effective Reference Structures", *Light: Advanced Manufacturing* **6**(4), 904-914 (2025). doi: [10.37188/lam.2025.061](https://doi.org/10.37188/lam.2025.061)
236. Yesiltepe, M, N. Romer, E. Ceylan, J.P. Rolland, and Ö. Karci, "Single-step alignment of a two-mirror telescope using sigma vectors in Nodal Aberration Theory" *Applied Optics* **64**(28), 8196-8203 (2025).
237. Bauer, A., N. Takaki, and J. P. Rolland, "Design methods for imaging with freeform optics" *Optica* **12**(11), 1775-1793 (2025).
238. Palacios, Y.Y.L, T.N.A. Hoang, S. Khandani, S. Clark, A. Bauer, J.P. Rolland, E.O. Potma, and A.M. Hanninen, "Nonlinear optical microscopy with an obscuration-free, freeform reflective objective" *Biomedical Optics Express* **16**(1), 4530-4539 (2025).
239. Romer, N., and J.P. Rolland, "Source Wavefront Generation for a Non-Interferometric Reconfigurable Null Test using a Photonic Lantern" *Optics Lett.* **50**(24), 7536-7539 (2025).
240. Xiong, P., Jeremy Goodsell, Daniel Nikolov, J.P. Rolland, and Nick A. Vamivakas, "Design and Experimental Validation of a High-Efficiency Multi-Zone Metasurface Waveguide In-Coupler" *Optical Mater. Express* **15**(12), 3129-3140 (2025).
241. Prahalad KS, Clark AM, Moon B, Roorda A, Tiruveedhula P, Harmening W, Gutnikov A, Jenks SK, Kapisthalam S, Rucci M, Rolland JP, Poletti M. Non-uniform signal pooling across the foveola. *Current Biology* 35, 1-14 (2025).

2026

242. Steidle, J., J.M. Howard, and J.P. Rolland, "Pupil aberration coefficients in plane-symmetric optical systems" *JOSA A*. **43**(1) 1-11 (2026).
243. Fan, Y., J.P. Rolland, A.N. Vamivakas, and D.K. Nikolov, "Two-level optimizer for large-scale metasurfaces with strong near-field coupling," *Opt. Express* **34**, 1602-1616 (2026).
244. Ferguson, M., A. Sun, D.K. Nikolov, M. Zhang, N. Vamivakas, and J.P. Rolland "Optical metasurfaces: concept, design, and classification," *Optical Engineering* **65**(10), 102003 (19 May 2026)
245. Zhang, K., A. Sun, N. Mishra, D.K. Nikolov, J.P. Rolland, and N.A. Vamivakas, "Polarization-controlled holographic multifocal metalens," *Opt. Mater. Express* **16**, 2260-2269 (2026).
246. Asemani, H., P. Meemon, G. F. Barrera, J.P. Rolland, and K.J.. Parker, "Multi-Frequency Reverberant Shear Waves for Assessing Tissue Dispersion in Optical Coherence Elastography" *Light: Advanced Manufacturing* (in press) doi: 10.37188/lam.2026.127 (2026)

247. Manjula Narayanan, R., A. Bauer, C. Zhang, M.M. Ferguson, A. Maciá, M. Pomerantz, J. Qiao, R. Chaudhuri, and J.P. Rolland, "Reconfigurable interferometric form and mid-spatial frequency metrology for extended reality freeform optics" *Opt. Express* **34**(17), 31265-31282 (2026)
248. Moon, B., Prahalad, K.S., Clark, A.M., Roorda, A., Tiruveedhula, P., Harmening, W., Gutnikov, A., Jenks, S.K., Kapisthalam, S., Rucci, M. and Rolland, J.P., 2026. Rapid fine-scale sensorimotor plasticity in human foveal vision. *Current Biology*, *36*(16), pp.R902-R903.

Plenary / Keynote Presentations

(This list is built from oldest to most recent)

1. Rolland, J.P., O. Cakmakci, and S. Vo, "A Perspective on the Design of Head-Worn Displays," SPIE Europe Optical System Design (September 2008).
2. Thompson K., T. Schmid, and J.P. Rolland, "Understanding the Alignment of TMA Telescopes with Nodal Aberration Theory," SPIE Europe Optical System Design (September 2008).
3. Rolland, J.P., "Seeing beyond skin in three dimensions: The Optics and Optical Design of a Gabor Domain Optical Coherence Microscope with Imbedded Liquid Lens", UK Optical Designers Meeting (Abington UK, September 16, 2010).
4. Rolland, J.P., "Beyond Aspherics" Annual Meeting of the SPIE, San Diego CA (2011).
5. Rolland, J.P., "Towards quantitative imaging of the tear film dynamics and understanding its clinical relevance" 7th International Conference on the Tear Film & Ocular Surface: Basic Science and Clinical Relevance Taormina, Sept. 18-21 (2013) (Keynote)
6. Rolland, J.P., "Freeform Optics" OSA Topical Meeting on Freeform Optics, Tucson AZ (2013)
7. Rolland, J.P., "Freeform Optics Setting a Path to the Future", International Symposium on Optoelectronic Technology and Application (IPTA) 2014, Beijing China (May 13-15 2014)
8. Thompson, K. and J.P. Rolland, "Will Computational Imaging Change Lens Design?" International Optical Design Conference, June 22-26, Hawaii Kona Island (2014)
9. Rolland, J.P., "Applications and Challenges with Freeform Optics" ASPE, (Hawaii, Big Island, 22-26 June 2014)
10. Rolland, J.P., "Highlights of a two-parts case study with freeform optics" EPIC workshop Denmark (February 23-24 2015)
11. Rolland, J.P., "Freeform Optics – A Leap Forward in Optical Systems", Applied Optics and Photonics China (AOPC2015), 5-7 May 2015, Beijing China.
12. Rolland, J.P., "Advances in Freeform Optics", Photonics Asia and COS, 12-15 October 2016, Beijing China.
13. Rolland, J.P., "Freeform Optics: A glimpse at this emerging technology impacting novel instrumentation that will enable the science of tomorrow" IONS Conference Xian-China (24-27 April 2017)
14. Rolland, J.P., "Freeform Optics from Design to Manufacture: Envisioned Impact on Technology to Enable the Science of Tomorrow" OSA Congress July 9-14 (2017)
15. Rolland J.P. "A Perspective on AR/VR" ISMAR 2017 (declined – major conflict with teaching)
16. Rolland J.P. Invited to talk on Freeform Optics at a NATO Science Panel Fall 2017 (declined – overlapped with OSA Annual Meeting with pre-commitments).
17. Rolland J.P. "Freeform Optics" at Optical Design and Fabrication (ODF) Hiroshima Japan Nov. 26-30 (2018).
18. Rolland J.P. Design of an all-reflective freeform viewfinder. UKODM2019. Imperial College London Sept. 19 (2019).
19. Rolland, J.P. "A (Short) Journey Beyond Freeform Optics", Photonics West (2021)
20. Nikolov D.K., A. Bauer, A. N. Vamivakas, J.P. Rolland, "From Freeform to Metaform: Design, Fabrication, and Testing" Optifab 2021 (Rochester NY, October 19, 2021)

21. Rolland, J.P., "Recent Advances in Corneal Imaging" Spanish National Optics (Reunion National de Optica RNO2021) Conference (Online, November 22, 2021)
22. Rolland, J.P., Freeform Optics for Imaging and the Concept of the Metaform, 1st International Conference Advances in 3OM: Opto-Mechatronics, Optomechanics, and Optical Metrology, Timisoara, Romania (Dec. 13-16, 2021).
23. Rolland, J.P., Shaping the Future of Augmented and Virtual Reality (AR/VR). Visionary Keynote at Frontiers in Optics. (Seattle Washington, October 9, 2023).
24. Rolland, J.P., Augmented and Virtual Reality: Shaping Tomorrow's World. Keynote at ICCP 2024 (Lausanne Switzerland, July 23, 2024).
25. Rolland, J.P., "Shaping Tomorrow's World with X-Realities" Keynote at AR/VR Symposium (Rochester NY, October 25, 2024).
26. Rolland, J.P., "Anterior-segment imaging with Gabor-Domain Optical Coherence Microscopy (GD-OCM)" Keynote at Suranaree University of Technology (Thailand, August 15, 2025).

Invited Talks/Papers

(This list is built from earliest to most recent)

1. Rolland, J.P., "Synthetic experience in virtual worlds," Imagina, Monte-Carlo, France, (January, 1991).
2. Rolland, J.P., "Insight into optical properties of wide-angle see-through head-mounted displays," Virtual Worlds Conference, SRI, Seattle, WA, (June, 1991).
3. Rolland, J.P., "Towards blending real and virtual environments," ACM-SIGGRAPH New York, NY, (May, 1992).
4. Rolland, J.P., "Depth and size perception in virtual environments," Optical Society of America General Meeting, Albuquerque, NM, (September, 1992). (Abstract).
5. Barrett, H.H., J. Yao, and J.P. Rolland, "Applications of the Hotelling observer in medical imaging," Optical Society of America General Meeting, Albuquerque, NM, (September, 1992) (Abstract).
6. Rolland, J.P., "Depth perception in see-through head-mounted displays," Virtual Reality International Symposium, Seattle, WA, (1993).
7. Rolland, J.P., "Head-mounted displays for virtual environments: The optical interface," International Lens Design Conference, Proceedings of the Optical Society of America 22, 329-333, (1994).
8. Rolland, J.P., "Depth and size perception in virtual environments," MIT Media Lab, (September, 1995).
9. Rolland, J.P., "Development of a virtual reality dynamic anatomy (VRDA) tool," Symposium on High Tech Education for the Third Millennium," Oregon Institute of Technology, Klamath Falls, OR, (April, 1997).
10. Rolland, J.P., "Role of synthetic backgrounds in image quality assessment," National Institutes of Health, Workshop on Image perception in Radiology, Washington, DC, (October 21, 1997).
11. Rolland, J.P., "Depth perception in virtual environments," American Psychological Association Annual Convention, Chicago, IL, (1997).
12. Rolland, J.P., Y. Baillot, L. Davis, L. Vaissie, and D.L. Wright, "Role of optics in virtual environments," Proceedings of the International Lens Design Conference, Hawaii, (1998).
13. Rolland, J.P., "Building the future of biology and medicine," Bioengineering and Clinical Medicine Symposium, National Institutes of Health, Bethesda, MD, (February 27, 1998).
14. Rolland, J.P., "Optical texture in images," Third International Conference on Optical Signal Processing Conference, Moscow, Russia, (May 28-31, 1999).
15. Rolland, J.P., "Advances in texture synthesis, analysis, and imaging," SIAM/SEAS, Knoxville, TN, (March 19, 1999).
16. Rolland, J.P., "Augmented reality with innovative displays," Augmented Reality Workshop, Navy Research Lab (NRL), Washington, DC, (December 7, 2000). (Invited talk).

17. Kennedy, R.S., K.M. Stanney, J.P. Rolland, and A. Mead, "Optokinetic studies of the relationship between ego-motion and cybersickness," Aerospace Medical Association Meeting, Reno, NV, (May, 2001).
18. Rolland, J.P., V. Outters, and Y. Argotti, "Recent developments of augmented reality technology for the virtual reality and dynamic anatomy (VRDA) tool," Medicine Meets Virtual Reality (MMVR), 2000, Eds. J.D. Westwood, H.M. Hoffman, R.A. Robb, and D. Stredney, (IOS Press) (January, 2000). (Presentation Selected for Reporting in MD Computing – see Public Relations).
19. Hua, H. and J.P. Rolland, "Design of a compact lens using diffractive optics for a projected head-mounted display," Optical Society of America Annual Meeting, Providence, RI, (October 22-26, 2000). (Abstract and Oral Presentation).
20. Hua, H. and J.P. Rolland, "Technologies of head-mounted displays for 3D visualization and wearable applications," Computer Graphics Seminar at the Computer Science Department at the University of Illinois at Urbana-Champaign, IL, (November 29, 2000). (Abstract and Oral Presentation).
21. Hua, H. and J.P. Rolland, "Technologies of head-mounted displays for 3D visualization and wearable applications," Human interaction with Complex Systems (HICS) at the Beckman Institute, University of Illinois at Urbana-Champaign, IL, (May, 2000) (Workshop).
22. Kennedy, R.S., K.M. Stanney, J.P. Rolland, and A. Mead, "Optokinetic studies of the relationship between ego-motion and cybersickness," Aerospace Medical Association Meeting, Reno, NV, (May, 2001).
23. Rolland, J.P., H. Hua, C. Gao, and F. Biocca, "Innovative displays for augmented reality applications and remote collaborations," Medicine Meets Virtual Reality (MMVR), Newport Beach, CA, (January 27, 2001). (Abstract and Oral presentation).
24. Hua, H., L.D. Brown, C. Gao, N. Ahuja, and J.P. Rolland, "A head-mounted projective display and its applications in interactive augmented environments," SIGGRAPH 2001 Sketches & Application, Los Angeles, CA, (August 12-17, 2001).
25. Rolland, J.P., "Augmented reality with potential use in the fields of orthopedics and rehabilitation," Department of Mechanical Engineering, at the Louisiana State University, Baton Rouge, New Orleans, LA, (September 7, 2001).
26. Rolland, J.P. and F. Biocca, "New paradigm for head-mounted display technology and its application to medical visualization and remote collaborations," The International Society for Optical Engineering (SPIE) Annual Meeting, San Diego, CA, (June, 2001).
27. Rolland, J.P., "Innovation in head-mounted displays: a demonstration of augmented reality," Optical Society of America Annual Meeting, Long Beach, CA, (October 14-18, 2001). (Abstract).
28. Rolland, J.P., L. Davis, Y. Argotti, Y. Ha, B. DelVento, A. Akcay, H. Zheng, V. Shaoulov, and C. Meyer, "3D visualization and imaging in distributed collaborative environments," Computer Graphic Applications (January, 2002).
29. Rolland, J.P., "Wearable displays: Demonstration of the 3D ARC Display," (Special Event – Optical Society of America Annual Meeting) Orlando, FL, (2002).
30. Rolland, J.P., "Emerging Visual Technologies: The developments in visual displays," SMI'03 (January, 2003 & March, 2003).
31. Rolland, J.P., "Surgical displays," Photon Forum, Tucson, AZ, (April 6, 2004).
32. Rolland, J.P., "Past, present, and future of wearable displays," Keynote Invitation at the CITSA'04, Orlando, FL, (July 23, 2004).
33. Rolland, J.P., and O. Cakmakci, "Past, present, and future of wearable displays," Photonics Asia Beijing, China, (November 8-12, 2004).
34. Hamza-Lup, F. and J.P. Rolland. "Augmented reality and Internet 2 for advanced collaborative environments," Internet 2 Fall Members Meeting, Austin, TX, (September, 2004).
35. Pansing, C., H. Hua, and J.P. Rolland, "Optimization of illumination schemes in a head-mounted-display integrated with eye tracking capabilities," Novel Optical Systems Design and Optimization VIII. SPIE Symposium on Optics and Photonics, Proceedings of SPIE 5875, San Diego, CA, (July 31 – August 4, 2005).

36. Rolland, J.P., "Visualisation 3D avec la réalité augmentée," Institut d'Optique Théorique et Appliquée, Université Paris Sud, France, (February 11, 2005).
37. Rolland, J.P., "Imagerie a basse cohérence optique," Institut d'Optique Théorique et Appliquée, Université Paris Sud, France, (April 14, 2005).
38. Rolland, J.P., "Vers L'imagerie a basse cohérence optique quantitative," Ecole Supérieure de Physique et de Chimie Industrielle, Paris, France, (June, 2005).
39. Rolland, J.P., "Visualisation 3D avec la réalité augmentée," Ecole Nationale Supérieure des Télécommunications, Paris, France, (March 18, 2005).
40. Santhanam, A. and J.P. Rolland, "Visualization of 3D lung dynamics," Mayo Clinic, College of Medicine, (July, 2005).
41. Rolland, J.P., "Head-mounted Displays," SID Student Chapter Meeting Kickoff, (October 2005)
42. Rolland, J.P., "Overview of head-mounted display (HMD) research and development," AFRL/HEAE, Mesa, AZ, (December, 2005).
43. Rolland, J.P., A.C. Akcay, K.S. Lee, and L. Furenlid, "Utilization of broadband fiber couplers in optical coherence imaging," NSF and DARPA workshop for the PTAP program, Hawaii, (July 2005).
44. Rolland, J.P., "In situ 3D visualization with deployable and head-worn displays," Affiliates Day, College of Optics and Photonics (April 21, 2006).
45. Rolland, J.P., "Design of head-worn displays," University of LINZ, Austria, (June 2006).
46. Cakmakci O. and J.P. Rolland, "Head-worn displays," IEEE/OSA Journal of Display Technology, 2(3) (September, 2006). (Co-listed under peer review publications).
47. Curatu, C. , G. Curatu, and J.P. Rolland, "Fundamental and specific steps in Shack-Hartmann wavefront sensor design," Annual Meeting of the SPIE (August, 2006).
48. Rolland, J.P., "Beyond the Desktop: Emerging technologies for supporting 3D collaborative teams," Virtual Concept 2006, Cancun, Mexico, (2006).
49. Rolland, J.P., K.S. Lee, C. Akcay, L. Furenlid, and H. Xie, "Fiberoptic-based optical coherence imaging with broadband couplers: Robustness and deployability," PTAP Annual Meeting. Maui, Hawaii, (2007).
50. Rolland, J.P., "Visualization with deployable and head-worn displays," University of Galway. Ireland, (July, 2007)
51. Rolland, J.P., "Mountain tops and wilderness: A new vision," (Invited Tutorial Talk). Optical Society of America Annual Meeting, San Jose, CA, (September, 2007).
52. Fournier, F. and J.P. Rolland, "Freeform components for projection displays," UK Optical Designers' Meeting, Oxfordshire, United Kingdom, (2007) (Abstract)
53. Rolland, J.P., O. Cakmakci, K.S. Lee, C. Fidopiastis, F. Hamza-Lup, and A. Santhanam, "Beyond the desktop: Emerging technologies for supporting collaborative teams in virtual environments," Proceedings of SPIE Photonics Asia. Beijing, China 68340B (November 12, 2007).
54. Thompson, K., T. Schmid, and J.P. Rolland, "Alignment induced aberration fields of next generation telescopes," Proceedings of SPIE Photonics Asia, paper 68340B, Beijing, China, (November 12, 2007).
55. Thompson, K., T. Schmid, and J.P. Rolland, "Important new concepts for aligning TMA-based telescopes and astronomical instrumentation," 7017-11, SPIE Symposium on Astronomical Telescopes and Instrumentation: Synergies Between Ground and Space, Marseilles, France, (June 23-28, 2008).
56. Cakmakci, O., G.E. Fasshauer, H. Foroosh, K.P. Thompson, and J.P. Rolland, "Meshfree approximation methods for free-form surface representation in optical design with applications to head-worn displays," Annual Meeting Proc. SPIE 7061 (2008).
57. Schmid T., K. Thompson, and J.P. Rolland, "Alignment induced aberration fields of next generation telescopes," Proc. SPIE 7068, 70680E (2008) SPIE Annual Meeting (2008).
58. Rolland, J.P., P. Meemon, S. Murali, A. Jain, N. Papp, K. Thompson, and K.S. Lee, "Gabor domain optical coherence microscopy," 1st Canterbury Workshop on Optical Coherence Tomography and

- Adaptive Optics, September 8-10, edited by Adrian Podoleanu, Proceedings of the SPIE Vol. 7139, 71390F (2008).
59. Hsu, K. and J.P. Rolland, "Ultra broadband Fourier-domain mode-locked lasers," invited paper to the 1st Asia-Pacific Optical Fiber Sensors Conference (APOS), Chengdu, China, (2008).
 60. Santhanam, P., J.P. Rolland, T. Willoughby, and P. Kupelian, "Image-based dynamic lung models for model-guided real-time lung radiotherapy, "Biomedical Applications in Molecular, Structural, and Functional Imaging, SPIE Paper Number 7262-13 (2009).
 61. Thompson, K.P., T. Schmid, W.P. Kuhn, and J.P. Rolland, "Development of an alignment insensitive 4-mirror coaxial telescope design using nodal aberration theory," Optifab, paper TD06-26, Rochester, NY, (2009).
 62. Schmid, T., K. Thompson, and J.P. Rolland, "Aberrations in optical systems without symmetry, Theory and Application," seminar given at Corning Tropel Corporation, Fairport, NY, (2009).
 63. Thompson, K.P., T. Schmid, K. Fuerschbach, and J.P. Rolland, "Using nodal aberration theory to understand the aberration fields of multiple unobscured Three Mirror Anastigmatic (TMA) telescopes," UK Optical Design Conference, Edinburgh, United Kingdom, (September 16, 2009).
 64. Thompson, K., J.P. McGuire, O. Cakmakci, and J.P. Rolland, "The coming generation of head-worn displays (HWDs): Will the future come to us through new eyes?" Optical Society of America Annual Meeting, San Jose, CA, (October 10-16, 2009).
 65. Cakmakci, O. and J.P. Rolland, "Application of radial basis functions to the design of a freeform single element see-through head-worn display," **Invited** talk at the Optical Society of America Annual Meeting, San Jose, CA, (October 10-16, 2009).
 66. Fournier, F., W. J. Cassarly, and J. P. Rolland. "A review of lightpipe design for projection displays," ODF '10 Yokohama (7th International Conference on Optics-photonics Design & Fabrication), 19 - 21 April 2010.
 67. Jannick P. Rolland, Ilhan Kaya, Kevin P. Thompson, and Ozan Cakmakci "Head-worn Displays – Lens Design," Proceedings of SID2010 (57.3)(Seattle, WA) (2010).
 68. Thompson, K.P., T. Schmid, and J.P. Rolland, "Misalignment-induced Aberrations of JWST", NASA Mirror Technology, Boulder CO., June 7-9 (2010).
 69. Cakmakci, O., J.P. McGuire, K.P. Thompson, G.E. Fasshauer, and J.P. Rolland, "Application of radial basis functions to represent optical free-form surfaces," International Optical Design Conference 2010, Wyoming.
 70. Thompson, K., F. Fournier, J.P. Rolland, and G. Forbes, "The Forbes polynomials: a more predictable surface for fabricators," Topical Meeting of the OSA, Optical Fabrication and Testing, Jackson Hole, WY, (2010).
 71. Rolland, J.P., "Gabor Domain Optical Coherence Microscopy", GE Research, Albany NY July 22 (2010)
 72. Rolland, J.P., "Evolving methods for specifying freeform optical surfaces for optimization and fabrication", SBIR Review Program, July 13 (Rochester, NY, 2010).
 73. Thompson, K.P., K. Fuerschbach, and J.P. Rolland, "An analytic expression for the field dependence of FRINGE Zernike polynomial coefficients in optical systems that are rotationally nonsymmetric", Photonics Asia, Proc. SPIE 7849, 784906;1-11 (2010).
 74. Lee, K.S., S. Vo, and J. P. Rolland, "Optical Coherence Microscopy Using Bessel Beam," in Frontiers in Optics, OSA Technical Digest (CD) (Optical Society of America, 2010), paper FMI1.
 75. Lee, K.S., S. Vo, and J. P. Rolland, "Optical Coherence Microscopy Using Bessel Beam," in Proceedings of SPIE Photonics West Paper 7891-34 78910M (2011).
 76. Rolland, J.P., "Tomography for Depth Imaging of Biological Systems at Micron Resolution", In AAAS Annual Meeting, Washington DC (Feb 17-21 2011).
 77. Rolland, J.P., "Head-Worn Displays; Will the Future come to us through New Eyes?" Local Chapter of the OSA, Ilmenau Germany 26-27 May (2011).
 78. Rolland, J.P., "Augmented Reality Displays: A Playground for Freeform Surfaces" in Freeform Optics Incubator, (OSA, Washington, D.C., USA, Oct 31-Nov 1. (2011)

79. Bauer, A, I. Kaya, and J.P. Rolland, "Moving from Phi-Polynomial to Multicentric Radial Basis Functions", in Freeform Optics Incubator, (OSA, Washington, D.C., USA, 31 Oct.-1 Nov. (2011)
80. Canavesi, C., W. Cassarly, and J.P. Rolland, "A Starting Point Approach for Nonimaging Reflector Design" in Freeform Optics Incubator, (OSA, Washington, D.C., USA, 31 Oct.-1 Nov. (2011)
81. Fuerschbach, K.H., J.P. Rolland, and K.P. Thompson, "Realizing an optical system with ϕ -polynomial freeform surfaces," in Freeform Optics Incubator, (OSA, Washington, D.C., USA, 31 Oct.-1 Nov. (2011)
82. Fuerschbach, K.H, J.P. Rolland, and K.P. Thompson, "Path to Freeform Optics," in NASA Mirror Tech Days 2011, (NASA, Greenbelt, M.D., USA, June 2011)
83. Thompson K.P., and J.P. Rolland, "Polynomial Optical Surfaces – Stepping Away from Symmetry" One-Day Spanish Optical Designer's Meeting (Madrid, 6th October 2011)
84. Rolland, J.P., P. Meemon and K.S Lee "Optical Coherence Tomography In the Investigation of Manufacturable-GRIN (M-GRIN) Material" Workshop in Non-Imaging Optics (San Diego, August 20, 2011)
85. Rolland, J.P., "Freeform Optics - Will it be in your future?" Rochester Local Chapter of the Optical Society of America (2012, March 6 Rochester NY)
86. Rolland, J.P., K.S. Lee, P. Meemon, N. Meemon, H. Zhao, and S. F. Ibrahim "Optical Skin Biopsy with Gabor Domain Optical Coherence Microscopy", PPP2012: "Advances in Dermatological Science" (2012, April 13 La Grande Motte, France)
87. Rolland, J.P., "Freeform Optics" Optical Sciences Center Colloquium (Tucson AZ, April 19, 2012)
88. Rolland J.P., Optiques FreeForm feront elles parties de notre futur?, Journée thématique Calcul Optique, Palaiseau, France (May 31, 2012)
89. Rolland, J.P., Review of Research Activities in the Optical Diagnostics and Applications Lab - ODALab -, LP2N Seminar, Bordeaux France (July 9, 2012)
90. Rolland, J.P., Seminars at Carl Zeiss, Oberkochen Germany (July 17-18, 2012)
91. Rolland, J.P., "Seeing Through Skin with Light", Invited to Speak for the REU students, University of Rochester (July 2012)
92. Rolland, J.P., "Freeform Optical Surfaces" Local OSA Chapter of Boston, MA (November 15, 2012)
93. Rolland, J.P., "Tomography of GRIN Optics at Micron-class Resolution", Laser Laboratory for Energetics (LLE) (April 2013)
94. Rolland, J.P., "The Center for Freeform Optics (CeFO): The vision", Schott North America (May 14, 2013)
95. Rolland, J.P., K. Fuerschbach, A. Bauer, and K. Thompson, "Freeform Optics Enabling Optics in 3D" COSI, OSA Meeting, (June 26, 2013)
96. Rolland, J.P., "Freeform Optics Enabling Optics in 3D" University of GRAFT, Korea (July 29, 2013)
97. Rolland, J.P., "Freeform Optical Surfaces" AMOS, MAUI, (August 19, 2013)
98. Canavesi, C., W. J. Cassarly, and J. P. Rolland, "Application of Conic Intersection Properties to Freeform Reflector Design", in *Freeform Optics, Renewable Energy and the Environment*, OSA Technical Digest (online) (Optical Society of America, 2013), paper FT2B.2 (2013)
99. Fuerschbach, K., J. P. Rolland, and K. P. Rolland-Thompson, "Realizing Freeform: A LWIR Imager in a Spherical Package," in *Renewable Energy and the Environment*, OSA Technical Digest (online) (Optical Society of America, 2013), paper FW1B.2
100. Rolland, J.P., "Task-Based Design of Imaging Systems" Gordon Conference on Image Science - Accelerating the Pace of System Design and Task-Based Evaluation - 06/08/2014 - 06/13/2014 at Stonehill College in Easton MA
101. Rolland, J.P., "Pamplemousse: The optical design, fabrication, and assembly of a three-mirror freeform imager" Proceedings of the SPIE-OSA 9293, 9293OL; Presented at the International Optical Design Conference (Hawaii, Big Island, 22-26 June 2014)

102. Fuerschbach, K., J.P. Rolland, and K.P. Thompson, "Adapting Interferometric Metrology to Freeform Surfaces", Optical Fabrication and Testing Conference (Hawaii, Big Island, 22-26 June 2014)
103. Rolland, J.P., "Aberration Correction In Optics", Gordon Conference in Medicine and Biology, Holderness NH (July 13-18 2014)
104. Rolland, J.P., and J. Huang "Phantom Validation of Optical Coherence Tomography and Maximum-likelihood Estimator for Tear Film Thickness Estimation" NIST Workshop on Standards for the Advancement of Optical Medical Imaging in collaboration with NIH (Aug. 26-27 2014) (Gaithersburg, MD)
105. Thompson, K.P., K. Fuerschbach, and J.P. Rolland, "Are freeform telescopes more alignment sensitive?" European Optical Society Annual Meeting (EOSAM, September 15, 2014).
106. Rolland, J.P., K. Fuerschbach, and K.P. Thompson, "Design of a manufacturable freeform three-mirror imaging telescope" European Optical Society Annual Meeting (EOSAM, September 15, 2014).
107. Thompson, K.P. and J.P. Rolland, "A page from "the drawer": How Roland Shack opened the door to the aberration theory of freeform optics," SPIE Annual Meeting, (August 17, 2014).
108. Thompson, K.P. and J.P. Rolland, "The implications of computational imaging for lens design," SPIE IPTA, Beijing, China (May, 2014).
109. Rolland, J.P., "Biopsy-quality 3D Images of Skin with Gabor Domain Optical Coherence Microscopy (GD-OCM)" International Symposium on Optoelectronic Technology and Application (IPTA) 2014, Beijing China (May 13-15 2014)
110. Rolland, J.P., "Review on OCT of the Skin High-speed, Biopsy-quality 3D Images of Skin with Gabor Domain Optical Coherence Microscopy (GD-OCM)" ISBS 2014 - World Congress Conference (Mystic CT - June 2-4, 2014)
111. Rolland, J.P., "Highlights Of Two Projects Related To High Definition Optical Coherence Tomography And A Project On Optical Coherence Elastography" L'Oreal Labs, Paris (September 23, 2014)
112. Thompson, K., and J.P. Rolland, "Will Computational Imaging Change Lens Design?" UK Optical Design Meeting (UKODM), (September, 25 2014).
113. Rolland, J.P., K. Fuerschbach, and K.P. Thompson "Design of a Manufacturable Freeform Three-Mirror Imaging Telescope" UK Optical Design Meeting (UKODM), (September, 25 2014).
114. Rolland, J.P., "The Optical design, fabrication, and assembly of a three-mirror freeform imaging telescope seeding the NSF I/UCRC Center for Freeform Optics", MIT Lincoln Labs (June 5, 2014).
115. Rolland, J.P., "Freeform Optics: A Perspective", Rochester Institute of Technology (November 12, 2014)
116. Rolland, J.P., "High Definition Optical Coherence Tomography" (P01 Meeting of Dr. Deborah Fowell October 7, 2014)
117. C. Canavesi, A. Cogliati, A. Hayes, P. Tankam, A. P. Santhanam, K. P. Thompson, and J. P. Rolland, "3D High-definition Wide Field-of-view Optical Coherence Microscopy Advancing Real-time in-vivo Cellular Imaging", in Frontiers in Optics 2016, OSA Technical Digest (online) (Optical Society of America, 2016), paper FW2C.1 (2016).
118. Rolland, J.P., "Highlights on Freeform Optics: an Update and Discussion" Corning Fairport (2017).
119. Rolland, J.P., "Freeform Optics from Design to Manufacture: Envisioned Impact on Technology to Enable the Science of Tomorrow" SUT University, Thailand, OSA Lecturer March 3- April 6 (2018).
120. Papa, J., J. Howard, and J.P. Rolland, "Starting point designs for freeform reflective imaging systems" EOSAM2018, October 8-12 in Delft, The Netherlands (2018).

121. Rolland, J.P., “Augmented Reality and the Freeform Revolution” Center for Visual Science: Frontiers in Virtual Reality Symposium June 1-3 Rochester NY (2018).
122. Rolland, J.P., “Nanometer Class Estimation with Optical Coherence Tomography (OCT)” Gordon Conference on Image Science June 17-22, StoneHill College, Easton MA (2018).
123. Rolland, J.P. and Aaron Bauer, “Partnership in advancing freeform optics: Workshop on Ultraprecision Manufacturing of Aspheres and Freeforms”, Franhofer Institute, Sept. 19-20 Jena Germany (2018).
124. Rolland, J.P., F. Zvietcovich, G.R. Ge, K.J. Parker, “Perspectives and advances in optical elastography”. Proc. SPIE 10880, Optical Elastography and Tissue Biomechanics VI; 2019 February 2-7; San Francisco, CA, USA. (2019).
125. Rolland, J.P., “Bridging Industry and Academia Towards AR/VR Emergence” AR/VR Symposium, Photonics West ‘2019 Feb2-7 San Francisco CA (2019).
126. Takaki, N., A. Bauer, and J.P. Rolland, “Improved freeform surface manufacturability estimates enabled by orthogonal polynomials” OSA Local Chapter (September 19, 2019)
127. Rolland, J.P., “Introduction to freeform optics” Winter School – Tucson, AZ – (January 6, 2020)
128. Rolland, J.P., “The Rise in Freeform Surfaces in the Design of Imaging Optical Systems” OSA Webinar (April 6, 2020).
129. Rolland, J.P. “Rise in Freeform Optics” Physics Colloquium at Pontificia Universidad Catolica del Peru (July 2nd, 2020)
130. Rolland, J.P., A. Bauer, K. Fuerschbach, T. Schmid, K.P. Thompson, “Roland V. Shack’s discovery of nodal aberration theory, the expansion into the aberrations of freeform optics, and impact in optical design,” Proc. SPIE 11479, Roland V. Shack Memorial Session: A Celebration of One of the Great Teachers of Optical Aberration Theory, 114790G (21 August 2020).
131. Rolland, J.P., “The Road to Freeform Optics and Beyond” REU Colloquium, University of Rochester (June 15, 2021)
132. Papa, J.C. J.M. Howard, and J.P. Rolland, “Survey of the Four-Mirror Freeform Imager Solution Space”, OSA Optical Design and Fabrication Congress: Freeform Fr (June 27-July1st, 2021)
133. Nikolov, D.K., A. Bauer, N. Vamivakas, and J.P. Rolland, “Metaform Optical Imager” OSA Optical Design and Fabrication Congress: Joint Flat Optics and Freeform (June 27-July1st, 2021)
134. Xu, D., J.P. Lambropoulos, and J.P. Rolland, “Freeform metrology with cascade optical coherence tomography (C-OCT)”, OSA Optical Design and Fabrication Congress: OFT (June 27-July1st, 2021)
135. Bauer A., and J.P. Rolland, “Specification sweep for three-mirror freeform imagers” OSA Optical Design and Fabrication Congress: IODC (June 27-July1st, 2021)
136. Rolland, Jannick P., Daniel K. Nikolov, Aaron Bauer, A. Nick Vamivakas, "AR Technology Drives the Emergence of the Metaform" Frontiers in Optics and Laser Science” (FIO LS 2021) (Washington DC, online, November 1st 2021).
137. Nikolov, D.K., A. Bauer, N. Vamivakas, and J.P. Rolland, “Metaform Optics” in Optics in 2021 - Optics and Photonics News (2021).
138. Rolland, J.P., “Recent Advances in Freeform Optics” CLEO 2021 (9-14 May 2021)
139. Rolland, J.P., “Freeform Optics for Imaging & Metaform Optics in Near-Eye Displays”, Stanford Center for Image Systems Engineering (Stanford, online, Nov 3rd 2021).
140. Rolland, J.P., “Gabor-domain optical coherence microscopy first presented in Kent in 2008 - a journey”, Prof Adrian Podoleanu Career Celebration 26-27 May (2022)(Kent, United Kingdom).
141. Rolland, J.P., “I-Corps Team Success Stories”, The New National Innovation Network: Celebrating 10 Years of Impact and Setting a Framework for the Future (June 2022).

142. Rolland, J.P., “Shaping the future with freeform optics and metaform”, IMT Atlantique, France (October 28, 2022).
143. Steidle, J., S. Zuraski, and J.P. Rolland, “Effects of Sub-Aperture Pupil Aberrations for Sparse Aperture Coherent Phasing” 2022 Mirror Technology Days (November 15, 2022).
144. Canavesi, C., A. Cogliati, and J.P. Rolland. "Applications of Gabor-domain optical coherence microscopy." *Advances in 3OM: Opto-Mechatronics, Opto-Mechanics, and Optical Metrology*. Vol. 12170. SPIE, (2022).
145. Rolland, J.P., “Freeform Optics for Imaging” Institute of Optics, Madrid (9 February, 2023).
146. Rolland, J.P., “Freeform Optics for Imaging and Metaform Optics Driven by Near-Eye Displays” Suranaree University of Technology. 2 March (2023)
147. Parker, K.J., G.R. Ge, J.P. Rolland, and M. Nedergaard, "The expanding frontier of optical elastography and diagnostic biomechanics." SPIE BiOS, Optical Elastography and Tissue Biomechanics X, San Francisco, CA, 19-23 February 2023 & Proc. SPIE 12381, Optical Elastography and Tissue Biomechanics X., 1238103 (15 March 2023).
148. Cassarly, W.J., W. Kim, and J.P. Rolland, “Recent Advances in Tolerancing Illumination Optics” in *Advances in Illumination at the Optica Design and Fabrication Congress*, paper IM3A.1 June 04-08 (2023)
149. Rolland, J.P., D.K. Nikolov, A. Bauer, and A.N. Vamivakas “Metaform Optics: Design for Manufacture” in *Freeform Emerging design methods at the Optica Design and Fabrication Congress*, paper IW3A.1 June 04-08 (2023).
150. Nikolov, D.K., A. Bauer, A.N. Vamivakas, and J.P. Rolland, “Roadmap for Metasurface Integration in Optical Systems”, Digital Optical Technologies (28 June, Munich, Germany) (2023)
151. Rolland, J.P., A. Bauer, D. Nikolov, and A.N. Vamivakas, “Designing with freeform optics” EOSAM 2023 (Dijon, Sept. 12., France) (2023)
152. Rolland, J.P., A. Bauer, D. Nikolov, and A.N. Vamivakas, “Shaping the Future with Freeform Optics: An Emphasis on Design” *Séminaire international au CRAL/CNRS & Observatoire de Lyon*, (University of Lyon 1, Sept 15, France) (2023).
153. Rolland, J.P. “Anterior Segment Imaging with Gabor Domain Optical Coherence Microscopy” *I2EYE 2024* (Pittsburg, Sept. 16, 2024).
154. Rolland, J.P., “Shaping Tomorrow's World: The Fusion of X-Realities and Emerging Optical Technologies” CREOL (Orlando FL, October 18, 2024).
155. Rolland, J.P., “Optical Design & Center for Freeform Optics”, Center for Visual Science Annual Symposium (Rochester NY, October 23, 2024).
156. Rolland, J.P., “Flat and Freeform Optics: Revolutionizing Optical System Design” Optica Design and Fabrication Congress – Flat Optics – (Denver Co, June 17, 2025).
157. Rolland, J.P., “Career Path” Institute of Optics, Paris (November 24, 2025).
158. Rolland, J.P., “Optical Coherence Tomography/Microscopy and Elastography” Colloquium Rothschild Hospital Foundation (Paris)(November 26, 2025).

Patents

Licensed Patents to Different Corporations have been Given a Symbol.

1. §Rolland, Jannick P., Kevin P. Thompson, Kye-Sung Lee, “Broad band Czerny-Turner spectrometer methods and applications”, WO **2011/137316 A2 A1**, November 3 (2011), also WO **2011/137316 A3**
2. §Rolland, Jannick, Kevin Thompson, Supraja Murali, “Dynamic focusing probe for optical coherence microscopy” US Patent **8,184,365 B2**, May 22 (2012).

3. §Rolland, Jannick, and Supraja Murali, Dynamic focused optical instrument. US Patent **8,184,367 B2**, May 22 (2012).
4. §Rolland, Jannick, and Panomsak Meemon, “Systems and methods for performing Gabor-domain optical coherence microscopy”, US Patent **8,340,455 B2**, Dec. 25 (2012).
5. §Rolland, Jannick P., Kevin P. Thompson, Kye-Sung Lee, “Broad band Czerny-Turner spectrometer methods and applications”, US Patent **2013/0044313 A1**, Feb. 21 (2013). Also US Patent **8,873,049 B2**, Oct. 28 (2014).
6. §Huang Jinxin, Jannick P. Rolland, Eric Clarkson, and Matthew Kupinski, “Measurement of the lipid and aqueous layers of a tear film” US Patent **9,615,735 B2**, April 11 (2017) also US **2017/0188815 A1** July 6 (2017).
7. §Huang, Jinxin, and Jannick P. Rolland, “Measurement of multi-layer structures”, US Patent **2019/0254516 A1**, Aug. 22 (2019).
8. §Zvietcovich Zegarra, Jose F., Jannick P. Rolland, Cristina Canavesi, and Kevin J. Parker, “Gabor Domain Optical Coherency Elastography”, US **16/838,875**, April 2 (2020)(in process)
9. ΔRolland, J.P., N. Vamivakas, A. Kitt, and A. Bauer, “Freeform nanostructured surfaces for virtual and augmented reality near eye display” US Patent **10,371,951 B2**, Aug. 6 (2019).
10. ΔRolland, J.P. and J. Reimers, “Imaging spectrometer with freeform surfaces” US Patent **10,444,069**, OCT. 15 (2019).
11. ΔRolland, J.P. A. Bauer, N. Vamivakas, F. Cheng, and D. Nikolov, "Augmented reality display," US Patent **2019/0369401 A1**, Dec. 5 (2019).
12. ΔRolland, J.P., D. K. Nikolov, A. N. Vamivakas, F. Cheng, and A. Bauer, “See-through reflective metasurface,” U.S. Prov. Patent **62/899,522**, Sep. 12 (2019).
13. ΔVamivakas, A.N., F. Cheng, J. P. Rolland, D. K. Nikolov, and A. Bauer, “Mechanically tunable reflective metamirror optical device,” U.S. Prov. Patent **62/894,159**, Aug. 30 (2019).
14. ϑHysten, S.H.L and J.P. Rolland, “Method for Authenticating Art Work”, International Patent **WO 01/82263 A1**, Nov. 1 (2001) [AU-5922701-A; AU-2001259227-A1]
15. ϑHa, Y, J.P. Rolland, L.D Davis Jr. “Head mounted projection display with a wide field of view” US Patent **7,119,965** Oct.10 (2006).
16. ϑShaoulov, V., J. Rolland, and Y. Ha, “Systems and methods for providing compact illumination in head mounted displays, US Patent **7,843,642 B2**, Nov.30 (2010).
17. ϑBaillot, Y. and J.P. Rolland, “Automatic motion modeling of rigid bodies using collision detection,” Patent **6,708,142**, March 16, (2004).
18. ϑVaissie, L., and J.P. Rolland, “Head-mounted display with eyetracking capability,” U.S. Patent **6,433,760 B1**, Aug. 13, (2002).
19. πRolland, Jannick P., and P. Delfyett, “Optical disk readout method using optical coherence tomography and spectral interferometry, **6,072,765**, June 6, (2000).
20. πRolland, J.P., R. Martins, and Y. Ha “Head-mounted display by integration of phase-conjugate material,” US Patent **6,963,454**, Nov. 8, (2005).
21. πMartins, R., and J.P. Rolland, “Ultra-compact lens assembly for a head-mounted projector” US Patent **6,999,239 B1**, Feb. 14, (2006).
22. πChaoulov, V., R.F. Martin, and J.P. Rolland, “Compact microlenslet arrays imager” US Patent **7,009,773**, March 7 (2006).
23. δHua Hong., and Jannick Rolland, “Compact lens assembly for the teleportal augmented reality system,” US Patent **6,731,434B1**, May 4 (2004).
24. δHa, Yonggang. and Jannick P. Rolland, “Compact lens assembly for the teleportal augmented reality system,” US Patent **6,804,066 B1**, Oct. 12 (2004).

25. ^δMartin, Ricardo, Jannick Rolland, and Yonggong Ha, “Head-mounted display by integration of phase-conjugate material”, US Patent **6963454 B1**, Nov. 8 (2005).
26. ^δMartin, Ricardo, Jannick Rolland, and Yonggong Ha, “Head-mounted display by integration of phase-conjugate material”, US Patent **6,999,239 B1**, Feb. 14 (2006).
27. ^εZou, Weiyao and Jannick Rolland, “Iterative least-squares wavefront estimation algorithm for general pupil shapes”, US Patent **7,088,457 B1**, Aug. 8 (2006).
28. ^εHa, Y., Rolland, J., and O. Cakmakci, “Compact optical see-through head worn display with occlusion support,” US Patent **7,639,208**, Dec. 29 (2009).
29. ^εCuratu, Costin, Jannick Rolland, “Projection-based head-mounted display with eye-tracking capabilities” US Patent **7,522,344**, April 21 (2009).
30. ^εCakmakci, Ozan, and Jannick Rolland. “Imaging systems for eyeglass-based display devices”, US Patent **7,499,217 B2**, March 3 (2009).
31. ^εCakmakci, Ozan, and J. Rolland. Imaging systems for eyeglass-based display devices. US Patent **7,969,657 B2**, June 28 (2011).
32. ^ρRolland-Thompson, Jannick P., Aaron Bauer, Dennis Yates, Mahsa Farsad, “Compact freeform echelle spectrometer”, **WO 2019/035047 A1**, Feb. 21 (2019).
33. Rolland, Jannick P., and P. Delfyett, “Three dimensional optical imaging colposcopy,” U.S. Patent **5,921,926**, July 13 (1999).
34. Rolland, Jannick P., and P. Delfyett, “Three dimensional optical imaging colposcopy,” U.S. Patent **6,141,577**, Oct. 31 (2000).
35. Biocca, Frank, and Jannick P. Rolland, “Teleportal face-to-face system,” US Patent **6,774,869 B2**, August 10 (2004).
36. Biocca Frank, Rolland, Jannick P., Stockman, George C., Reddy, Chandan K., Figueroa, Miguel Villaneuva, “Mobile face capture and image processing system and method,” US Patent 2005/0083248 A1, 21 April (2005) also published as US 6,774,869, US2002/0080094, WO 2002/052330A2, WO 2002/052330A3
37. Santhanam, A., Jannick Rolland, Cali M. Fidopiastis, “Systems and methods for simulation of organ dynamics”, US Patent **2007/231779 A1**, Oct. 4 (2007).
38. Rolland, Jannick, Huikai Xie, Gordon Johnson, Olusegun Ilegbusi, Kye-sung Lee, Marco A. Costa, “Optical probes for imaging narrow vessels or lumens,” US Patent **2007/191682 A1**, Aug. 16 (2007).
39. Oranchak, Adam, and Jannick P. Rolland, “Support structure for head-mounted optical device” US Patent **2008/0022441 A1**, Jan. 31 (2008).
40. Zou, Weiyao, and Jannick Rolland. Differential Shack-Hartmann curvature sensor, US Patent **7,390,999 B1**, June 24 (2008).
41. Biocca, Frank, and Jannick P. Rolland, “Hybrid display system and methods”, US Patent **2009/0225001 A1**, Sep. 10 (2009).
42. Zou, Weiyao, and Jannick Rolland, “Differential Shack-Hartmann curvature sensor” US **7,390,999 B1** June 24 (2008); also US Patent **7,525,076 B1** April 28 (2009)
43. Zou Weiyao and Jannick P. Rolland, “Increase spatial sampling for wavefront and mid-spatial frequency error recovery” US Patent **7,619,191 B1**, Nov. 17 (2009).
44. Ozan Cakmakci, Jannick Rolland, Brendan Moore, and Hassan Foroosh, “Systems and methods for designing optical surfaces”, US Patent **2009/0228251 A1**, Sep. 10 (2009).
45. Delfyett, Peter, Rolland, Jannick, Meemon, Panomsak, Lee, Kye-sung, “Systems and methods for generating a tunable laser beam”, US Patent US **2009/0323738 A1**, Dec. 31 (2009) & **7,929,582 B2** April 19 (2011).
46. Foster, Thomas H., Jannick P. Rolland, Florian R. Fournier, Cristina Canavesi, “Devices and methods for conforming photodynamic therapy to specific anatomic locations”, WO **2011/097458 A2**, August. 11 (2011). Also WO **2011/097458 A3**, August 11 (2011).

47. Rolland, Jannick P., Kye-sung Lee, and Panomsak Meemon. "Optical coherence tomography (OCT) apparatus, methods, and applications", US Patent **8,363,225 B2**, Jan. 29 (2013).
48. Rolland, Jannick and Kyle Fuerschbach, "Nonsymmetric optical design and design method for nonsymmetric optical system", US Patent **8,616,712 B2**, Dec. 31 (2013).
49. Rolland, Jannick and Kyle Fuerschbach. "Optical testing apparatus and methods", US Patent **8,817,270 B2**, Aug. 26 (2014).
50. Rolland, Jannick P. and Jacob Reimers, "Imaging spectrometer with freeform surfaces", **WO 2016/200816 A1**, 15 Dec. (2016).
51. Rolland, Jannick P. and Jacob Reimers, "Imaging spectrometer design tool for evaluating freeform optics" US patent **9,964,444 B2**, May 8 (2018)
52. Rolland, Jannick P., and Aaron Bauer "Optical Display Apparatus, Method, and Applications" US Patent **10,088,681 B2**, October 2 (2018).
53. Xu, Di, and Jannick P. Rolland, "Cascade Fourier domain optical coherence tomography," **US 2019/0195615 A1**, June 27 (2019).
54. Rolland, J.P., N. Vamivakas, A. Kitt, A. Bauer Freeform Nanostructured Surface for Virtual and Augmented Reality Near Eye Display", US Patent **10,371,951 B2** (Aug. 6, 2019)
55. Chaudhuri, Romita, and Jannick P. Rolland-Thompson, "Single-shot, adaptive metrology of rotationally variant optical surfaces using a spatial light modulator", **WO 2019/083981 A1**, May 2 (2019)
56. Xu, Di, Chaudhuri, Romita, and Jannick P. Rolland-Thompson, "Telecentric and broadband achromatic objective lens systems" US patent **11,092,425 B2**, August 17 (2021).
57. Xu Di and J.P. Rolland, "Cascade Fourier domain optical coherence tomography" US patent **11,098,999**, (August 24, 2021)
58. Chaudhuri, Romita and J.P. Rolland-Thompson, "Single-shot, adaptive metrology of rotationally variant optical surfaces using a spatial light modulator" **EU 3 688 406 B1**, (Nov 8, 2021)
59. Chaudhuri, Romita and J.P. Rolland-Thompson, "Single-shot, Adaptive metrology of rotationally variant optical surfaces using a spatial light modulator" US Patent **11,168,979 B2**, (Nov 9, 2021)
60. Rolland, J.P., A. Bauer, Dennis Yates, Mahsa Farsad, "Compact freeform echelle spectrometer" US Patent **11,169,024 B2** (Nov 9, 2021)
61. Rolland, J.P., N. Vamivakas, A. Kitt, A. Bauer, "Freeform Nanostructured surface for virtual and augmented reality near eye display", **6892827 Japan**, (June 1, 2021)
62. Rolland, J.P., N. Vamivakas, A. Kitt, A. Bauer, "Freeform nanostructured surface for virtual and augmented reality near eye display", **ZL201680028406.8 China** (April 6, 2021)
63. Huang, J., J.P. Rolland, E. Clarkson, M. Kupinski "Measurement of multi-layer structures". US Patent **11,399,713**, (August 2, 2022)
64. Rolland, J.P., N. Vamivakas, A. Kitt, and A. Bauer, Freeform nanostructured surface for virtual and augmented reality near eye display, **EP3278169 B1** (April 5, 2022).
65. Rolland, J.P., N. Vamivakas, A. Kitt, and A. Bauer, Freeform nanostructured surface for virtual and augmented reality near eye display, **FR3278169** (May 4, 2022).
66. Rolland, J.P., N. Vamivakas, A. Kitt, and A. Bauer, Freeform nanostructured surface for virtual and augmented reality near eye display, **DE3278169** (May 4, 2022).
67. Nikolov, D. N. Vamivakas, F. Cheng, A. Bauer, J.P. Rolland, "Mechanically tunable reflective metamirror optical device", US Patent **11,592,646 B2** (February 28, 2023).
68. Rolland, J.P., A. Bauer, D. K. Nikolov, A. N. Vamivakas, F. Cheng, "Augmented Reality Display", US Patent **11,624,912 B2** (April 11, 2023).
69. Zvietcovich Zegarra, J.F., J.P. Rolland-Thompson, C. Canavesi, and J.P. Parker, "Gabor domain optical coherence elastography" US Patent **11,678,801 B2** (June 20, 2023).
70. Nikolov, D., J.P. Rolland-Thompson, A.N. Vamivakas, F. Cheng, and A. Bauer, "See-Through Reflective Metasurface" US Patent **11,675,107 B2** (June 13, 2023).
71. Yoon, C., J.P. Rolland-Thompson, A. Bauer, "Absolute Linear-in-K Spectrometer" US Patent **12,085,445** (September 10, 2024).

72. Bauer, A. and J.P. Rolland-Thompson, “Multiconfiguration afocal reflective telescope” (Filed 2023, Published 2025 WO/2025/090434).

Book Chapters

1. Rolland, J.P., Thompson, K.P., Bauer, A., Nikolov, D.K., Urey, H., Thomas, M. (2025). See-Through Head-Worn Display (HWD) Architectures. In: Blankenbach, K., Yan, Q., O'Brien, R.J. (eds) Handbook of Visual Display Technology. Springer, Berlin, Heidelberg. 1-34 https://doi.org/10.1007/978-3-642-35947-7_134-3 (3rd Edition 2025).
2. Bauer, A., Rolland, J.P. The Optics of Augmented Reality Displays. In: Nee, A.Y.C., Ong, S.K. (eds) Springer Handbook of Augmented Reality. Springer Handbooks. Springer, Cham. (2023).
3. Yao J. and J.P. Rolland, Optical Coherence Tomography for Polymer Film Evaluation. Published in Optical Coherence Tomography and Its Non-medical Applications ISBN 978-1-78984-262-3 InterOpen Limited (2020).
4. Huang, J. and J. P. Rolland, Imaging Techniques for the Visualization and Evaluation of Tear Film Dynamics. In: Guidoboni G., Harris A., Sacco R. (eds) Ocular Fluid Dynamics. Modeling and Simulation in Science, Engineering and Technology. Birkhäuser, Cham (2019).
5. Rolland, J.P., K.S. Lee, P. Meemon, and S.F. Ibrahim, Gabor Domain Optical Coherence Microscopy Of Human Skin, in Advances in Dermatological Sciences, Chapter 5, Robert Chilcott Keith R. Brain (co-Editors), Royal Society of Chemistry (RSC) Publishing (2013)
6. Rolland, J.P., K.P. Thompson, A. Bauer, H. Urey, and M. Thomas, “See-Through Head Worn Display (HWD) Architectures”, in Handbook of Visual Display Technology, Janglin Chen, Wayne Cranton and Mark Fihn (eds), Springer, Volume 4, Section 10, 2145-2170 (2012). (second Edition 2016).
7. Cakmakci, O., and J.P. Rolland, “Examples of Head-Worn Display Architectures Organized by Field of View,” in Handbook of Visual Display Technology, Janglin Chen, Wayne Cranton and Mark Fihn (eds), Springer, Volume 4, Section 10, 2183-2194 (2012). (second Edition 2016).
8. Patterson, R.E., and J.P. Rolland, “Cognitive Engineering and Information Displays”, in Handbook of Visual Display Technology, Janglin Chen, Wayne Cranton and Mark Fihn (eds), Springer, Volume 4, Section 10, 2259-2274 (2012). (second Edition 2016).
9. Santhanam, A., Yugang Min, Jannick P. Rolland, Celina Imielinska, Patrick A. Kupelian, 4DCT Lung Registration Methods, Chap. 5, American Scientific Press (2011).
10. Rolland, J.P. and K.P. Thompson, “See-Through” Head-Worn Displays (HWDs) for Mobile Augmented Reality (AR)”, in Communications of the China Computer Federation, Li Guojie and Shi Chunyi (eds) Volume 7 No 8, in English and Chinese (2011).
11. Duma V.F., and J.P. Rolland, Mechanical Constraints and Design Considerations for Polygon Scanners, in *New Trends in Mechanism Science: Analysis and Design*, Pisla D., Ceccarelli M., Husty M., Corves B., Eds., Springer, 475-483 (2010) doi.org/10.1007/978-90-481-9689-0_55;
12. Rolland, J.P. and H. Hua “Head-Mounted Display Systems,” in *Encyclopedia of Optical Engineering*, R. Barry Johnson and Ronald G. Driggers, Eds. [http://www.dekker.com/servlet/product/productid/E-EOE, Taylor and Francis, 1-14, 18](http://www.dekker.com/servlet/product/productid/E-EOE,Taylor%20and%20Francis,1-14,18) May (2005)
13. Rolland, J.P., F. Biocca, H. Hua, Y. Ha, C. Gao, and O. Harrisson, “Teleportal augmented reality system: Integrating virtual objects, remote collaborators, and physical reality for distributed networked manufacturing,” in *Virtual and Augmented Reality Applications in Manufacturing* Chap. 13, Eds. S.K. Ong. and A.Y.C. Nee, Springer-Verlag London Ltd, p400, (June 2004).
14. Rolland, J.P., “Synthesizing anatomical images for image understanding,” Chapter 13 in *Handbook of Medical Imaging, Volume II, Progress in Medical Physics and Psychophysics*, Ed. Beutel, Van Metter, and Kundel. (SPIE Press), 683-717, (2001).

15. Rolland, J.P., Davis, L. D., and Y. Baillot, “A survey of tracking technology for virtual environments,” in *Fundamentals of Wearable Computers and Augmented Reality*. (Chapter 3) Ed. Barfield and Caudell (Mahwah, NJ), 67-112, (2001).
16. Rolland, J.P., and H. Fuchs, “Optical versus video see-through head-mounted displays,” in *Fundamentals of Wearable Computers and Augmented Reality*.(Chapter 4) Ed. Barfield and Caudell ((Mahwah, NJ) 113-156, (2001).
17. Robinett, W., and J. P. Rolland, “A computational model for the stereoscopic optics of a head-mounted display, in *Virtual Reality Systems*,” Chapter 5, R. A. Earnshaw, M. A. Gigante, and H. Jones, eds. Academic Press (1993).

Selected Public Relations

Podcast with Photonics Spectra on Freeform Optics (December 2025)

Interview Sup Optique (France) on Career Path (November 2025)

Featured in SPIE News “Jannick P. Rolland: The 2025 SPIE A. E. Conrady Award in Optical Engineering” (January 2025)

Featured in AOS, “Freeform Optics for AR/VR Glasses, Metasurfaces and Metaforms” December 2022)

Featured in Frost & Sullivan, “Imprinting Nanostructures on Freeform Optics for High Quality Imagery and Compact Design In AR/VR Glasses” (August 2022)

Featured in Tech Briefs, “New Optical Component Used to Create AR/VR Headsets and Eyewear” (May 2022)

Featured in ElectroOptics, “Scaling challenges of metasurfaces” (April 2022)

Featured in article by Rigmor C. Baraas, Francisco Imai, Ali Özgür Yöntem and Jon Y. Hardeberg, “Visual perception in AR/VR”, Optics and Photonics News (April 2021)

Nikolov, D.K., A. Bauer, A. N. Vamivakas, and J.P. Rolland, “Metaform Optics” in Optics in 2021 - Optics and Photonics News p57 (December 2021)

Bob Marcotte, “University co-presents 2019 Light and Sound Interactive Conference” (June 11 2019)

Bob Marcotte, “New training in AR/VR tech gives Rochester doctoral students an edge” (September 18 2019)

Bob Marcotte, “From a dancer’s form to freeform optics” (April 14 2019)

Bob Marcotte, “Women of invention: How Rochester faculty find success as patent-holders” (April 16 2019)

Bob Marcotte, “Collaborative ‘back and forth’ drives progress on freeform optics”, (October 18 2018)

Bob Marcotte, “Center of Excellence funds local businesses improving health care” (October 10, 2018)

Steward Wills, “Freeform optics: notes from the revolution” OPN (July/August 2017)

Bob Marcotte, “Freeform optical device does a lot in a small package” (August 2017)

Bob Marcotte, “University Research Award helps team explore regeneration in a critical layer of the cornea (December 2016)

Bob Marcotte, “As Center for Freeform Optics Grows, So Do Opportunities for Students”, November 10 (2016)

Lori Gable, “Tech firm gets a boost with SBIR grant” Rochester Business News” September 11 (2015).

Rolland, J.P., and K.P. Thompson, “Freeform Optics: Evolution? No revolution!”, SPIE News, 19 July 2012, SPIE Newsroom. DOI: 10.1117/2.1201207.004309

Thompson K.P., and J.P. Rolland, “Freeform Optical Surfaces – A Revolution in Imaging Optical Design”, Optics and Photonics News p30-37, **Invited** (June, 2012)

Thompson, K.P., P. Benitez, and J.P. Rolland, “Freeform Optical Surfaces: Report from OSA’s first incubator meeting”, Optics and Photonics News, p33-37, **Invited** (September, 2012)

Rolland, J.P., “Gabor Domain Optical Coherence Microscopy” Local Chapter of the OSA, Rochester N, (February 2009)

Rolland, J.P., “Career path”, University of Arizona Women in Optics (September 25 2009)

Rolland, J.P. and O. Cakmakci, "Head-worn displays: The future through new eyes," *Optics and Photonics News (OPN)*, (April issue 2009)

Cakmakci, O., A. Oranchak and J. Rolland, Design and assembly of a head-worn display. *PC Magazine* (2007)

Rolland, J.P., UCF Metro, Invited talk on technology transfer and my research areas (August 2006)

Rolland, J.P., and S. L. Hylen, "Painting cameras," *Optics and Photonics News - Special Issue on Art and Science*, 10(7), 33-35, (1999).

Rolland, J.P., "Mounted displays," *Optics and Photonics News*, 9(11), 26-30, (1998).

Also, Research by Rolland Cited in the Selected Following Articles

The New York Times – James Gorman "How the Jumping Spider Sees Its Prey" (Nov 6, 2018)

Rochester Business Journal Tech Firm Gets a Boost with SBIR grant, by Lori Gable (Sept. 11 2015)

LaserFocusWorld, "New university/industry partnership to advance freeform optics", (29 July 2013)

Optics.org, "\$4M for Freeform Optics Development Center (29 July 2013)

BioOptics World, "BIOMEDICAL OPTICS/MICROSCOPY: Innovations in optics" by Mike May features Jannick Rolland's research on Gabor domain OCM (March 1st, 2012)

Photonics Spectra, "Mass-Market Imaging Systems Cut Time, Cost, Size – Imaging Trends", by Marie Freebody features Jannick Rolland's research on Gabor domain OCM (January 2012)

DERMATIMES, "Biopsy Quality 3D Images Now Possible In Vivo" by Bob Roehr (2012)

Dermatology Times, "Method may allow 'optical' biopsy" by Bill Gillette (March 23, 2011)

<http://www.kurzweilai.net/a-new-high-resolution-method-for-imaging-below-the-skin-using-a-liquid-lens>

<http://www.sciencedaily.com/releases/2011/02/110219160003.htm>

http://www.focus.de/gesundheit/ratgeber/haut/news/mikroskop-neuheit-ein-blick-der-unter-die-haut-geht_aid_601973.html

<http://www.engadget.com/2011/02/21/new-high-res-imaging-could-make-biopsies-obsolete-doctors-still/>

Photonics Spectra, "Diverse photonics research part of university's curriculum" by Eric Van Stryland, features Jannick Rolland research in imaging and visualization. (June 2007)

Ivanhoe Broadcast News in both Smart Woman and Medical Breakthroughs "Biophotonics imaging for skin cancer research," The first story, part of the Medical Breakthrough series, features Jannick Rolland demonstrating a photonics-based non-invasive skin cancer detection technique. (June 2003)

Scientific American "Augmented reality: A new way of seeing," by Steven Feiner, 54, (April) (2002).

Reporter "Replicating the 'real thing': How virtual reality is transforming medical education," by Barbara. A. Gabriel, Volume 10, (12) (September) (2001).

Optics Report "Augmented Reality Displays, fighter pilot meets PalmPilot" by Michael Stevenson, 1(3), 1-4 (June) (2001).

The News Gazette (Online) "UI researchers working on augmented reality" by Greg Kline, published on line April 20, (2001).

CNN-Website "Telemedicine: Where virtual and reality meet in doctors office" by Wayne Drash, October 2, (2000).

MDcomputing, "Medicine meets virtual reality 2000," 17(3), (May/June) (2000).

Discover, "Photographing by numbers," November, 20(11), 34, (1999).

EE Times, "Lab Probes: Effects of virtual-reality exposure," R. Colin Johnson, Feb 4, (1999).

INNOVATION, "Kinder, gentler virtual reality," February 8, 1999 (Innovation, written by John Gehl and Suzanne Douglas, reports on trends, strategies, and innovations in business and technology to give the reader an executive briefing on the future) (1999).

The New York Times, "Real queasiness in virtual reality," by Katie Hafner, November 19, (1998).

Radiographic Technology IMAGE, Special issue on education. "A classroom by computer design: Virtual reality technologies are changing the tools of education," by Micheal Ryan, January 29, 9(3),

(1996).

Articles/Abstracts/Posters in Conference/Proceedings

(This list is built from most recent to less recent)

1. Narayanan, R.M., D. Fernandez, T. Zou, K. Parkins, J.P. Rolland, and S. Marcos, "Custom binocular visual simulator for human-centric augmented/virtual reality experiences", AR/VR Challenge Competition (Photonics West 2026) (Finalist Best Paper and 2nd Place Best Pitch).
2. Zhang, C., P. Xiong, Q. Nguyen, D.K. Nikolov, A. Bauer, A.N. Vamivakas, J.P. Rolland, "Wide-Angle Compact AR/VR Flash LiDAR", AR/VR Challenge Competition (Photonics West 2026) (Finalist Best Paper).
3. Yiwen Fan, J.P. Rolland, A.N. Vamivakas, D.K. Nikolov, "An Optimization Tool for Designing Large-scale Metasurfaces with Strong Near-field Coupling for AR/VR" AR/VR Challenge Competition (Photonics West 2026) (Finalist Best Paper and 3rd Place Best Pitch).
4. David Fernandez D., R.M. Narayanan, T. Zou, K. Parkins, J.A., J.P. Rolland, and S. Marcos, "Binocular Simulator of ophthalmic corrections with accommodation monitoring and convergence control" Photonics West, Paper 13831-22 (2026).
5. Asemani, H., J.P. Rolland, and K.J. Parker, "Impact of excitation frequency on lesion visualization and viscoelastic characterization in multi-frequency reverberant OCE" Photonics West, Paper 13853-3 (2026).
6. Zou, H., Y. Fan, M. Ferguson, J.P. Rolland, and D.K. Nikolov, "Towards an automated manufacturing process chains for freeform optics with effective reference structures", Proc. SPIE 13728, Optifab 2025, 137280D (4 December 2025).
7. Nikolov, D.K., Y. Fan, M. Ferguson, J. Lau, H. Zou, and J.P. Rolland, "Advances in Automated Freeform CAD Tool," in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica Publishing Group, 2025), paper FrW1A.2.
8. Ferguson, M.M., D.K. Nikolov, A. Bauer, S. Clark, A. Hanninen, E. Potma, and J.P. Rolland, "Surface form measurements of mirrors for a reflective freeform microscope," in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica Publishing Group, 2025), paper FrTu1A.
9. Fan, Y., D.K. Nikolov, A.N. Vamivakas, and J.P. Rolland, "Window-based optimization for large-scale metasurfaces with strong near-field coupling," in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica, Publishing Group, 2025), paper FW4B.4.
10. Xiong, P., C. Zhang, Q. Nguyen, D.K. Nikolov, A. Bauer, J.P. Rolland, and A.N. Vamivakas, "Flash LiDAR system with metasurface and freeform optics," in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica Publishing Group, 2025), paper FrW4A.2.
11. Narayanan, R.M., A. Macić, C. Zhang, M. M. Ferguson, R. Chaudhuri, J.P. Rolland, "Reconfigurable Interferometric Testing of Rectangular Freeform Optics", in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica Publishing Group, 2025), paper FrW3A.5.
12. Steidle, J.A., L. Park, S.M. Zuraski, J.P. Rolland, "Compensating for Primary Mirror Deformation in a Sparse Aperture Interferometer", in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica Publishing Group, 2025), paper FrW3A.2.
13. Zhang C., J.P. Rolland, and A. Bauer, "A peek at continuous zoom freeform afocal telescopes", in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica Publishing Group, 2025), paper FrTu3A.3.
14. Romer N., J.R. Kuhn, A. Bauer, J.P. Rolland, "Design of a Freeform Solar Coronagraph Instrument for CubeSat-based Observation", in Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT), Technical Digest Series (Optica Publishing Group, 2025), paper FrTu2A.1.

15. Romer N., J.R. Kuhn, J.P. Rolland, "Advances in Curvature Polishing for Lightweight, Thin Reflective Optics", in *Optica Design and Fabrication Congress 2025 (FlatOptics, Freeform, OFT)*, Technical Digest Series (Optica Publishing Group, 2025), paper OM1B.3.
16. Xiong, P., J. Goodsell, D.K. Nikolov, J.P. Rolland, and N.A. Vamivakas, "Metasurface in-coupler for enhancing waveguide display efficiency and image quality", *Proc. SPIE PC13414, Optical Architectures for Displays and Sensing in Augmented, Virtual, and Mixed Reality (AR, VR, MR) VI*, PC134140A (21 March 2025)
17. Asemani, H.G., J.P. Rolland and K.J. Parker, "Minimizing compression waves impact in shear wave elastography using integrated difference autocorrelation" 2024 GRC Image Science (June 2024) (Poster).
18. Ferguson, M., D.K. Nikolov, A.N. Vamivakas, and J.P. Rolland "Broadband metasurfaces: mechanisms and limitations of dispersion control" 2024 GRC Image Science (June 2024) (Poster).
19. Zhang, C., A. Bauer, and J.P. Rolland, "Zoom afocal freeform telescopes" 2024 GRC Image Science (June 2024) (Poster).
20. Manjula Narayanan, R., C. Zhang, R. Chaudhuri, and J.P. Rolland, "Reconfigurable interferometric null test for rectangular freeform optics with a spatial light modulator", 2024 GRC Image Science (June 2024) (Poster).
21. Fan, Y. D.K. Nikolov, A.N. Vamivakas, and J.P. Rolland, "Local window genetic algorithms for designing metasurfaces with non-local interactions", 2024 GRC Image Science (June 2024) (Poster).
22. Zou, H., D.K. Nikolov, and J.P. Rolland. "Reference structures for optical component alignment in freeform imaging systems." 2024 GRC Image Science (June 2024) (Poster).
23. Steidle, J.A., J.P. Rolland, and S.M. Zuraski, "Effects of sub-aperture pupil aberrations on a sparse aperture imaging interferometer" 2024 GRC Image Science (June 2024).
24. Xiong, P., D. K. Nikolov, J.P. Rolland, and A.N. Vamivakas, "Dual-function hybrid metaoptic" 2024 GRC Image Science (June 2024) (Poster).
25. Romer, N. J.R. Kuhn, J.P. Rolland, "CubeSat-based space debris detection using a Freeform solar coronagraph", 2024 GRC Image Science (June 2024) (Poster).

26. Asemani, H.G., F. Barrera, J.P. Rolland and K.J. Parker, "Angular integration autocorrelation approach for shear wave speed estimation in the framework of reverberant shear wave elastography," *2024 IEEE UFFC Latin America Ultrasonics Symposium (LAUS)*, Montevideo, Uruguay, pp. 1-3, (2024).
27. Asemani, H., G. Ge, G. Flores, J.P. Rolland, and K.J. Parker, "Improved performance of autocorrelation estimators for measurements of reverberant shear wave fields," *IEEE Ultrasonics Symposium*, Montreal, Canada, 3-8 September 2023 (Poster).
28. Asemani, H., J.P. Rolland, K.J. Parker, "Advanced autocorrelation estimators for shear wave elastography" *RCBU Biomedical Ultrasound Symposium Day 2023*, University of Rochester, November 2023 (Poster).
29. Fan, Y, D.K. Nikolov, M. Pomerantz, A.N. Vamivakas, and J.P. Rolland, "Freeform manufacturing process optimized by automatically generated CAD model" in *Freeform Emerging Design Methods at Optica Design and Fabrication*, paper IW3A.4 (2023).
30. Chaudhuri, R., R. Manjula Naranayan, and J.P. Rolland, "Reconfigurable interferometry for freeform optics using a spatial light modulator" in *Advanced Metrology Systems III: Interferometry at Optica Design and Fabrication*, paper OTh2B.7 (2023).
31. Steidle, J., J. Howard; J. Papa, and J.P. Rolland, "Controlling first-order pupil location" in *Design Theory and Geometrical Optics at Optica Design and Fabrication*, paper ITu3A.4 (2023).
32. Xiong, P., J. Goodsell, D.K. Nikolov, J.P. Rolland, and A.N Vamivakas, "Efficiency analysis of waveguide in-coupler using metagrating" in *Wavefront Control in Lens Design at Optica Design and Fabrication*, paper IW1A.5 (2023).
33. Ferguson, M.; D.K. Nikolov, M. Pomerantz, F. Wolfs, S. Novak, C. Lee, J. Lau, M. Davies, J.P. Rolland, "Development of a process chain to measure freeform optics using an optical coordinate

- measuring machine” in *Advanced Metrology Systems I at Optica Design and Fabrication*, paper OW2B.3 (2023).
34. Bauer, A., C. Zhang, and J.P. Rolland, “Freeform afocal telescope design methods and constraints” in latest development in freeform applications II at *Optica Design and Fabrication*, paper ITu1A.2 (2023).
 35. Romer N. J.R. Kuhn, and J.P. Rolland, “Curvature polishing for light-weight, thin reflective optics” in *Joint poster session at Optica Design and Fabrication*, paper JTU4A.26 (2023).
 36. Yeşiltepe M., E. Arpa, M. Ekinici, O. Karci, and J.P. Rolland, “Calculations of sigma vectors in Nodal Aberration Theory (NAT) and their experimental investigation for two-mirror telescopes, in *Design Theory and Geometrical Optics at Optica Design and Fabrication*, paper ITu3A.6 (2023).
 37. Goodsell, J., A. Urbas, J. Leger, and J.P. Rolland, “Design, fabrication and characterization of large metalenses,” Proc. SPIE PC12342, High Contrast Metastructures XII, PC12342oI (17 March 2023).
 38. Fan, Y., D.K. Nikolov, A.N. Vamivakas, and J.P. Rolland, “Automated generation of high-accuracy CAD models for metaform design, fabrication, and testing”. Proc. SPIE 12449, Optical Architectures for Displays and Sensing in Augmented, Virtual, and Mixed Reality (AR, VR, MR) IV, 124491K (16 March 2023).
 39. Xiong, P., J. Goodsell, D.K. Nikolov, J.P. Rolland, and N.A. Vamivakas, “Efficient all-dielectric metasurface in-coupler for waveguide-based near-eye display”, Proc. SPIE 12449, Optical Architectures for Displays and Sensing in Augmented, Virtual, and Mixed Reality (AR, VR, MR) IV, 12449OY (16 March 2023).
 40. Duma, V., J.P. Rolland, and A.G.H. Podoleanu. "Advances in 3OM: opto-mechatronics, opto-mechanics, and optical metrology." *Proc. of SPIE Vol. Vol. 12170*. (2022).
 41. Moon, B., M. Poletti, A. Roorda, P. Tiruveedhula, S.H. Liu, G. Linebach, M. Rucci, and J.P. Rolland, “Alignment, calibration, and validation of an adaptive optics scanning laser ophthalmoscope optimized for resolving human cones in the central fovea” bioRxiv 2022.10. 04.510799 (2022).
 42. Ge, Gary R., Wei Song, Maiken Nedergaard, Jannick P. Rolland, and Kevin J. Parker, “ Speckle statistics of cortical brain tissue in optical coherence tomography,” Proc. SPIE 11974, Biomedical Applications of Light Scattering XII, 1197403 (3 March 2022. <https://doi.org/10.1117/12.2608850>
 43. Liu, Y., A. Bauer, and J.P. Rolland, “Freeform reflective hyperspectral imager design in CubeSat format”, NASA Tech Days (November 2, 2021).
 44. Davies, M., B. Dutterer, A. Bauer, and Jannick Rolland, “Optomechanical design and fabrication of a wide field of view 250-mm-aperture freeform imaging system” AMOS (Sept 14-17, 2021)
 45. Kim, W., W.J. Cassarly, and J.P. Rolland, “Applying Laplacian magic mirror in freeform illumination optics tolerancing” SPIE Proceedings Vol. 11874, Illumination Optics VI 118740P (12 13-16 Sept. 2021).
 46. Takaki, N., J.C. Papa, A. Bauer, and J.P. Rolland, “Aberration-based design example for freeform optical designs with base off-axis conics” OSA Optical Design and Fabrication Congress: IODC & Freeform (June 27-July1st 2021).
 47. Liu, Y., A. Bauer, and J.P. Rolland, “CubeSat format freeform hyperspectral imager” OSA Optical Design and Fabrication Congress: Freeform (June 27-July1st 2021).
 48. Liu, Y., A. Bauer, and J.P. Rolland, “CubeSat format freeform imager design” ASPE 2021 Spring Topical – Freeform and Structured Surfaces (April 28-292021)
 49. Chaudhuri, R., E. Kwasniewski., R. Porras-Aguilar, and J.P. Rolland, “Reconfigurable CGH using spatial light modulator for freeform metrology” Industrial Affiliate Board Meeting of CeFO (June 2020).
 50. Kim, Woo, B. Cassarly, and J.P. Rolland, “Bridging design to manufacture: the science of illumination tolerances” Industrial Affiliate Board Meeting of CeFO (June 2020).
 51. Bauer, A., and J.P. Rolland, “250 mm class wide field-of-view freeform imager” Industrial Affiliate Board Meeting of CeFO (June 2020).
 52. Liu, Y., A. Bauer, and J.P. Rolland. "CEFO18: CubeSat format freeform optical systems" Industrial Affiliate Board Meeting of CeFO (June 2020).

53. Venditti, K., C. Evans, K. Falaggis, A. Blum, R. Chaudhuri, J. Goodsell, and J.P. Rolland, "Design for metrology for freeform optics manufacturing," *Procedia CIRP* **84**, 169-172 (2019).
54. Papa, J.C., J.M. Howard, and J.P. Rolland, "Automatic solution space exploration for freeform optical design," in *Optical Design and Fabrication 2019 (Freeform, OFT)*, OSA Technical Digest (Optical Society of America, 2019), paper FM4B.1.
55. Papa, J.C., J.M. Howard, J.P. Rolland, "Initial survey results of four-mirror freeform imagers," UK Optical Design Meeting (September 2019).
56. Bauer, A., E.M. Schiesser, J.P. Rolland, "Concurrent engineering of a next-generation freeform telescope: optical design," *Proc. SPIE 10998, Advanced Optics for Imaging Applications: UV through LWIR IV*, 109980W (14 May 2019).
57. Bauer, A., M. Pesch, J. Muschaweck, and J.P. Rolland, "All-reflective freeform viewfinder," in *Optical Design and Fabrication 2019 (Freeform, OFT)*, OSA Technical Digest (Optical Society of America, 2019), paper FM2B.4.
58. Schiesser, E.M., A. Bauer, and J.P. Rolland, "The effect of freeform surfaces on the volume and performance of unobscured three mirror imagers," in *Optical Design and Fabrication 2019 (Freeform, OFT)*, OSA Technical Digest (Optical Society of America, 2019), paper FM3B.2.
59. Bauer, A., and J.P. Rolland "Imaging Design with Freeform Optics with Applications in Visual Systems", *Light and Sound Interactive*, Rochester, NY (2019).
60. Bauer, A., and J.P. Rolland, "250 mm class wide field-of-view freeform imager" Industrial Affiliate Board Meeting of CeFO (December 2019).
61. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform optical design with Forbes 2D Q-polynomials for improved manufacturability and sensitivity" Industrial Affiliate Board Meeting of CeFO (December 2019).
62. Chaudhuri, R., E. Kwasniewski, L. DeMars, R. Porras-Aguilar, and J.P. Rolland, "Reconfigurable CGH using spatial light modulator for freeform metrology" Industrial Affiliate Board Meeting of CeFO (December 2019).
63. Liu, Y., A. Bauer, and J.P. Rolland. "CEFO18: CubeSat format freeform optical systems" Industrial Affiliate Board Meeting of CeFO (December 2019).
64. Liu, Y., A. Bauer, and J.P. Rolland. "CubeSat format 3-Mirror spectrometer designed with freeform surfaces." OSA Design and Fabrication Congress 2019 (Freeform) (October 2019).
65. Chaudhuri, R., and J.P. Rolland, "Design of a flexible on-axis interferometric null test for off-axis parabolic and toroidal mirrors", OSA Optical Design and Fabrication Congress, June 2019, USA.
66. Bauer, A., E. Schiesser, and J.P. Rolland, "250 mm class wide field-of-view freeform imager" Industrial Affiliate Board Meeting of CeFO (June 2019).
67. Chaudhuri, R., L. DeMars, R. Porras-Aguilar, and J.P. Rolland, "Reconfigurable CGH using spatial light modulator for freeform metrology" Industrial Affiliate Board Meeting of CeFO (June 2019).
68. Liu, Y., A. Bauer, and J.P. Rolland. "CEFO18: CubeSat format freeform optical systems" Industrial Affiliate Board Meeting of CeFO (June 2019).
69. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform optical design with Forbes 2D Q-polynomials for improved manufacturability and sensitivity" Industrial Affiliate Board Meeting of CeFO (June 2019).
70. Takaki, N., Bauer, A., and J.P. Rolland "Improved freeform surface manufacturability estimates enabled by orthogonal polynomials", UK Optical Design Meeting (September 2019).
71. Ge G.R., F. Zvietcovich, J.P. Rolland, H. Mestre, M. Giannetto, M. Nedergaard, K.J. Parker, "A preliminary study on using reverberant shear wave fields in optical coherence elastography to examine mice brain *ex vivo*". *Proc. SPIE 10880, Optical Elastography and Tissue Biomechanics VI*; 2019 February 21; San Francisco, CA, USA. Poster.
72. Bauer, A., E. Schiesser, and J.P. Rolland, "250 mm class wide field-of-view freeform imager" Industrial Affiliate Board Meeting of CeFO (December 2018).
73. Liu, Y., A. Bauer, and J.P. Rolland. "CEFO18: CubeSat format freeform optical systems" Industrial Affiliate Board Meeting of CeFO (December 2018).

74. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform optical design with Forbes 2D Q-polynomials for improved manufacturability and sensitivity" Industrial Affiliate Board Meeting of CeFO (December 2018).
75. Liu, Y., A. Bauer, and J.P. Rolland. "CEFO18: CubeSat format freeform optical systems" Industrial Affiliate Board Meeting of CeFO (June 2018).
76. Bauer, A., and J.P. Rolland, "250 mm Class Wide Field-of-View Freeform Imager" Industrial Affiliate Board Meeting of CeFO (June 2018).
77. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform Optical Design with Forbes 2D Q-Polynomials for Improved Manufacturability and Sensitivity" Industrial Affiliate Board Meeting of CeFO (June 2018).
78. Zvietcovich, F., J.P. Rolland, P. Meemon, and K.J. Parker, "Reverberant 3D optical coherence elastography (Rev3D-OCE): a novel method for elastic mapping of layers in cornea" **BEST PAPER AWARD**, 1st place, at The Sixteenth International Tissue Elasticity Conference, Sept. 9-12 (2018).
79. Zvietcovich, F., N. Baddour, J.P. Rolland, and K.J. Parker. "Gaussian shear wave propagation in viscoelastic media: Validation of an approximate forward model", **BEST POSTER AWARD**, 1st place, at The Sixteenth International Tissue Elasticity Conference, Sept. 9-12 (2018).
80. Papa J.C., J.M. Howard, and J.P. Rolland, "Three-mirror freeform imagers, "Illumination Optics V Conference SPIE Optical Systems Design 14-19 May, Frankfurt Germany (2018).
81. Takaki N., W. Song, A.J. Yee, J.L. Bentley, D.T. Moore, and J. P. Rolland "Over-designed and under-performing: design and analysis of a freeform prism via careful use of orthogonal surface descriptions SPIE Optical System Design 14-19 May, Frankfurt Germany (2018).
82. Yee A.J., W. Song, N. Takaki, T. Yang, Y. Zhao, Y. Ni, S. Y. Bodell, J. P. Rolland, J. L. Bentley, D. T. Moore "Design of a Freeform Gradient-index Prism for Mixed Reality Head Mounted Display" SPIE Optical System Design 14-19 May, Frankfurt Germany (2018).
83. Zvietcovich F., J.P. Rolland, S. Wayson, M. Helguera, D. Dalecki, and K.J. Parker, "Viscoelastic characterization of dispersive media by inversion of a general wave propagation model in Optical Coherence Elastography applications" SPIE Photonics West: Optical Elastography and Tissue Biomechanics V 10496-24 (2018).
84. Zvietcovich F., J. P. Rolland, and K. J. Parker, "Reverberant shear wave fields for the elastic characterization of corneal layers in optical coherence elastography: a feasibility study" SPIE Photonics West: Optical Elastography and Tissue Biomechanics V 10496-12 (2018).
85. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform Optical Design with Forbes 2D Q-Polynomials for Improved Manufacturability and Sensitivity" Industrial Affiliate Board Meeting of CeFO (December 2017).
86. Bauer, A., E. Schiesser, and J.P. Rolland, "250 mm Class Wide Field-of-View Freeform Imager" Industrial Affiliate Board Meeting of CeFO (December 2017).
87. Bauer, A., E. M. Schiesser., and J.P. Rolland, "Analyzing the Aberration Fields of a Three-mirror Telescope and Correcting them Using Freeform Zernike Surfaces," MIRROR TECHNOLOGY DAYS, Nov. 14-16 Los Angeles (2017).
88. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform Optical Design with Forbes 2D Q-Polynomials for Improved Manufacturability and Sensitivity" Industrial Affiliate Board Meeting of CeFO (June 2017).
89. Bauer, A., E. Schiesser, and J.P. Rolland, "250 mm Class Wide Field-of-View Freeform Imager" Industrial Affiliate Board Meeting of CeFO (June 2017).
90. Papa, J. C., J.P. Rolland, and J. Howard, "Four Mirror Freeform Design," MIRROR TECHNOLOGY DAYS, Nov. 14-16 Los Angeles (2017).
91. Horvath, N. W., I. W. Barron, J. D. Owen, B. S. Dutterer, E. Schiesser, A. Bauer, J. P. Rolland, M. A. Davies, Optomechanical Design and Fabrication of a Snap Together Freeform TMA Telescope, 32nd ASPE Annual Meeting, Charlotte, NC, October 19-November 3 (2017).
92. Xu, D., J. Reimers, J. C. Papa, J. Owen, M. Davies, T. J. Suleski, K. Thompson, and J. P. Rolland, "Testing of a Convex Reflective Diffraction Grating," in Optical Design and Fabrication 2017

- (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper OM2B.3.
93. Bauer, A., E. M. Schiesser, and J. P. Rolland, "Analyzing the Aberration Fields of a Three-mirror Telescope and Correcting them Using Freeform Zernike Surfaces," in Optical Design and Fabrication 2017 (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper JW3C.4.
 94. Dube, B., R. Cicala, A. Closz, and J. P. Rolland, "MTF Full-Field Displays for Camera Lenses," in Optical Design and Fabrication 2017 (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper JTU3A.7.
 95. Papa, J.C., J. M. Howard, and J. P. Rolland, "Starting Point Designs for Freeform Four-Mirror Systems," in Optical Design and Fabrication 2017 (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper ITU2A.4.
 96. Reimers, J., K. Thompson, J. Troutman, J. Owen, A. M. Bauer, J. C. Papa, K. Whiteaker, D. Yates, M. Farsad, P. Marasco, M. Davies, and J. P. Rolland, "Increased Compactness of an Imaging Spectrometer Enabled by Freeform Surfaces," in Optical Design and Fabrication 2017 (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper JW2C.5.
 97. Hayes, A.B., W. Zhou, A. M. Bauer, J. Owen, C. J. Evans, M. Davies, and J. P. Rolland, "Software Tools to Simplify the Transfer of a Lens Design to Manufacturing," in Optical Design and Fabrication 2017 (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper JTh2B.2.
 98. Takaki, N. and J. P. Rolland, "Mathematical Properties of Describing Freeform Optical Surfaces with Orthogonal Bases," in Optical Design and Fabrication 2017 (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper JW1B.1.
 99. Schiesser, E.M., S. Bahk, and J. P. Rolland, "Three Unobscured Reflective Relays for High-power, Broadband Laser Beam Transport," in Optical Design and Fabrication 2017 (Freeform, IODC, OFT), OSA Technical Digest (online) (Optical Society of America, 2017), paper JTU3A.6.
 100. Canavesi C., A. Cogliati, A. Hayes, Patrice Tankam, Anand Santhanam, and J.P. Rolland, "3D wide field-of-view Gabor-domain optical coherence microscopy advancing real-time in-vivo imaging and metrology", Proc. SPIE 10053, Optical Coherence Tomography and Coherence Domain Optical Methods in Biomedicine XXI, 100530Z (17 February 2017)
 101. Bauer, A., E.M. Schiesser, and J.P. Rolland, "250 mm Class Wide Field-of-View Freeform Imager" Industrial Affiliate Board Meeting of CeFO (December 2016).
 102. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform Optical Design with Forbes 2D Q-Polynomials for Improved Manufacturability and Sensitivity" Industrial Affiliate Board Meeting of CeFO (December 2016).
 103. Bauer, A., E.M. Schiesser, and J.P. Rolland, "250 mm Class Wide Field-of-View Freeform Imager" Industrial Affiliate Board Meeting of CeFO (June 2016).
 104. Takaki, N., J.P. Rolland, G. Forbes, and A. Bauer, "Freeform Optical Design with Forbes 2D Q-Polynomials for Improved Manufacturability and Sensitivity" Industrial Affiliate Board Meeting of CeFO (June 2016).
 105. Zvietcovich F., Yao J., Chu Y., Meemon P., Rolland J., Parker K., "A comparative study of shear wave speed estimation techniques in optical coherence elastography applications," in *SPIE Photonic West*, 9710, 97100Y-97100Y-11 (2016).
 106. Zvietcovich F., Yao J., Rolland J., Parker K., "Experimental classification of surface waves in optical coherence elastography," in *SPIE Photonic West*, 9710, 97100Z-97100Z-9 (2016).
 107. Zvietcovich F., Yao J., Rolland J. P., and Parker K. J., "Optical Coherence Elastography of the Cornea by Tracking the Propagation of Surface Acoustic Waves," in *Frontiers in Optics, Optical Society of America*, JTh2A.131 (2016).

108. Xu, D. J. Yao, N. Zhao, and J.P. Rolland, "Scanning Customized Swept-source Optical Coherence Tomography (SS-OCT) for the Metrology of Freeform Optical Surfaces," in *Frontiers in Optics 2016*, OSA Technical Digest (online) (Optical Society of America, 2016), paper FW5H.6.
109. Schiesser, E.M. J. Papa, K.P. Thompson, and J.P. Rolland, "Comparing Three-Mirror Freeform Telescopes to Traditional TMAs by Exploring TMA Solution Space," in *Frontiers in Optics 2016*. OSA Technical Digest (online) (Optical Society of America, 2016), paper FW5H.3.
110. Schiesser, E.M., and J.P. Rolland, "Sensitivity analysis comparison of unobscured TMA: freeform vs. co-axial" MIRROR TECHNOLOGY DAYS, Nov. 1-3 Maryland (2016)
111. Papa, J., J.P. Rolland, and J. Howard "Starting Points for Designing Freeform Four-Mirror Telescopes" MIRROR TECHNOLOGY DAYS, Nov. 1-3 Maryland (2016)
112. Tankam, P., Z. He, G. Thuret, H. Hindman, T. Lepine, C. Canavesi, P. Gain, and J. P. Rolland, "Investigating Corneal Disease Using High Resolution Gabor-domain Optical Coherence Microscopy", in *Frontiers in Optics 2016*, OSA Technical Digest (online) (Optical Society of America, 2016), paper JTh2A.140 (2016).
113. Rolland, J.P., C. Canavesi, P. Tankam, A. Cogliati, M. Lanis, and A. P. Santhanam, "Real Time Gabor-Domain Optical Coherence Microscopy for 3D Imaging," *Studies in Health Technology and Informatics* 220, 335-340 (2016).
114. Schiesser E., J. Papa, J.P. Rolland, and K.P. Thompson, "Tools for Visualizing the Solution Space for Freeform Three-Mirrors Anastigmats," NASA Mirror/Tech/SBIR/STTR workshop (2015) (Nov 10-12 2015).
115. Yao, J., P. Meemon, M. Ponting, and J. P. Rolland, "Metrology of 3D freeform spherical gradient index preforms," *Imaging and Applied Optics 2015*, OSA Technical Digest, paper FT3B.3 (2015) (June 8-12 2015).
116. Reimers, J., Eric M. Schiesser, Kevin P. Thompson; Kevin L. Whiteaker, Dennis Yates, and Jannick P. Rolland, "Comparison of Freeform Imaging Spectrometer Design Forms Using Spectral Full-Field Displays", *Imaging and Applied Optics 2015*, OSA Technical Digest, paper FM3B.3 (2015) (June 8-12 2015).
117. Bauer, A. and J. P. Rolland, "Design Process for an All-Reflective Freeform Electronic Viewfinder," in *Imaging and Applied Optics 2015*, OSA Technical Digest (online) (Optical Society of America, 2015), paper FW3B.2 (June 8-12 2015).
118. Yao, J., D. Xu, N. Zhao, and J.P. Rolland, "Freeform metrology using swept-source optical coherence tomography with custom pupil-relay precision scanning configuration", *Proc. of SPIE 9633*, paper 96331A (2015).
119. Huang, J., J. Yao, N.M.Cirucci, T. Ivanov, and J.P. Rolland, "Thickness estimation with optical coherence tomography and statistical decision theory", *Optifab 2015*, *Proc. of SPIE 9633*, paper 96330P (2015).
120. Bauer, A.M., K.P. Thompson, and J.P. Rolland, "Coma full-field display for freeform imaging systems" *Optifab 2015*, *Proc. of SPIE 9633*, paper 963316 (2015).
121. Thompson, K.P., E. Schiesser, and J.P. Rolland, "Why are freeform telescopes less alignment sensitive than a traditional unobscured TMA?" *Optifab 2015*, *Proc. of SPIE 9633*, paper 963317 (2015).
122. Thompson, K.P. and J.P. Rolland, "Cost-driven self-consistent fabrication and assembly tolerance classes" *Optifab 2015*, *Proc. of SPIE 9633*, paper 96330U (2015).
123. Duma V.-F., Dobre G. M., Demian D., Cernat R. C., Sinescu C., Negrutiu M. L., Hutiu Gh., Bradu A., Rolland J. P., Podoleanu A. Gh., "Constructive solutions of handheld probes with galvanometer scanners for biomedical and industrial imaging. Applications in OCT," *Optifab 2015, Proc. SPIE*, Vol. 9633, 96330Q, Mazuray L., Wartmann R., Wood A. P., Eds., *SPIE OptiFab (Optical Design and Engineering VI)*, Rochester, NY (USA), Oct. 12-15, **2015**; doi: 10.1117/12.2195839
124. Duma, V.-F, G. M. Dobre, D. Demian, C. Sinescu, M. L. Negrutiu, R.C. Cernat, G. M. Hutiu, A. Bradu, and J. P. Rolland, Adrian G. H. Podoleanu, "Optomechanics of handheld probes with

- galvanometer scanners for biomedical and industrial imaging”, Proc. of SPIE 9633, paper9633-24 (2015) (Jena Germany).
125. Canavesi, C. A. Cogliati, A. Hayes, A.P. Santhanam, P. Tankam, and J.P. Rolland, “Gabor-domain optical coherence microscopy with integrated dual-axis MEMS scanner for fast 3D imaging and metrology” Proc. of SPIE 9633, paper 96330O (2015).
 126. Duma V.-F., Dobre G. M., Demian D., Cernat R. C., Sinescu C., Topala F. I., Negrutiu M. L., Hutiu Gh., Bradu A., Rolland J. P., Podoleanu A. Gh., Handheld probes and galvanometer scanning for optical coherence tomography, *Proc. SPIE*, Vol. 9626, 9626-50, Mazuray L., Wartmann R., Wood A. P., Eds., *SPIE Optical Design (Optical Design and Engineering VI)*, Jena (Germany), Sept. 7-10, (2015).
 127. Duma V. et al., “Handheld probes and galvanometer scanning for optical coherence tomography” at the SPIE Optical System Design in Jena, Germany – paper 9626-50 (September 9, 2015).
 128. Tankam P., Z. He, M. Lanis, C. Canavesi, T. Lepine, H. Hindman, D. Topham, G. Thuret, P. Gain, and J. P. Rolland, “Assessing the microstructures of the human cornea using Gabor-domain optical coherence microscopy with large field of view and high resolution” ARVO paper at Annual Meeting 2015 – **selected as “Hot Topic” and wearing the inaugural “Communicator” ribbon at the 2015 Annual Meeting (extended to 10% of attendees).**
 129. Huang Jinxin, Patrice Tankam, Holly B. Hindman, James V. Aquavella, Eric Clarkson, Matthew A. Kupinski, and Jannick P. Rolland, “Tear film thickness estimation using optical coherence tomography and maximum-likelihood estimation”, ARVO, Posterboard Number:351-C0236 (2015) (May 2- 7 2015).
 130. Yao, J., and J.P. Rolland, “Freeform Optics Metrology Using Optical Coherence Tomography”, Topical Meeting of the OSA, Optical Fabrication and Testing (Hawaii, Big Island, 22-26 June 2014).
 131. Reimers, J., Kevin P. Thompson, Kevin L. Whiteaker, and Jannick P. Rolland, “New Methods for the Optical Design of Spectrometers with Freeform Surfaces”, Mirror Tech Days (Albuquerque NM -November 18-20 2014)
 132. Reimers, J., Kevin P. Thompson, Kevin L. Whiteaker, and Jannick P. Rolland, “Spectral full-field displays for spectrometers” in *Classical Optics 2014*, OSA Technical Digest (online) (Optical Society of America, 2014), *Proc. SPIE* 9293, International Optical Design Conference 2014, 92930O (December 17, 2014); Also Presented at the International Optical Design Conference (IODC) 2014, (Hawaii, Big Island, 22-26 June 2014).
 133. Bauer A., and J. P. Rolland, "Two All Reflective, Freeform, Optical See-Through Head-Worn Displays," in *Classical Optics 2014*, OSA Technical Digest (online) (Optical Society of America, 2014) ITh3A.6, and Proceedings of the SPE-OSA 9293, 92930Q; Presented at the International Optical Design Conference (IODC) 2014, (Hawaii, Big island, 22-26 June 2014)
 134. Schiesser, E., C. Canavesi, S. Long, E. Jakob, and J.P. Rolland, “Retinal imaging with virtual reality stimulus for studying Salticidae retinas”, Proceedings of the SPIE-OSA 9293, 92931C; Presented at the International Optical Design Conference (IODC) (Hawaii, Big Island, 22-26 June 2014).
 135. Fuerschbach, K., J.P. Rolland, and K.P. Thompson Rolland, J.P., “Nodal Aberration Theory Applied to Freeform Surfaces” Proceedings of the SPIE-OSA 9293, 92931V; Presented at the International Optical Design Conference (Hawaii, Big Island, 22-26 June 2014).
 136. Huang, J., E. Clarkson, M. Kupinski, Q. Yuan, K. Xu, P. Tankam, K. Maki, D. Ross, J. Aquavella, J.P. Rolland, "Investigation of tear film dynamics--Towards understanding its clinical relevance", *Invest Ophthalmol Vis Sci*, 55: E-Abstract 1980, (2014).
 137. Tankam P., Won J., Santhanam A.P., He Z., Pataia G., Gain P., Thuret G., Lepine T., Hindman H.H., Rolland J.P., “Investigating microstructures of human corneal endothelial cell microenvironment using high resolution imaging Gabor-domain optical coherence microscopy,” in the Association for Research in Vision and Ophthalmology (ARVO), IOVS **55**(5), PP. 2071 (2014). Also Poster presented at the Gordon Conference on Image Science - Accelerating the Pace of System Design and Task-Based Evaluation, Stonehill MA (June 2014).

138. Huang, Q. Yuan, J., E. Clarkson, M. Kupinski, J.P. Rolland, "Application of task-based assessment in Optical Coherence Tomography for tear film thickness estimation", Gordon Research Conference on Image Science, 2014 (Stonehill MA, poster)
139. Huang, Q. Yuan, J., E. Clarkson, M. Kupinski, J.P. Rolland, "Application of task-based assessment in Optical Coherence Tomography for tear film thickness estimation", Gordon Research Conference on Laser in Medicine and Biology, 2014 (Holderness NH, Poster)
140. Huang, Q. Yuan, J., E. Clarkson, M. Kupinski, J.P. Rolland, "Application of Task-based Assessment in Optical Coherence Tomography in the Context of Tear Film Imaging", *Frontiers in Optics, Microscopy and OCT (Joint with FIO 1) I (FW1E)* (October 2014)
141. Huang, J., E. Clarkson, M. Kupinski, J.P. Rolland, "Simultaneous estimation of lipid and aqueous thicknesses of the tear film with Optical Coherence Tomography and Statistical Decision Theory", *Proc. SPIE 8936, Design and Quality for Biomedical Technologies VII, 89360A*, 2014; PW14B-BO202-30 doi:10.1117/12.2041898
142. EM Jakob, SM Long, D Harland, RR Jackson, C Canavesi, J Rolland, "Tracking the eyes of jumping spiders: a window into perception" Annual meeting of the American Arachnological Society, Ohio State Newark, Newark OH. June 20-24, 2014.
143. Li, T., M. Huarte-Espinosa, and J.P. Rolland, Undergraduate Research Symposium of the Xerox Corporation, The Kearns Center Research Day, Goergen Hall, University of Rochester, Institute of Optics and HAJIM School of Engineering and Applied Sciences. Bringing Optical Design Research into 3D. (July 2013)(Poster).
144. Huarte-Espinosa, M., Cogliati, A., Li, T. & Rolland, J., at CEIS Technology Showcase, Doubletree Hotel, Rochester New York. Eikonol+: A simulation platform for innovative research in optical instrumentation. March 2013 (Poster)
145. Jinxin Huang, Eric Clarkson, Matthew Kupinski, Jannick P. Rolland, "Thickness Estimation with Optical Coherence Tomography and Statistical Decision Theory", OSA-CIOMP summer session, poster presentation (2013)
146. Yao, J. P. Meemon, J. Huang, S. Head, and J.P. Rolland, "Development of Custom Angular Scan and Index-Mapping Optical Coherence Tomography Systems for Nondestructive Metrology of Layered Gradient Index Optical Components", CIOMP/OSA Summer Session on Optical Engineering, Design and Manufacturing, Changchun, China, August 4-9 (2013).
147. Yao, J. J. Huang, P. Meemon, K.S Lee, S. Head, J. Won, K. Xu, and J.P. Rolland, "Nondestructive Testing of Optical GRIN Materials for Optical Manufacturing", CEIS 13th annual University Technology Showcase, March 26th (2013).
148. Canavesi, C. W. J. Cassarly, and J. P. Rolland, "Supporting conic design methods and conic intersection properties", presented at SPIE Optics+Photonics (Optical Engineering + Applications, Nonimaging Optics: Efficient Design for Illumination and Solar Concentration X), Aug. 25-29 San Diego, CA, *Proc. of SPIE*, vol. 8834, 88340L (2013).
149. Canavesi, C., W. J. Cassarly, and J. P. Rolland, "Towards 3D: freeform reflector design for illumination", Industrial Advisory Board meeting, Center for Freeform Optics, 7-8 Nov. 2013, Tucson, AZ, NY. (poster)
150. Canavesi, C. W. J. Cassarly, and J. P. Rolland, "Towards 3D: algorithm for freeform reflector illumination design", CEIS 2013 University Technology Showcase, March 26, 2013, Doubletree Hotel, Rochester, NY. (poster)
151. Isaac Trumper. Kyle Fuerschbach, Kevin P. Thompson, and Jannick P. Rolland, "Development and Fabrication of a Schmidt Telescope to Validate Nodal Aberration Theory Applied to Freeform Surfaces." Presented at FiOS 2013 in Orlando, Florida. (Poster)
152. Ma, B., K. Thompson, K. Sharma, and J. Rolland, "Applying Slope Constrained Q type Aspheres to Reduce Sensitivity of Optical Systems," in *Frontiers in Optics Conference, OSA Technical Digest* (online) (Optical Society of America, 2012), paper FTh3E.3.

153. Gray, R.W., C. Dunn, K.P. Thompson, and J.P. Rolland, "An analytic expression for the field dependence of Zernike polynomials in rotationally symmetric optical systems", at Frontiers in Optics, OSA Annual Meeting (2012).
154. Canavesi, C., W. Cassarly, and J. Rolland, "Relationship Between Supporting Paraboloids and Linear Programming for 2D Reflector Design," in Frontiers in Optics Conference, OSA Technical Digest (online) (Optical Society of America, 2012), paper FTh3E.2 (2012).
155. Canavesi, C., W. J. Cassarly, and J. P. Rolland, "Implementation of the linear programming algorithm for freeform reflector design", Proceedings of SPIE Vol. 8485, 84850E (2012).
156. Yao, J., P. Meemon, K.S. Lee, K. Xu, and J.P. Rolland, "Nondestructive metrology of layered polymeric optical materials using optical coherence tomography," SPIE Proceedings. San Diego, California, USA 849307 (August 12, 2012).
157. Yao, J., P. Meemon, and J.P. Rolland, "Nondestructive metrology of layered polymeric GRIN materials using optical coherence tomography," Optical Fabrication and Testing. Monterey, California, USA OTu4D.3 (June 25, 2012).
158. Bauer, A., S. Vo, K. Parkins, F. Rodriguez, O. Cakmakci, and J. Rolland, "Optical distortion correction using radial basis function interpolation," in *Frontiers in Optics Conference*, OSA Technical Digest (online) (Optical Society of America, 2012), paper FTu2E.4.
159. Fuerschbach, K., K. P. Thompson, and J. P. Rolland, "Interferometric Null Configurations for Measuring ϕ (Phi) -polynomial Surfaces," in *Optical Fabrication and Testing*, OSA Technical Digest (online) (Optical Society of America, 2012), paper OW2D.2. **BEST PAPER AWARD – 1st Place**
160. Fuerschbach, K. J. P. Rolland, and K. P. Thompson, "Aberration behavior of a classical two-mirror telescope in the presence of mount error using nodal aberration theory," in *Frontiers in Optics Conference*, OSA Technical Digest (online) (Optical Society of America, 2012), paper FTu5F.2.
161. Zhao, H., K.S. Lee, N.Meemon, S.F. Ibrahim and J.P. Rolland, "Cellular 3D Imaging of Normal Skin and Non-Melanoma Cancer Skin Using Gabor Domain Optical Coherence Microscopy", Proceedings of Frontier in Optics, Rochester, USA FM4D.1(October 15, 2012).
162. Zhao, H., K.S. Lee, S.F.Ibrahim, L. Khoudeir, N. Meemon, N. Tjota, V. Balaji, J.P. Rolland, "Cellular Resolution Three Dimensional Imaging of Non-melanoma Skin Cancer and Normal Skin Using Gabor Domain Optical Coherence Microscopy", James P Wilmot Cancer Center - 17th Annual Scientific Symposium,Rochester, USA(November 15, 2012)
163. Wu, J., K. Fuerschbach, J. Thivollet, K. Thompson, and J. Rolland, "Design and Alignment of the Hilbert Telescope for use in an Undergraduate Laboratory," Poster in OSA Frontiers in Optics Undergraduate Symposium (October 15, 2012).
164. Boccuzzi, K., J. Yao, and J.P. Rolland, "Investigation of the Birefringence of Graded refractive index Materials", in OSA Frontiers in Optics Undergraduate Symposium (October 15, 2012).
165. Tocha, J., K.S. Lee, Jay Hah, K. Parker, and J.P. Rolland, "Application of Optical Coherence Tomography (OCT) to Elastography", in OSA Frontiers in Optics Undergraduate Symposium (October 15, 2012).
166. Yao, J., P. Meemon, and J.P. Rolland, "Nondestructive metrology of layered polymeric materials using optical coherence tomography," Optical Fabrication and Testing OTu4D.3 (Monterrey CA, June 25-27 2012).
167. Santhanam, A.,J.P. Rolland, K.S. Lee, H. Zhao, D. Ennis, D. Low, S. Ibrahim, and P. Kupelian, "Model guided multi-model multi-scale image integration for head and neck anatomy", Applied Industrial Optics: Spectroscopy, Imaging, and Metrology ATh2A.3 (Monterrey CA, June 25-27 2012).
168. Rolland, J.P., K.S. Lee, L. Khoudeir, P. Meemon, K. P. Thompson, J. Huang, J. Yao, and S. F. Ibrahim, "Virtual Skin Biopsy with Gabor Domain Optical Coherence Microscopy", in Medicine Meets Virtual Reality19 / NextMed , Newport Beach CA (February 9-11, 2012).
169. Fuerschbach, K.H., J.P. Rolland and K.P. Thompson, "Designing with ϕ -polynomial surfaces" in 2011 SPIE Europe Optical System Design, Proc. SPIE 8167, 81670Z (2011).

170. Fuerschbach, K.H., J.P. Rolland and K.P. Thompson, "Designing with ϕ -polynomial surfaces" in 2011 SPIE Optical System Design, Proc. SPIE 8167, 81670Z (2011).
171. Leonard, Anne S., Cristina Canavesi, Rolland Jannick, Dennis Fantone, Duane Harland, Robert Jackson, Skye Long and Elizabeth Jakob, "What do jumping spiders know at a glance? Using an eyetracker device to assess the modularity, speed, and accuracy of visual processing in jumping spiders", Gordon Conference in Neuroethology: Behavior, Evolution & Neurobiology. August 14-19, Stonehill College in Easton MA United States (2011).
172. Canavesi, C., W. J. Cassarly, T. H. Foster, and J. P. Rolland, "Illumination devices for uniform delivery of light to the oral cavity for photodynamic therapy", Proceedings of SPIE Vol. 8124, 812402 (2011).
173. Canavesi, C., S. Long, D. Fantone, E. Jakob, R. R. Jackson, D. Harland, and J. P. Rolland, "Design of a retinal tracking system for jumping spiders", Proceedings of SPIE Vol. 8129, 812909 (2011).
174. Fuerschbach, K. H., K. P. Thompson, and J. P. Rolland, "A new generation of optical systems with ϕ -polynomial surfaces", American Society of Precision Engineers (ASPE) Spring Topical Meeting on Structured and Freeform Surfaces, (ASPE, Charlotte, N.C., USA, April 11 2011).
175. Lee, K., S. K. Mahalik, J. P. Rolland, "Ultra-high axial resolution high-speed FD-OCT using broadband astigmatism-corrected spectrometer," Proceedings of the SPIE Photonics West, Paper 7891-22 78910O (2011).
176. Meemon, P., K. Lee, J. P. Rolland, "Phase-resolved Doppler imaging with dual-detection full-range frequency domain optical coherence tomography," in Proceedings of the SPIE Photonics West, Paper 7891-23, 78910P (2011).
177. Canavesi, C., F. Fournier, T. H. Foster, and J. P. Rolland, "Design of illumination devices for photodynamic therapy in the oral cavity", presented at IONS-NA2 (2nd North American International OSA Network of Students Conference), Oct. 1-2 2010, Tucson, AZ. (Talk Only).
178. Kaya, I., and J.P. Rolland, "A Radial Basis Function Method for Freeform Optics Surfaces", in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, October 24-28, 2010), paper FThX1.
179. Vo, S., K. Fuerschbach, K. Thompson, M. Alonso, and J. Rolland, "A Geometric Optics Description of Airy Beams," in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, October 24-28, 2010), paper FTuO6.
180. Rolland, J.P., T. Schmid, J. Tamkin Jr., K. Lee, K. P. Thompson, and E. Wolf, "Modeling and Measuring Gouy Phase Anomaly in Astigmatic Beams," in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, October 24-28, 2010), paper FTuE7.
181. Meemon, P., and J.P. Rolland, "Variable Velocity Dynamic Range Doppler Optical Coherence Tomography, "in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, October 24-28, 2010), paper FTuY3.
182. Rolland, J.P., S. Murali, P. Meemon, P. Glenn, K. P. Thompson, and K. Lee, "Performance of a Liquid Lens Enabled Optical Coherence Microscope with Gabor Fusion," in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, October 24-28, 2010), paper IWD4.
183. Canavesi, C., F. Fournier, T. H. Foster, and J. P. Rolland, "Design of a Lightpipe Device for Photodynamic Therapy of the Oral Cavity", in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, October 24-28, 2010), paper FTuS5.
184. Thompson, K., J. P. Rolland, "An Analytic Expression for the Field Dependence of Zernike Coefficients in Optical Systems without Symmetry," " in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, October 24-28, 2010), paper FWJ4.
185. Thompson, K.P., K. Fuerschback, and J.P. Rolland, "Analytic Expression for the Field Dependence of FRINGE Zernike Polynomial Coefficients in Optical Systems that are Rotationally nonsymmetric", Photonics Asia 2010 7849-5 (Beijing, China, 18-21 October 2010).
186. Rolland, J.P., C. Dunn and K. P. Thompson, "An Analytic Expression for the Field Dependence of FRINGE Zernike Polynomial Coefficients in Rotationally Symmetric Optical Systems", Proceedings of the SPIE 7790, 77900M (2010).

187. Canavesi, C., F. Fournier, T. H. Foster, and J. P. Rolland, "Design of illumination devices for delivery of photodynamic therapy in the oral cavity", SPIE Optics and Photonics, Proceedings of the SPIE-OSA Vol. 7652, 76520Y (2010).
188. Canavesi, C., F. Fournier, T. H. Foster, and J. P. Rolland, "Design of Illumination Devices for Delivery of Photodynamic Therapy in the Oral Cavity", Fulbright-Finmeccanica workshop, March 10-11, 2010, Washington, DC. (Talk only).
189. Canavesi, C., and J. P. Rolland, "Design of Illumination Devices for Delivery of Photodynamic Therapy in Oral Cavity", Institute of Optics Industrial Associates Spring '10 Meeting (Abstract) (2010).
190. Schmid, T., and J. P. Rolland. "Utilizing Nodal Aberration Theory for re-constructing aberration fields based on sparse wavefront measurements in the field", Institute of Optics Industrial Associates Spring '10 Meeting (Abstract) (2010).
191. Cakmacki, O., I. Kaya, G. E. Fasshauer, K. P. Thompson, and J. P. Rolland, "Application of Radial Basis Functions to Represent Optical Freeform Surfaces", International Optical Design Conference IODC2010, **7652**, 76520A-1:7, Jackson Hole, WY, 13 - 17 June (2010) (**Invited**).
192. Fuerschbach, K. H., K. P. Thompson, and J. P. Rolland, "A New Generation of Optical Systems with Theta-Polynomial Surfaces", International Optical Design Conference IODC2010, **7652**, 76520C-1:7, Jackson Hole, WY, 13 - 17 June (2010).
193. Thompson, K. P., F. Fournier, J. P. Rolland, and G. W. Forbes, "The Forbes Polynomial: A More Predictable Surface for Fabricators", Optical Fabrication & Testing OFT2010, Jackson Hole, WY, 13 - 17 June (2010) (**Invited**).
194. Schmid, T., K. P. Thompson, and J. P. Rolland, "Computation of Misalignment and Primary Mirror Figure Error Parameters of Classical Two-Mirror Telescopes", Optical Fabrication & Testing OFT2010, Jackson Hole, WY, 13 - 17 June (2010). **BEST PAPER AWARD, 2nd Place**
195. Canavesi, C., F. Fournier, T. H. Foster, and J. P. Rolland, "Design of Illumination Devices for Delivery of Photodynamic Therapy in the Oral Cavity", International Optical Design Conference IODC2010, Jackson Hole, WY, 13 - 17 June (2010).
196. Kaya, I., O. Cakmakci, K. P. Thompson, and J. P. Rolland. "The Assessment of a Stable Radial Basis Function Method to Describe Optical Free-form Surfaces", Optical Fabrication & Testing OFT2010, Jackson Hole, WY, 13 - 17 June (2010).
197. Fournier, F., W. J. Cassarly, and J. P. Rolland, "Freeform Reflector Design Using Integrable Maps", International Optical Design Conference IODC2010, **7652**, 765221-1:10, Jackson Hole, WY, 13 - 17 June (2010). **BEST PAPER AWARD, 1st Place**.
198. Rolland, J. P., T. Schmid, J. Tamkin Jr., K.S. Lee, K.P. Thompson, and E. Wolf, "Gouy Phase Anomaly in Astigmatic Beams", International Optical Design Conference IODC2010, **7652**, 765224-1:6, Jackson Hole, WY, 13 - 17 June (2010).
199. Vo, S., K. Fuerschbach, C. Pachot, T. Schmid, K. P. Thompson, and J. P. Rolland, "Airy Beams: Beyond Geometric Optics", International Optical Design Conference IODC2010, **7652**, 765226-1:9, Jackson Hole, WY, 13 - 17 June (2010).
200. Rolland, J. P., S. Murali, P. Meemon, Paul Glenn, K. P. Thompson, and K.S. Lee, "Performance of a Liquid Lens Enabled Optical Coherence Microscope with Gabor Fusion", International Optical Design Conference IODC2010, **7652**, 76522C-1:10, Jackson Hole, WY, 13 - 17 June (2010).
201. Thompson, K. P., T. Schmid, and J. P. Rolland, "Recent Discoveries from Nodal Aberration Theory", International Optical Design Conference IODC2010, **7652**, 76522Q-1:11, Jackson Hole, WY, 13 - 17 June (2010).
202. Fournier, F., W. J. Cassarly, and J. P. Rolland, "Freeform reflector design techniques for illumination," SPIE University of Rochester Student Chapter Summer Colloquium Series, Rochester NY June 24 (2010).
203. Schmid, Tobias, Kevin P. Thompson, Jannick P. Rolland, Douglas R. Neill, Jacques Sebag, William J. Gressler, "Using nodal aberration theory of higher order field aberrations in the initial alignment

- of the Large Synoptic Survey Telescope", Proceedings of the SPIE on Astronomical Instrumentation **7733-99**, (2010).
204. Cakmakci, Ozan, Kevin Thompson, Pierre Vallee, Jasmin Cote, and Jannick Rolland. Design of a free-form single-element see-through head-worn display. Photonics West 2010, San Francisco, California, Proceedings of the SPIE **7618 761803** (2010). <https://doi.org/10.1117/12.840716>
 205. Meemon, P., K. S. Lee, S. Murali, Ilhan Kaya, K. P. Thompson, and J. P. Rolland, "Sub-cellular resolution imaging with Gabor domain optical coherence microscopy", Photonics West 2010, Proceedings of the SPIE **7554 - 84** (2010).
 206. Lee K.S., W. Hurley, J. Deegan, S. Dean2, and J. P. Rolland, "High resolution axicon-based endoscopic FD OCT imaging with a large depth range", Photonics West 2010, Proceedings of the SPIE **7558-26** (2010).
 207. Lee, Kye-Sung ,Philip Vanderwall, and Jannick P. Rolland, "Two-photon microscopy with dynamic focusing objective using a liquid lens", Photonics West 2010, Proceedings of the SPIE **7554 - 84** (2010).
 208. Duma, V.F., J.P. Rolland, and A. Gh. Podoleanu, "Perspectives of optical scanning in OCT," Photonics West 2010, Proceedings of the SPIE **7556 – 10** (2010).
 209. Meemon, P., K. S. Lee, and J. P. Rolland, "Full-range spectral domain Doppler optical coherence tomography", Photonics West 2010, Proceedings of the SPIE **7556 - 11** (2010)
 210. Fournier, F., W. J. Cassarly, and J. P. Rolland, "Tailored Freeform Reflectors for Extended Non Lambertian Sources," *OSA Annual Meeting / Frontiers in Optics*, San Jose (2009) (Abstract)
 211. Fournier, F., W. J. Cassarly, and J. P. Rolland, "From conics to freeform: A journey through reflector design," *Institute of Optics Industrial Associates Fall 09 Meeting*, Rochester (2009)
 212. Fournier, F., W. J. Cassarly, and J. P. Rolland, "From conics to freeform: A journey through reflector design," *UK Optical Designers' Meeting*, Edinburgh (Abstract) (2009).
 213. Fournier, F., W. J. Cassarly, and J. P. Rolland, "Designing freeform reflectors for extended sources," presented at the Nonimaging Optics: Efficient Design for Illumination and Solar Concentration VI, San Diego, CA, USA, Proc. SPIE Vol. 7423 (2009). [LISTED IN TOP 10 VISITED PAPERS OVER 6 MONTHS]
 214. Schmid, T., A. Rakich, J. P. Rolland, and K. P. Thompson, "Separating Astigmatic Mirror Figure Error from Alignment Induced Misalignment Aberrations Using Nodal Aberration Theory," *OSA Frontiers in Optics*, San Jose, CA, paper FThH4 (2009).
 215. Thompson, K.P., B. Kuhn, C. Todd, T. Schmid, and J.P. Rolland, "Developing Alignment Insensitive 4-mirror Coaxial Telescope Designs Using Nodal Aberration Theory" Proceedings of Optifab (Abstract) (2009).
 216. Thompson, K.P., K. Fuerschbach, T. Schmid, and J. P. Rolland, "Using nodal aberration theory to understand the aberrations of multiple unobscured three mirror anastigmatic (TMA) telescopes," Proc. SPIE 7433, 74330B (2009).
 217. Rolland, J.P., Panomsak Meemon, Supraja Murali, Ilhan Kaya, Nicolene Papp, Kevin P. Thompson, Kye-sung Lee, "Gabor Domain Optical Coherence Tomography" *Proceedings of Optical Coherence Tomography and Coherence Techniques IV*, Vol 7372, (2009).
 218. Murali, S., K. S. Lee, P. Meemon, W. P. Kuhn, K. P. Thompson, and J. P. Rolland, "Quantification of resolution for a dynamic focusing OCM microscope," in *Design and Quality for Biomedical Technologies II*, Proceedings of SPIE 717009 (2009).
 219. Schmid, T., K. Thompson, and J.P. Rolland, "Using nodal aberration theory to distinguish image degradation originating from misalignments and mirror bending modes," Presentation given at Industrial Associates Meeting, Institute of Optics, University of Rochester, Rochester, NY (2009).
 220. Lee, K.S., P. Meemon, K. Hsu, W. J. Dallas, and J. P. Rolland, "Dual-reference full-range frequency domain optical coherence tomography," in *Design and Quality for Biomedical Technologies II*, Proceedings of SPIE 717004 (2009).
 221. Kaya, Ilhan, Anand Santhanam, Kye-Sung Lee, Panomsak Meemon, and Jannick P. Rolland, "A Physics Based Modeling and Real-Time Simulation of Biomechanical Diffusion Process through

- Optical Imaged Alveolar Tissues on Graphical Processing Units,” Workshop on 3D Physiological Human, Geneva, Switzerland, (November 2008). Published in Springer-Verlag (2009).
222. Meemon, Panomsak, Supraja Murali, Kye-Sung Lee, Kevin Thompson, and Jannick P. Rolland, “Gabor Domain Optical Coherence Microscopy,” OSA 92nd Annual Meeting, Frontiers in Optics 2008, Novel Optical Design and Measurement, October 18-23, Rochester, NY (Abstract FWW4) (2008).
 223. Cakmakci, Ozan, and Jannick P. Rolland. Meshfree Approximation Methods for Surface Representation of Free-Form Optical Surfaces. OSA 92nd Annual Meeting, Frontiers in Optics 2008, Novel Optical Design and Measurement, October 18-23, Rochester, NY (Abstract FThU2) (2008).
 224. Schmid, T., Kevin P. Thompson, Jannick P. Rolland, "Determination of Nodal Aberration Field Locations from Measured Performance Data for Large Operational Astronomical Telescopes," Novel Optical Design and Measurement/Frontiers in Optics, OSA 92nd Annual Meeting, Frontiers in Optics 2008, Novel Optical Design and Measurement, October 18-23, Rochester, NY (Abstract FThU1) (2008).
 225. Schmid, T., K. Thompson, and J. Rolland, “Alignment of two mirror astronomical telescopes,” SPIE Symposium on Astronomical Telescopes and Instrumentation: Synergies Between Ground and Space, Marseilles, France, Proc. SPIE 7017, 70170C, (2008).
 226. Cakmakci, O., S. Vo, S. Vogl, R. Spindelbaker, A. Ferscha, and J.P. Rolland. Optical Free-Form Surfaces in Off-Axis Head-Worn Display Design. 7th IEEE/ACM International Symposium on Mixed and Augmented Reality (ISMAR), Cambridge, UK (2008).
 227. Cakmakci, O., J.P. Rolland, K.P. Thompson, and J. Rogers, "Design efficiency of 3188 optical designs," in Current Developments in Lens Design and Optical Engineering IX, 7060, (SPIE, San Diego, CA, USA), pp. 70600S-70610 (2008).
 228. Cakmakci, O., G.E. Fasshauer, H. Foroosh, K.P. Thompson, and J.P. Rolland, "Meshfree approximation methods for free-form surface representation in optical design with applications to head-worn displays," in Novel Optical Systems Design and Optimization XI, 7061, (SPIE, San Diego, CA, USA), pp. 70610D-70615, (2008).
 229. Fournier, F.R., William J. Cassarly, and Jannick P. Rolland, "Optimization of single reflectors for extended sources," in Illumination Optics, Proc. SPIE 7103 (Glasgow, UK), pp. 71030I (2008).
 230. Jain, A., S. Murali, H. Foroosh, K.P. Thompson, and J. P. Rolland, “Superresolution imaging combining the design of an optical coherence microscope objective with liquid-lens based dynamic focusing capability and computational methods.” in *Novel Optical Systems Design and Optimization XI* 7061A-37, Proceedings of the SPIE Annual Meeting (2008).
 231. Jiyeon Choi, Kye-Sung Lee, Troy Anderson, Jannick Rolland, Martin Richardson, “Nondestructive 3-D Imaging of Femtosecond Laser Written Buried Structures Using Optical Coherence Microscopy,” CLEO/QELS 2008 San Jose, CA May 4-9, (2008).
 232. Lee, K.S., and J.P. Rolland, “Bessel Beam Based Spectral Domain High Resolution OCT with a 600 μ m Effective Diameter Axicon Providing Extended Focusing Range” BIOMED 08, Tampa FL (2008).
 233. Rolland, J., K. Lee, A. Mahmood, L. Fluck, J. Duarte, I Kaya, A. Santhanam, P. Meemon, S. Murali, O. Ilegbusi, P. Kupelian, W. Warren, P. Molnar, J. Hickman, and P. Kolattukudy “Collaborative Engineering: 3-D Optical Imaging and Gas Exchange Simulation of *In-Vitro* Alveolar Constructs,” in *Proceedings of Medicine Meets Virtual Reality16*, Long Beach , CA, USA February 1, (2008).
 234. Murali, S., K.S. Lee, P. Meemon, and J. P. Rolland, "Optical coherence microscope for invariant high resolution in vivo skin imaging " in *Design and Quality for Biomedical Technologies, Proceedings of the SPIE* 684903 (2008).
 235. Murali, S., K.S. Lee, and J.P. Rolland. Invariant high resolution optical skin imaging. in *Proceedings of BIOS08 at Photonics West* (2008).
 236. Cheong K., J.P. Rolland, and E. Clarkson. Detection of abnormality in biological tissue using Optical Coherence Tomography. in *Proceedings of BIOS08 at Photonics West* (2008).

237. Chambon, S. A. Moreno, A. Santhanam, R. Brocardo, J. Rolland, E. Angelini, and I. Bloch. Introduction d'un model de respiration 3D dans une methode de recalage a partir de points d'interet, d'images TEP and and TDM du poumon. *in Proceedings of RFIA* (2008).
238. Covelli Jeff, Jannick Rolland, and Peter Hancock, A Quantitative Measurement of Presence in Flight Simulators. *Interservice/Industry Training, Simulation, and Education Conference (ITSEC)* (2007).
239. Kaya I., A. Santhanam A., C. Imielinska, and J. Rolland. Modeling air-flow in the tracheobronchial tree using computational fluid dynamics, *in Proceedings of MICCAI 2007*. Presented at the Computational Biomechanics for Medicine Workshop, Brisbane, Australia (2007).
240. Moreno, A., S. Chambon, A. Santhanam, R. Brocardo, P. Kupelian, J. Rolland, E. Angelini, and I. Bloch. Thoracic CT-PET registration using a 3D breathing model. *10th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2007)*, LNCS 4791, pp. 626-633, Brisbane, Australia, Oct-Nov (2007).
241. Meemon, P., K.S. Lee, S. Murali, and J.P. Rolland. Dynamic Focus Catheter Design for Endoscopic OCT. *in Proceedings of 20th Annual Lasers and Electro Optics Society Meeting (LEOS)*. October 22 MA4 (2007).
242. Murali, S, KS. Lee, and J.P. Rolland. Dynamic Focusing Imaging Probe for Optical Coherence Microscopy. *in Proceedings of 20th Annual Lasers and Electro Optics Society Meeting (LEOS)*. October 22 (2007).
243. Meemon, P. M. Chopra, M. Salem, K. Sung Lee, and J. Rolland, "Measurement of the Coherency Matrix of a Stochastic Electromagnetic Broadband Beam, *OSA Annual Meeting / Frontier in Optics*, OSA Technical Digest (CD), San Jose Sept. 20 (Abstract FThN3) (2007)
244. Fournier, J. Rolland, "Optimization of freeform non-imaging components for LED-based projector light engines," *OSA Annual Meeting / Frontier in Optics*, San Jose Sept. 17 (2007) * **Best Paper Award in Optical System Design**
245. Zou W., and J.P. Rolland. Principal curvature measurements: towards wavefront optical testing with next level of accuracy. *OSA Annual Meeting / Frontier in Optics*, San Jose Sept. 19, San Jose. (Abstract)
246. Fournier, J. Rolland, "Freeform components for projection displays," *UK Optical Designers' Meeting*, Oxfordshire (2007).
247. Moreno.A, S. Chambon, A. Santhanam, J.P.Rolland, E.Angelini, I.Block. CT-PET registration of thoracic images using a breathing model for the characterization of tumors in the lungs. *International Conference on Image Analysis and Processing (ICIAP 2007)*, pp. 691-696, Modena, Italy, Sept. (2007).
248. Lee, K. S., L. Wu, H. Xie, O. Ilegbusi, M. Costa, and J. Rolland, *A 5mm catheter for constant resolution probing in Fourier domain optical coherence endoscopy,* SPIE International Symposium on Biomedical Optics/Photonics West, *in Proceedings of SPIE* Vol. 6432 (2007).
249. Murali, S. and J. P. Rolland. Invariant high resolution optical skin imaging, SPIE International Symposium on Biomedical Optics/Photonics West, *in Proceedings of SPIE* Vol. 6424 (2007).
250. Cakmakci, O., A. Oranchak, and J.P. Rolland. "Dual-Element Off-Axis Eyeglass-Based Display," International Optical Design Conference (IODC), *in Proceedings of SPIE* 6342 (2006).
251. Murali, S., and J.P. Rolland. "Dynamic-Focusing Microscope Objective for Optical Coherence Tomography," *International Optical Design Conference (IODC)*, *in Proceedings of SPIE* 6342 (2006).
252. Lee, K.S., C. Koehler, E.G. Johnson, E.V. Teuma, O. Ilegbusi, M. Costa, H. Xie, J.P. Rolland. "2mm Catheter Design for Endoscopic Optical Coherence Tomography," *International Optical Design Conference (IODC)*, *in Proceedings of SPIE* 6342 (2006).
253. Curatu, C., H. Hua, J.P. Rolland. "Dual-Purpose Lens for an Eye-tracked Projection Head-Mounted Display," *International Optical Design Conference (IODC)*, *Proceedings of SPIE* 6342 (2006).
254. Santhanam, A. and J.P. Rolland. An inverse 3D lung deformation analysis for medical visualization. *in Computer Animation and Social Agents*. Geneva, Switzerland: Computer Graphics Society (2006).

255. Santhanam, A., C. Fidopiastis, K. Langen, S. Meeks, P. Davenport, and J.P. Rolland. Real-time visualization of subject specific lung dynamics. *IEEE Computer-based Medical Systems* (2006).
256. Santhanam, A., C. Fidopiastis, K. Langen, P. Kupelian, S. Meeks, L. Davis and J.P. Rolland, "Visualization of Tumor-influenced 3D lung dynamics," *SPIE medical Imaging* (2006).
257. Lee, Kye-Sung , Chuck Koehler, Eric G. Johnson and Jannick P. Rolland, "Fourier domain optical coherence tomography with an 800um diameter axicon lens for long-depth-range probing," *SPIE International Symposium on Biomedical Optics / Photonics West*, San Jose, CA (Jan 21-26. 2006).
258. Santhanam, A., C. Fidopiastis, J.P. Rolland, and P. Davenport. Pneumothorax-influenced 3D lung deformations. in *Medicine Meets Virtual Reality*. January 27. San Diego CA. (2006).
259. Anand P Santhanam, Cali M Fidopiastis, Jannick P Rolland. Visualization of 3D real-time lung dynamics. *UCF Graduate Research Forum 2005. (UCF Best Paper Award for Graduate Student of Science and Engineering)*.
260. Santhanam, A. and J.P. Rolland. An Inverse deformation method for the visualization of 3D lung dynamics (Abstract). in *Fourth International conference on Ultrasonic Imaging and tissue elasticity*. Austin TX.I-75-76 (2005).
261. Lecaruyer, Pierre, Michael Canva, and J.P. Rolland. Multidimension Potential of Surface Plasmon Resonance Imaging for Dynamic Surface Characterization: Application to Optical Biochip Systems. In *Proceedings of the European Conferences On Biomedical Optics (ECBO)* session on Optical Biosensing Methods and Assays (Munich, June 15, 2005).
262. Lecaruyer, P. I. Mannelli, G. Roger, A. Bellemain, A. Aide, M.Canva et J. Rolland. Potentiel multidimensionnel de l'imagerie en mode de resonance de plasmon de surface: Application à la caractérisation d'interactions biomoléculaires de surface. *GDR Imagerie Optique Non conventionnelle Ecole Supérieure de Physique et de Chimie Industrielles* (14-15 March 2005).
263. Zou, Weiyao, and Jannick Rolland, "Differential wavefront curvature sensor," *SPIE Internal Symposium on Optics and Photonics/SPIE 50th Annual meeting*, San Diego, CA, (July 31-Aug. 4, 2005).
264. Cakmakci, O., Y. Ha and J. Rolland, "Design of a compact optical see-through head-worn display with mutual occlusion capability," in *Novel Optical Systems Design and Optimization VIII*, SPIE Symposium on Optics and Photonics, 31 July-4August, San Diego, CA (2005).
265. Curatu, Costin, Hong Hua, and Jannick Rolland, "Projection-based Head-mounted Display with Eye-tracking capabilities," in *Proceedings of the SPIE Annual Meeting*, San Diego, August (2005).
266. Akcay, A.C., K.S. Lee, and J.P. Rolland, "Dispersion manipulation in optical coherence tomography with Fourier-domain optical delay line," in *Coherence Domain Optical Methods and Optical Coherence Tomography in Biomedicine IX*, V.V. Tuchin, J.A. Izatt, and J.G. Fujimoto eds., Proc. SPIE 5690, 512 522 (2005).
267. Hamza-Lup F.G., Santhanam A.P., Fidopiastis C. and Rolland J.P. "Distributed Training System with High-Resolution Deformable Virtual Models," in *Proceeding of the 43rd Annual ACM Southeast Conference (ACMSE)*, March 18-20, Kennesaw, GA. Vol.1, 268-273, ISBN 1-59593-059-0 (2005).
268. Santhanam, A., C. Fidopiastis, A. Tal, J. Norfleet, and J.P. Rolland. "Patient specific and real-time visualization of 3D breathing lungs: A linear-iterative algorithm model" *Medicine Meets Virtual Reality*. Newport, CA: AMA inc.124-125. (2005)
269. Hamza-Lup, F., J.P. Rolland. "Adaptive Scene Synchronization for Virtual and Mixed Reality Environments," *IEEE Virtual Reality 2004*, March 27-31, (p 99-106). Chicago, IL (2004).
270. Santhanam, A., C. Fidopiastis, and J.P. Rolland. "PRASAD: An Augmented Reality based Non-intrusive Pre-operative Visualization Framework for Lungs," *IEEE VR. Chicago MI: IEEE Computer Society* 253-255 (2004).
271. Santhanam, A.P., Fidopiastis, C.M., Hamza-Lup ,F.G., Rolland,J.P., Imielinska,C. Physically-based Deformation of High-Resolution 3D Lung Models for Augmented Reality based Medical Visualization, *MICCAI AMI-ARCS*, Sep. 30, Rennes, France pp.21-32. (2004).

272. Cakmakci, Ozan, Yonggang Ha and Jannick Rolland. A Compact See-through Head-Worn Display with Occlusion Support, in *Proceedings of ISMAR 2004*, 16-25, Washington DC (2004).
273. Davis, L., F. Hamza-Lup, and J.P. Rolland, "A method for designing marker-based tracking probes," in *Proceedings of ISMAR 2004*, 120-129, Washington DC. (2004).
274. Rolland, J.P., K. Stanney, B. Goldiez, J. Daly, G. Martin, M. Moshell, and D. Washburn, "Overview of research in augmented and virtual environments: RAVES," in *Proceedings of CITSA*, pp19-24 (July, 2004 – Orlando FL).
275. Hamza-Lup F., Hughes C., & Rolland J. "Distributed Consistency Maintenance Scheme for Interactive Mixed Reality Environments," *International Conference on Cybernetics and Information Technologies, Systems and Applications CITSA*, July 21-26, pp. 7-12. Orlando, FL (2004).
276. Hamza-Lup F., C. Hughes, and J. Rolland "Hybrid Nodes with Sensors - Architecture for Interactive Distributed Mixed and Virtual Reality Environments," *8th World Multi-Conference on Systemic, Cybernetics and Informatics*, July 18-21, Orlando, FL (2004).
277. Reddy, C.K., G.C. Stockman, J.P. Rolland, and F.A. Biocca " Mobile face capture for virtual video faces," First IEEE Workshop on Face Processing in Video, *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR'04)*, June 28, Washington, D.C., USA. (2004).
278. Rolland, J.P., J. O'Daniel, E. Clarkson, K. Cheong, C.A. Akcay, P. Parrein, T. DeLemos, and K.S. Lee, "AUC-based resolution quantification in optical coherence tomography," in *Proceedings. of SPIE, Medical Imaging*, 5372, 334-343 (2004).
279. Ha,Y., Smirnov, V., and J.P. Rolland." Optical modeling of a holographic single element Head-Mounted Display". in *Proceedings of the SPIE AEROSENSE: Helmet and Head-Mounted Displays IX: Technologies and applications* conference in Orlando, 5442 March (2004).
280. Martins, R., Shaoulov, V., Ha, Y., and J.P. Rolland. "Projection-based head-mounted displays for wearable computers". in *Proceedings of the SPIE AEROSENSE: Helmet and Head Mounted Displays IX: Technologies and applications* conference in Orlando, 5442 March (2004).
281. Shaoulov, V., Martins, R., and J.P. Rolland. "Magnifying miniature displays with microlenset arrays". in *Proceedings of the SPIE AEROSENSE Helmet and Head-Mounted, Displays IX: Technologies and applications* conference in Orlando, March 5442 (2004).
282. Santhanam, A., C. Fidopiastis, A. Tal, B. Hoffman-Ruddy, and J.P. Rolland, " An Adaptive Driver and Real-Time Deformation Algorithm for Visualization of High-Density Lung Models, in *Medicine Meets Virtual Reality* (2004).
283. Zou, W., and J.P Rolland. Error propagation and the optimal reconstruction scheme in slope-type zonal wavefront estimation. *Frontiers in Optics 2004/ 88th OSA Annual Meeting*, Rochester, New York, October, (Poster) (2004).
284. Shaoulov, V.I., R. Martins, J.P. Rolland. "Imaging with Microlenslet Arrays," *Proceedings of SPIE* 5174, 11-19 (2003).
285. Santhanam, A.P., S.N. Pattanaik, J.P. Rolland, C. Imielinska, & J. Norfleet "Physiologically-based Modeling and Visualization of Deformable Lungs" in *11th IEEE Pacific Graphics Proceedings*, 507-511 (2003).
286. Fidopiastis, C.M. & J.P. Rolland, "User centered evaluation of prototype head-mounted displays in virtual environments: Projection display case study". In H. Thwaites (Ed.), *Hybrid reality: Art, technology and the human factor. in Proceedings of the 9th annual International Conference on Virtual Systems and Multimedia*, October 15-17, 273-280. Montreal, Canada: International Society on Virtual Systems and Multimedia (2003).
287. Biocca, F. A., Rolland, J., Plantegenest, G., Reddy, C., Harms, C., Owen, C. B., et al. "Approaches to the design and measurement of social and information awareness in augmented reality systems," In J. Jacko & C. Stephanidis (Eds.), *Human - Centered Computing: Cognitive, Social and Ergonomic Aspects. in Proceedings of the 10th International Conference on Human-Computer Interaction (HCI International 2003)* (Vol. 2, pp. 844-848). Hillsdale, NJ: Lawrence Erlbaum (2003).

288. Santhanam,A., Fidopiastis,C., and J.P. Rolland.” A Biomathematical Model for Pre-Operative Visualization of COPD and Associated Dyspnea”. Presented at *NIH Workshop*, (Nov 2003).
289. Rolland, J.P., Ceyhun Akcay, Tony De Lemos, Kye-Sung Lee, Jason O’Daniel, Pascale Parrein, Ratna Chakabarti, “Ajustements de Spectre pour Imagerie Optique à Basse Cohérence” (i.e. Spectral Shaping in Optical Coherence Tomography) *Paris Biophotonics Symposium ’03*. October 21 (2003) (Extended Abstract).
290. Santhanam A., J.P.Rolland, S.Pattanaik, and C.Imielinska,” Physiologically-based Modeling and Visualization of Deformable Lungs,” in: J.Rokne, R.Klein, W.Wang (eds) *Pacific Graphics IEEE*, 507-511 (2003).
291. Rodriguez A, M. Foglia, and J.P. Rolland, “Embedded training display technology for the Army’s future combat vehicles” in *Proceedings of the Image Conference Society*, 228-233 (2003).
292. Davis, L., E.Clarkson, and J.P. Rolland, “ Predicting accuracy in Pose Estimation for Marker-Based Tracking” *Proceedings of ISMAR*, October 7-10, 2003, Tokyo, Japan, IEEE Computer Society, 28-35, (2003).
293. Biocca, F., J.P. Rolland et al., “Approaches to the Design and Measurement of Social and Information Awareness in Augmented Reality Systems” in *Proceedings of HCI International: Theory and Practice*, Vol2, 844-848, Hillsdale NJ: Lawrence Erlbaum, (2003).
294. Fidopiastis C, C. Meyer, K. Fuhrman, and J.P. Rolland, “Quantitative assessment of visual acuity in projection head-mounted displays”. In: Rash CE, Colin ER (eds), *Proceedings of the SPIE Aerosense: Helmet- and Head-Mounted Displays VIII: Technologies and Applications* 5079 , 399-406 (2003).
295. Martins R, and J.P. Rolland, “Diffraction properties of phase conjugate material”. in Rash CE, Colin ER (eds), *Proceedings of the SPIE Aerosense: Helmet- and Head-Mounted Displays VIII: Technologies and Applications* 5079, 277-283 (2003).
296. Rolland, J.P. et al., “Development of a Training Tool for Endotracheal Intubation: Distributed Augmented Reality,” 288-294 *Medicine Meets Virtual Reality* (2003).
297. Kerner, K.F. C. Imielinska, J. Rolland, and H. Tang, “Augmented reality for teaching endotracheal intubation: MR imaging to create anatomically correct models,” in Proc. Annu AMIA Symp, 2003, pp.888 (2003).
298. Hamza-Lup, F., L.Davis, and J.P. Rolland,” The Arc Display: An Augmented Reality Visualization Center,” in *Proceedings of IEEE International Augmented reality Toolkit Workshop*, Darmstadt Germany (29 September 2002).
299. Hamza-Lup, F.G., L. Davis, C. Hughes, and J. P. Rolland, “Marker Mapping Techniques for Augmented Reality Visualization,” in *Proceedings of the ICIS* 152-157 (2002).
300. Ha, Y, R. Martins, H.Hua, and J.P. Rolland, “Design of a wearable wide-angle projection color display,” in *Proceeding of the International Optical Design Conference*, (2002).
301. Shaoulov, V, and J.P. Rolland, “Compact Relay Lenses Using Microlenslet Arrays,” in *Proceeding of the International Optical Design Conference*, (2002).
302. Hua H., C. Gao, L. D. Brown, N. Ahuja, and J. P. Rolland, “A Testbed for Precise Registration, Natural Occlusion, and Interaction in an Augmented Environment Using a Head-Mounted Projective Display (HMPD),” in *IEEE VR 2002 Proceedings*, Orlando, FL, March 22-28, (2002).
303. Ha, Y, and J.P. Rolland, “Methods for the assessment of head-mounted displays in visual space,” in *Proceedings of AEROSENSE’02*, 4711, 60-68 April 1-5th, Orlando FL, (2002)..
304. Davis, L., F. Hamza-Lup, J. Daly, Y. Ha, S. Frolich, C. Meyer, G. Martin, J. Norfleet, K. Lin, and Jannick P. Rolland, “Application of Augmented Reality to Visualizing Anatomical Airways,” in *Proceedings of AEROSENSE’02*, 4711, 400-405 April1-5th, Orlando FL, (2002). .
305. Davis, L, J.P., Rolland, R, Parsons, and E, Clarkson, "Methods for Designing Head Tracking Probes." in *Proceedings of the JCIS*, Durham North Carolina, 498-502 March (2002).

306. Hua, H., C. Gao, and J. P. Rolland, "Study of the imaging properties of retro-reflective materials used in head-mounted projective displays," in *Proceedings of AEROSENSE '02*, Vol. 4711, 194-201 April 1-5th, Orlando, FL (2002).
307. Rolland, J.P., L. Davis, L. Hamza-Lup, B. del Vento, Y. Ha, H. Hua, C. Gao, and F. Biocca, "Head-mounted projective displays for creating collaborative environments," in *Proceedings of AEROSENSE '02*, Vol. 4711, 399 April 1-5th, Orlando FL, (2002).
308. Argotti, Y., L. Davis, V. Outters, and J. P. Rolland, "Dynamic superimposition of synthetic objects on rigid and simple-deformable real objects," in *Proceedings of IEEE and ACM ISAR '01*, 5-10. (October 2001 – NY) [[Research Results Featured on Proceeding Cover](#)].
309. Argotti, Y., V. Outters, L. Davis, A. Sun, and J. P. Rolland, "technologies for augmented reality: calibration for real-time superimposition on rigid and simple-deformable objects," in *Proceedings of MICCAI* (2001).
310. Davis, Larry, Yonggang Ha, Seth Frolich, Glenn Martin, Catherine Meyer, Jack Norfleet, Kuo-Chi Lin, and Jannick P. Rolland, "Desktop Augmented Reality: Visualization of Anatomical Airways," in *Proceedings of MMVR 2002*, 121-126 January (2002).
311. Hua, H., C. Gao, F. Biocca, and J.P. Rolland, "Design of an ultra-light head-mounted projective display and its applications in Augmented Collaborative Environments," in *Proceedings of SPIE*, Vol. 4660, Electronic Imaging, San Jose, CA (2002).
312. Shaoulov, V.J., J.P. Rolland "Optical phase plates as a creative media for special effects in photography" *The International society for optical engineering (SPIE) Conference proceedings*, June (2001), San Diego, CA (2001).
313. Hua, H., C. Gao, L. D. Brown, N. Ahuja, and J. P. Rolland. "Using a head-mounted projective display in interactive augmented environments," in *Proceedings of IEEE and ACM International Symposium on Augmented Reality 2001*, 217-223, New York, NY, October 29-30, (2001).
314. Hua, H., C. Gao, F. Biocca, and J.P. Rolland, "An Ultra-light and Compact Design and Implementation of Head-Mounted Projective Displays," in *Proceedings of IEEE-VR*, p. 175-182, Yokohama, Japan (March 2001).
315. Hua, H., L. D. Brown, C. Gao, N. Ahuja, J. P. Rolland, F. Biocca. "A head-mounted projective display and its applications in interactive augmented environments," in *SIGGRAPH 2001 Conference Abstracts and Applications--Sketches and Applications*, Aug. 12-17th, Los Angeles (2001).
316. Rolland, J.P., Y. Ha, L. Davis, Hong Hua, Chunyu Gao, F. Biocca, "A new paradigm for head-mounted display technology: application to medical visualization and remote collaborative environments," in *Proceedings of SPIE 4442*, SPIE Annual Meeting 2001, San Diego, USA (2001).
317. Rolland, J.P., Hong Hua, Chunyu Gao, and F. Biocca. "Innovative displays for augmented reality applications and remote collaborations," *Medicine Meets Virtual Reality (MMVR)*, Newport Beach, CA January 27, (2001).
318. Rolland, J.P., H. Hua, C. Gao, and F. Biocca, "Innovative Displays for Augmented Reality Applications and Remote Collaborations," *Medicine Meets Virtual Reality (MMVR)*, Newport Beach, CA January 27, (2001) (Abstract).
319. Hua, H., C. Gao, and J.P. Rolland, "Design and Engineering Implementation of Head-Mounted Projective Display," *Human Interaction with Complex Systems (HICS) 2000*, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign, (Poster) May (2000).
320. Hua, H. and J.P. Rolland, "Design of a compact lens using diffractive optics for a projected head-mounted display," *Optical Society of America Annual Meeting* (Abstract), September (2000).
321. Vaissie, L. and J.P. Rolland "Accuracy of rendered depth in head-mounted-displays: choice of eyepoint locations," in *Proceedings of SPIE, AEROSENSE*, 4021, 343-353 (2000).
322. Hua, H., D. Poizat, A. Girardot, and J.P. Rolland, "Projective head-mounted displays: engineering study and design," *Optical Society of America Annual Meeting* (Abstract), September (1999).

323. Davis, L., B. Peuchot, and J.P. Rolland, "The calibration of optical tracking probes and measurement of precision and accuracy," *Optical Society of America Annual Meeting* (Abstract), September (1999).
324. Harris, C. J. O., A. A. Goon, and J.P. Rolland, "Texture characterization: normalization of second-order statistics using Gaussian distribution," *Optical Society of America Annual Meeting* (Abstract), September (1999).
325. Goon, A. A. and J.P. Rolland, "Effect of the noise on the statistical texture classification efficacy," *Optical Society of America Annual Meeting* (Abstract), September (1999).
326. Vaissie, L., J.P. Rolland, and G. Bochenek, "Analysis of eyepoint locations and accuracy of rendered depth in binocular head-mounted-displays," in *Proceedings of the SPIE, Photonics West'99*, 3639, 57-64 (1999).
327. Rolland, J.P., M.W. Krueger, and A. Goon, "Dynamic focusing in head-mounted displays," in *Proceedings of the SPIE, Photonics West'99*, 3639, 463-470 (1999).
328. Baillot, Y., J.P. Rolland, and D.L. Wright, "Automatic modeling of knee-joint motion for the virtual reality dynamic anatomy (VRDA) tool," in *Proceedings of Medicine Meets Virtual Reality'99*, 30-37 (IOS Press) (1999).
329. Goon, A. and J.P. Rolland, "Estimation of first- and second-order statistics of textured backgrounds," *Optical Society of America Annual Meeting* (Abstract) (1998).
330. Bloss, B., C. Clarkson, C. Abbey, and J.P. Rolland, "Texture synthesis: a comparison using the pyramid transform and wavelet decomposition" *Optical Society of America Annual Meeting* (Abstract) (1998).
331. Rolland, J.P. and L. Vaissie, "Optimal eyepoint location in head-mounted displays," *Optical Society of America Annual Meeting* (Abstract) (1998).
332. Rolland, J.P., J. Parsons, D. Poizat, and D. Hancock, "Conformal optics for 3D visualization," *Proceedings of the International Lens Design Conference* (Hawaii, 1998).
333. Rolland, J.P., A. Rapaport, and M. W. Krueger, "Design of an anamorphic fisheye lens," in *Proceedings of the International Lens Design Conference* (Hawaii, 1998).
334. Rolland, J.P., A. Goon, E. Clarkson, and L. Yu., and, "Synthesis of biomedical tissue," in *Proceedings of the SPIE* 3340, 85-90 (1998).
335. Baillot, Y. and J.P. Rolland, "Modeling of a knee joint for the VRDA tool," in *Proceedings of Medicine Meets Virtual Reality98*, 366-367, IOS Press, (1998).
336. Parsons, J. and J.P. Rolland, "A non-intrusive display technique for providing real-time data within a surgeons critical area of interest," in *Proceedings of Medicine Meets Virtual Reality98*, 246-251 (1998).
337. Rolland, J.P., Y. Baillot, L. Davis, L. Vaissie, D.L. Wright. "Role of Optics in Virtual Environments," in *Proceedings of SPIE* 3482, 254-264 (1998).
338. Charalampdis, D., T. Kasparis, J.P. Rolland. "Segmentation of Textured Images Based on Multiple Fractal Feature Combinations," *Proceedings of SPIE* 3387, 25-36 (1998).
339. Rolland, J.P. and K. Arthur, "Study of depth judgments in a see-through mounted display," in *Proceedings of the SPIE, AEROSENSE*, 3058, 66-75 (1997).
340. Yu, L., and J.P. Rolland, "Texture-based image segmentation," in *Proceedings of the SPIE, AEROSENSE* 3074, 82-89 (1997).
341. Rolland, J.P., D.L. Wright, and A.R. Kancherla, "Towards a novel augmented-reality tool to visualize dynamic 3D anatomy," in *Proceedings of Medicine Meets Virtual Reality5*, San Diego, CA, (1997).
342. Rolland, J.P., and C.S. Helvig, "Visual search in angiograms: does geometry play a role in saliency," in *Proceedings of the SPIE* 2712, 78-88 (1996).
343. Kancherla, A.R., J.P. Rolland, D.L. Wright, and G. Burdea, "A novel virtual reality tool for teaching dynamic 3D anatomy," in *Proceedings of CVRMed'95*, 163-169, (1995).
344. Rolland, J.P., K. Muller, C.S. Helvig, "Visual search in medical images: a new methodology to quantify saliency," in *Proceedings of the SPIE* 2436, 40-48 (1995).

345. Rolland, J.P., F. Biocca, T. Barlow, A. Kancherla, "Quantification of perceptual adaptation to visual displacement in see-thru head-mounted displays," in *Proceedings of the IEEE VRAIS'95* , 56-66 (1995).
346. Yoshida, A., J.P. Rolland, and J.H. Reif, "Design and applications of a high resolution insert head mounted display," in *Proceedings of VRAIS'95*, 84-93 (1995).
347. Yoshida, A., J.P. Rolland, and J.H. Reif, "Optical Design and Analysis of a head-mounted display with a high-resolution insert," in *Proceedings of the SPIE 2537*, 71-82 (1995).
348. Rolland, J.P., R.L. Holloway, and H. Fuchs, "A comparison of optical and video see-through head-mounted displays," in *Proceedings of the SPIE 2351*, 293-307, (1994).
349. Rolland, J.P. and Peng Q., "A comparison of mathematical observers for the detection of ill-defined lesions in noisy backgrounds," *Optical Society of America Annual Meeting* (1994) (Abstract).
350. Myers, K.J., R.F. Wagner, K.M. Hanson, H.H. Barrett, and J.P. Rolland, "Human and Quasi-Bayesian observers of images limited by quantum noise, object variability, and artifacts," in *Proceedings of the SPIE 2166*, 180-190 (1994).
351. Hemmiger, B.M., R.E. Johnston, J.P. Rolland, and K.E. Muller, "Perceptual linearization of video display monitors for medical image presentation," in *Proceedings of the SPIE 2164* (1994).
352. Edwards, E., J.P. Rolland, and K. Keller, "Video see-through design for merging of real and virtual environments," in *Proceedings of the IEEE VRAIS '93*, 223-233 (1993).
353. Marshall, J.A., K.E. Martin, D. Ariely, C.A. Burbeck, and J.P. Rolland, "Blur attachment as a visual cue," *ARVO 1992* (Abstract) (1992).
354. Yao, J., J.P. Rolland, and H.H. Barrett, "Effect of higher-order statistics of images on signal-detection performance of human observers," *Optical Society of America Annual Meeting* (Abstract) (1991).
355. Robinett, W., J.P. Rolland. "Computational Model for the Stereoscopic Optics of a Head-Mounted Display," in *Proceedings of SPIE 1457*, 140-161 (1991).
356. Seeley, G.W., J.P. Rolland, and J. Guillen. "Perceptual and physical concerns when displaying images to be used in PAC/IMAC investigations," *Proceedings of the SCAR 90, Computer Applications in Assist Radiology*. R. L. Areuson and R. M. Friedenber, eds. Pub by Symposia Foundation, Carlsbad, CA, 301-307 (1990).
357. Rolland, J.P., H.H. Barrett, and G.W. Seeley, "Detection of signals in inhomogeneous backgrounds by human observers and linear discriminants," *Optical Society of America Annual Meeting* (Abstract) (1990).
358. Rolland, J.P., "Factors influencing lesion detection in medical imaging," Ph.D. dissertation, University of Arizona (1990).
359. Rolland, J.P., H.H. Barrett, and G.W. Seeley, "Quantitative study of deconvolution and display mappings for long-tailed point-spread functions," in *Proceedings of the SPIE 1092*, 17 (1989).
360. Barrett, H.H., and J.P. Rolland, "Detection and discrimination of known signals in inhomogeneous, random backgrounds," in *Proceedings of the SPIE 1090*, 176 (1989).
361. Rolland, J.P., G.W. Seeley, H. Roehrig, and M. Ker, "Psychophysical study of display mappings," (poster) *Farwest Imaging* (1989).
362. Rolland, J.P., H.H. Barrett, and G.W. Seeley, "Psychophysical study of deconvolution for long-tailed point-spread functions," in *The Formation Handling and Evaluation of Medical Images*, Max A. Viergever and Andrew Todd-Pokropek, eds., NATO ASI Series (1988).

Technical Reports (In 2003, we discontinued Technical Reports Series).

1. Santhanam, A., C. Fidopiastis, J.P. Rolland, and P. Davenport, "A bio-mathematical formulation for modeling the pressure-volume relationship of lungs," Technical Report TR07-001, University of Central Florida (2007).
2. Vaissie, L., and J.P. Rolland, "Double acousto-optic in-line shearing interferometer (DAISI) for measurement of wavefront slope and curvature," Technical Report TR02-001, University of Central Florida (2002).

3. Rolland, J.P., and L. Vaissie, "Albertian errors in head-mounted displays: choice of eyepoint location," *Technical Report* TR01-001 University of Central Florida (2001).
4. Argotti, Y., L. Davis, A. Sun, and J.P. Rolland, "Technologies for augmented reality: real-time Superimposition of synthetic objects on dynamic rigid and simple deformable real objects," *Technical Report* TR01-002, University of Central Florida (2001).
5. Gao, C., H. Hua, and J.P. Rolland, "Optomechanical design and integration of a light-weight head-mounted projection display," *Technical Report* TR00-001, University of Central Florida (2000).
6. Rolland, J.P., C. Meyer, and K. Arthur, and E. Rinalducci "Accuracy of rendered depth in head-mounted displays: Comparison of two assessment technologies," *Technical Report* TR00-002, University of Central Florida (2000).
7. Gao, C., H. Hua, and J.P. Rolland, "Design and Integration of a light-weight head-mounted projection display," *Technical Report* TR00-003 University of Central Florida (2000).
8. Vaissie L., and J.P. Rolland, "Albertian errors in head-mounted displays: choice of eyepoints location," *Technical Report* TR00-001, University of Central Florida (2000).
9. Guest, M., and J.P. Rolland, "Search strategies when masses are missed in mammography," *Technical Report* TR99-007, University of Central Florida (1999).
10. Outters, V., Y. Argotti, and J.P. Rolland, "Knee motion capture and representation in augmented reality," *Technical Report* TR99-006, University of Central Florida (1999).
11. Gharib, B., Y. Argotti, B. Peuchot, and J.P. Rolland, "Calibration of a see-through head-mounted display – application to augmented reality," *Technical Report* TR99-005, University of Central Florida (1999).
12. Girardot, A., and J.P. Rolland, "Assembly and investigation of a projective head-mounted display," *Technical Report* TR99-003, University of Central Florida (1999).
13. Hua H., Y. Argotti, and J.P. Rolland "Documentation of the 3D bench prototype see-through HMD" *Technical Report* TR99-002, University of Central Florida (1999).
14. Rolland, J.P., V. Vo, L.Yu, B. Bloss, and C.K. Abbey, "An optimal histogram matching algorithm," *Technical Report* TR99-001, University of Central Florida (1999).
15. Poizat D., and J.P. Rolland, "Use of retro-reflective sheets in optical system design," *Technical Report* TR98-006, University of Central Florida (1998).
16. Vaissie L., and J.P. Rolland, "Eyetracking in head-mounted displays: analysis and design," *Technical Report* TR98-007, University of Central Florida (1998).
17. Baillot, Y., and J.P. Rolland, "Fundamental principles of tracking technology for virtual environments," *Technical Report* TR96-004, University of Central Florida (1996).
18. Rolland, J.P., and K. Arthur, "Study of form and depth perception in virtual environments," *Technical Report* TR96-003, University of Central Florida (1996).
19. Rolland, J.P., D.L. Wright, and A.R. Kancherla, "Towards a novel augmented-reality tool to visualize dynamic 3D anatomy," *Technical Report* TR96-002, University of Central Florida (1996).
20. Baillot, Y., and J.P. Rolland, "Improvements to a bench prototype augmented reality setup," *Technical Report* TR96-001, University of Central Florida (1996).
21. Kancherla, A.R., M. Singer, and J.P. Rolland, "Calibrating see-through head-mounted displays," *Technical Report* TR93-034, University of North Carolina at Chapel Hill (1995).
22. Wang, X., J.P. Rolland, and A.R. Kancherla, A.R. "Illumination models for virtual environments," *Technical Report* TR93-035, University of North Carolina at Chapel Hill (1995).
23. Rolland, J.P., and D.T. Puff, "Angiogram simulation software documentation," *Technical Report* TR93-018, University of North Carolina at Chapel Hill (1993).
24. Rolland, J.P., and T. Hopkins, "A method of computational correction for optical distortion in head-mounted displays," *Technical Report* TR93-045, University of North Carolina at Chapel Hill (1993).
25. Rolland, J.P., C. Burbeck, and S. Pizer, "Psychophysical studies of geometrical features in realistically simulated 2D angiograms," *Annual Research Review, Radiology*, University of North Carolina at Chapel Hill (March 1991).

26. Rolland, J.P., “Off-axis telescope design,” Optical Sciences Center of the University of Arizona (1987) (proprietary).
27. Rolland, J.P., and C.L., Koliopolous, “Near null lens for aspherics,” Optical Sciences Center of the University of Arizona (1986) (proprietary).
28. Rolland, J.P., “Design of a camera for observation of mars,” Perkin Elmer Corporation (1986) (in house report).
29. Rolland, J.P., “Rapport sur le telescope HRV et MIR du programme spot,” REOSC Corporation (France, 1984) (in house report).
30. Rolland, J.P., “Etude des propriétés optiques de répliques de surfaces,” Institut D’Optique Théorique et Appliquée (France, 1980) (end of study report).

PROFESSIONAL AFFILIATIONS and SERVICES

Societies Affiliations

Optical Society of America (**OSA**), **Fellow since 2004**, Member since 1984
 International Society for Optical Engineering (**SPIE**), **Fellow since 2008**, Member since 1990
IEEE, Member 1996-2007; **Senior Member** since 2008.
 Image Society, Member, 1993-2000
 Association for Research in Vision and Ophthalmology (**ARVO**), Member 1994-1997; 2012-2013;
 Society for Information Display (**SID**) Member, 2006-2008

Boards of Director

Rochester Regional Photonics Cluster (RRPC), elected board member 2020-2022
 WiSTEE Connect, Officer on Executive Board 2013-present
 Optical Society of America (**OSA**), Director at Large 2011-2013
 LighTopTech, Corp., Co-Chair of the board of directors 2013-present
 Center for Freeform Optics, Chair of the board of directors 2013-present
 R.E. Hopkins Center, Chair of the executive board 2012-present

Editorial Positions

Associate Editor, Optica (2022-present)
Guest Editor, Special Issue on Augmented and Virtual Reality, J. of Optical Microsystems 2022
Guest Editor, Special Issue on Freeform Optics, Optics Express 2021
Topical Editor, Optics Letters 2016-2022
Guest Associate Editor, IEEE special issue on Biomedical Imaging 2015-2016
On Editorial Board, Associate Editor of the Handbook of Visual Display Technology Vol 1-4, Springer (2012) (also on second editor 2014)
Lead Guest Editor for IEEE Journal of Display Technology for a special issue on Medical Displays 2007-2008

Optical Engineering, Associate Editor 1999-2004

Presence (MIT Press), Editorial Board, 1996-2006

A Journal Specialized in the Technology and Assessment of Virtual Reality Systems

Selected Conference/Session Leadership and Chair Position

2027	Optica Design and Fabrication Congress – Freeform Optics Topical – Conf. Chair
2025	GRC on Image Science, Past Conference Chair (advisor)
2025	Optica Design and Fabrication Congress – Freeform Optics Topical - Program Chair

2024 AR/VR Photonics West Panel on Human-Centric Optical Design for AR/VR - Chair
 2024 GRC on Image Science, Conference Chair
 2023-2024 Amplify Optics Immersion Program, panel member, and advocate
 2022 GRC on Image Science, co-Chair
 2022-present Photonics West - Optical Elastography and Tissue Biomechanics XIII – committee member
 2021 Topical Meeting on Freeform Optics, General Co-Chair
 2020 GRC on Image Science, co-Chair (canceled due to the pandemic)
 2019 Topical Meeting on Freeform Optics, General Co-chair, held in Washington DC June 10-12
 2015 Freeform Optics Conference, OSA Applied Optics Congress held in Washington DC, Conference co-Chair with John Rogers, Jessica deGroot Nelson,
 2014 Signal Recovery and Synthesis (SRS) 2014. This Topical Meeting was held in Seattle July 13-17
 2014 Optical Fabrication and Testing – OSA – Conference General Co-Chair with Stephen Jacobs, Jessica deGroote Nelson, Ted Mooney, and Kim
 2013 Topical Meeting on Freeform Optics – Tucson AZ Conference - Co-Chair with Kevin Thompson
 2012 SPIE Annual Meeting, Interferometry XVI: Techniques and Analysis, Session Chair on Optical Coherence Tomography (August 13, 2012)
 2012 OSA Local Chapter Women in Engineering Outreach Breakfast (May 16)
 2012 MMVR'19, on Program Committee, also Session Chair
 2012 Optical Fabrication and Testing – OSA – Conference General Co-Chair with Stephen Jacobs, Jessica deGroot Nelson, Ted Mooney, and Shai Shafrir
 2010 Optical Fabrication and Testing – OSA – Conference General Co-Chair with Stephen Jacobs, Jessica deGroot Nelson, and Shai Shafrir
 2009 Member of the Meetings Council of the Optical Society of America
 2009 ISMAR09 General Chair (Co-Chair - Chris Stapleton). Orlando FL.
 2008 SPIE BIOS08, sub-conference on quantitative assessment, program committee
 2008 Optical Fabrication and Testing – OSA – Conference General Co-Chair with Stephen Jacobs & Ulf Griesmann
 2008 Optics-photonics Design and Fabrication (OFD.08) – Member of Advisory Board
 2007 SPIE Photonics Asia, Program Co-Chair with Professor Yongtian Wang, Theo Tschudi and Kimio Tatsuno. Also Chair of Session on astronomical and space optics.
 2007 SPIE Symposium on Novel Optical System Design, on Program Committee, & Chair of Session on optical design
 2006 MMVR'06, on Program committee, also Session Chair on registration and navigation
 2004-13 ISMAR 2004, Program Chair and Member of the Executive Committee
 2004 CITSA04, Organizer and Chair of Session on augmented reality and human performance
 2004 IEEE-VR 2004, Chair of Session on 3D displays
 2004 SPIE AEROSENSE 2004, Chair of Session on head-mounted displays
 2004 SPIE Medical Imaging 2004, Chair of Session on human observer performance
 2003 SPIE AEROSENSE 2003, Chair of Session on head-mounted displays
 2002 ISMAR2002, Chair of Session on demos-teaser, Darmstadt Germany
 2002 International Optical Design Conference (IODC'02) Chair of Session on conformal optics.
 2002 SPIE AEROSENSE 2002, Chair of Session on head-mounted displays
 2002 MMVR 2002, Chair of Session on modeling in virtual environments
 1996-02 Member of the Technical Council of the Optical Society of America, `
 1997-98 Vice Chair of the Optical Design Technical Group of the Optical Society Of America
 1998-99 Chair of the Optical Design Technical Group of the Optical Society of America

1999	Optical Society of America, Chair of Session on head-mounted displays and wearable computers
1998	Optical Society of America, Chair of Session on optical technology for 3D visualization
1998	Tutorial Chair for the IEEE Virtual Reality Annual International Symposium
1995	Local Arrangements Chair for the IEEE Virtual Reality Annual International Symposium

Awards/other Committees

IUPAP Young Scientist Prize in Optics, Committee member 2017-2023
Kevin P. Thompson Outstanding Scientist Award, Sponsor Lead and Committee Member 2017-2018
RAC committee of the OSA on women in STEM, Committee member 2016-2017, 2022
Ad Hoc Committee tasked with examining the scopes of three OSA awards in Optical Engineering 2011
Land Medal Award Committee of the Optical Society of America, Member 2009, 2010, 2013
Conrady Award Committee of the SPIE, Member 2008
Paul Forman Engineering Award Committee of the Optical Society of America, Member 2007, Chair 2008
Joseph Fraunhofer Award Committee of the Optical Society of America, Committee Chair 2002, Committee Member 2001
New Focus Award Committee of the Optical Society of America, Committee Member 1998 and 1999

Review Research/Papers Services

October 1996	National Institutes of Health (NIH/NCI), Special Study Session and Grant Review
October 1997	National Institutes of Health (NIH/NCI), External Reviewer
October 1997	National Institutes of Health (NIH) BECON INITIATIVE: Expert Panel on Building the Future of Biology and Medicine - Panel on “Bioengineering and Clinical Medicine”
March 2000	American Institute of Biological Sciences (AIBS) Peer Review to USAMRMC Vision and Visual Performance Research Program U.S. Army Aeromedical Research Laboratory (Fort-Rucker, Alabama).
July 2000	National Institute of Health (NIH) Special Study Sessions and Grant Review for the Biomedical Program.
July 2000	American Institute of Biological Sciences (AIBS) Peer Review to USAMRMC-WRAIR Laser Bioeffects and Treatment Program (San Antonio, Texas).
May 2003	American Institute of Biological Sciences (AIBS) Peer Review to USAMRMC Vision and Visual Performance Research Program U.S. Army Aeromedical Research Laboratory (Fort-Rucker, Alabama).
June 2003	National Institutes of Health (NIH/NCI), Special Study Session and Grant Review
February 2003	National Institutes of Health (NIH/NCI), Special Study Session and Grant Review
May 2005	European Commission, Study Section and Audit Panel for Initiative Presence II
October 2006	National Institutes of Health (NIH/NCI), Special Study Session and Grant Review
May 2009	National Science Foundation (NSF), review panel
June 2009	National Institutes of Health (NIH), R21 Study Session and Grant Review
June 2009	National Institutes of Health (NIH), Equipment Grants Study Session
June 6 2012	NSF Review Panel, Photonics Devices
July 11, 2013	National Institutes of Health (NIH), SPECIAL EMPHASIS PANEL ZRG1 F15-X
March 2017	National Science Foundation (ECCS)
December 2023	National Science Foundation (SBIR), Grant Review

Leadership / Centers / Commercialization

August 2023-2028 NSF I/UCRC Center for Freeform Optics (CeFO) Awarded Phase III (\$649,562)

February 2023	NIH SBIR Phase II - LighTopTech Corp./CEIS (\$1,604,612) [In vivo high-definition 3D corneal imaging]
June 2020	NIH SBIR Phase II - LighTopTech Corp./CEIS (\$1,716,475) [High-definition, wide field of view corneal imaging]
2020	Nominated and running in the OSA elections for Vice President
June 2019	NIH SBIR Phase I - LighTopTech Corp./CEIS (\$225,000) [Towards in vivo high-definition 3D corneal imaging]
August 2018-2023	NSF I/UCRC Center for Freeform Optics (CeFO) Awarded Phase II (\$1,844,096)
June 2018	NIH SBIR Phase I - LighTopTech Corp./CEIS (\$275,000) [High-definition, wide field of view corneal imaging]
September 2015	NSF SBIR Phase II - LighTopTech Corp./CEIS (\$1,113,353)
January 2014	NSF STTR Phase I - LighTopTech Corp./CEIS (\$225,000)
November 2013	Meeting of the IAB – Tucson Az. (NOV. 7-8, 2013)
April 2013	LighTopTech Corp. Spin off - board member
August 2013-2018	NSF I/UCRC Center for Freeform Optics (CeFO) Awarded Phase I (\$410,000)
May 2013	co-Founded LighTopTech Corporation
April 2013-present	WiSTEE CONNECT, serves on advisory board for women in science, technology, engineering, and entrepreneurship 2013-present
March 2013	Full Proposal to the NSF for I/UCRC Center for Freeform Optics - awarded
January 2012	Visit to UNC-Charlotte to Plan the NSF Center CeFO Teaming
January 2012	NSF Annual Meeting of IUCRC Centers; Bootcamp for new Center CeFO
February 2012	Attended OSA Leadership Meeting and Board Meeting in Washington DC
September 2012	Interviewed for OSA Video that was prepared for the OSA FIO Meeting
September 2012	Planned NSF/IUCRC CeFO Meeting held at Eastman House in Rochester
March 23-25, 2012	Course at Stanford on Technology Commercialization as part of NSF I-Corps.
March 26, 2012	Attend an ARPA-E workshop on optics in renewable energy - Washington DC
May 5 th , 2012	Attended OSA Board Meeting during CLEO

Reviewer for Journal Articles: JOSA A, Applied Optics, Optical Engineering, Optics Letters, Optics Express, Journal of Display Technology (JDT), Journal of Digital Imaging, Presence (MIT Press), IEEE Transactions on Medical Imaging, other IEEE Transactions 2000-Present, Nature Journals, Science Journals.

Program and Technical Committee Member

DOT Conference – collocated with Laser Munich 2023-2025
 SPIE AVR 2021-present
 SPIE 3OM, December 2021, 2023, 2025
 SPIE Optical Systems Design 2024, 7-11 April (Strasbourg, France) Illumination Optics VI
 SPIE Photonics West BO404: Optical Elastography and Tissue Biomechanics XIII 2019-present
 Frontier in Optics, FiO1 (applied optics) subcommittee for FiO 2013, 2014-2016
 SPIE Conference, Optical Systems Design Symposium, 5-8 September (Marseilles, France) 2011.
 EOS Symposium on Optical Design and Engineering (France Fall 2003)
 International Symposium on instrumentation and Control Technology (ISICT'03) (August China)
 International Symposium on Photonics China, 2002, 2003, 2004
 OSA/SPIE International Lens Design Conference (IODC), 1994, 1998, 2002, 2006, 2010, 2014, 2017, 2021)
 International Workshop in Augmented Reality, October 1998 and 1999
 SPIE Symposium on Novel Optical System Design, 1995-1999, 2003, 2004, 2005, 2006, 2007
 IEEE/SPIE Virtual Reality Annual International Symposium, 1993-2000
 IEEE-VR International Symposium 2000-present (former IEEE-VRAIS above)
 Medicine Meets Virtual Reality, 1997-present

International Workshop on Augmented Reality, (October) 1998-1999
Information Processing in Medical Imaging, 1993
VRIC (Virtual Reality International Conference) 2000-2007
ISMAR International Symposium 2001-present

University Committees

CXR Center for Extended Reality - Planning and leadership executive committee, 2023-present
AR/VR search committee, member, 2023-2025
Optics Director search committee, member, 2016-2017
Center for Freeform Optics, Director 2013-present
Graduate committee, member, 2015-2022
RE Hopkins Center committee, Chair and Director, 2012-2025
3D Visualization Project Meeting 2013
Steering Committee for Dean Lennie 2012-2013
CVS Makous Prize Committee 2011-2023
Middle State Assessment, University of Rochester 2010-2012
ABET Accreditation for the Institute of Optics 2009-2012
University of Rochester Faculty Council Meeting 2009-2012
University of Rochester Hopkins Center 2009-2012 (Associate Director); (2012-present Director)
CREOL Hiring Committee for Biophotonics and Integrated Optics 2006-2008
UCF Roundtable Committee to discuss "The Role of the Research University in the Citistate" 2008
UCF Search for a new Dean for the College of Optics and Photonics 2007
UCF Research Week Committee 2006-2007
UCF Senate Committee 2006-2007
UCF information and technology resources 2006-2008
UCF i²Labs Fellowship Selection Committee, Member, 2005-2008
BMS committee for setting up guidelines for promotion and tenure 2005-2006
CREOL committee to work on improving the MS and PhD degrees 2006-2008
CREOL curriculum committee 2006-2008
CREOL space utilization committee 2006-2008
CREOL sabbatical committee 2006-2008
CREOL IT committee 2001-2008
UCF Internet2 Appointed Committee Chair 2002-2006; Committee Member, 1997-2001
UCF Senate Committee 2001-2004 – Member, Graduate Council and Appeal Committees 2002-2004
CREOL Member Committee on alternative education vehicles 2001-2008
UCF/Lockheed Martin Synthetic Environment Learning Lab (SELL) Member 1999-2005
CREOL Student Recruiting Committee Member, 1999-2005
CREOL Academic Affairs Committee Member, 1998-1999
CREOL Graduate Committee Member, 1997-1998
CREOL Computer Room Committee Chair, 1996-1997
CREOL Industrial Affiliates Committee Member, 1998-2004
Human Factors in HCI Group, Research Triangle Park, Co-Chair with Dr. F. Biocca, 1993-1996
Faculty Search Committee, UNC-CH, 1994
Teaching Tune-up Committee, UNC-CH, 1994-1996