CURRICULUM VITAE

Jannick P. Rolland, Ph.D.
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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 Superieure 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 Preparatoires, Lycee Carnot, Paris & IUT Measures Physiques, Orsay, which I chose.

SHORT BIOSKETCH

Jannick Rolland joined the University of Rochester in 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, in average, raise about 1 million annually side-by-side the partnership of over 40 corporate and government labs combined since its inception. Rolland is also the director (2012-present) of the R.E. Hopkins Center for Optical Design and Engineering which focuses on the education of undergraduate students, and 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) 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 1985. Before joining the Ph.D. program at the Optical Sciences Center, 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, and worked two semesters for Robert Shannon on a lens design project related to optical tracking in space. 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 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. 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 71 patents, has written 16 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 (NAI), 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 2019 University of Arizona Alumna of the Year Award, the 2020 Joseph Fraunhofer Award / Robert M. Burley Prize, and the 2025 A.E. Conrady Award in Optical Engineering.

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 on 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	co-founder and CTO of LighTopTech Corp.
2012-present	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 Investigationes in Optica, Leon, Mexico.
Summer 1999	Visiting Professor at El Centro de Investigationes 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

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-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, Manual 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, February 22, 2023 – NARIT – Chiang Mai, Thailand.

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 (10hours), El Centro de Investigationes 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 (in progress)

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, Emmanual 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 9maging 9maging9e 9maging, 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, Hologaphic display. Pimrapat I-lean Thanusutiyaporn (**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 ARstructure 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 Preparatoire 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" from **Suranaree University of Technology(SUT), Thailand.**
39. **Fall 2018,** Nirawit Kunanta, "Optical coherence tomography elastography" from **Suranaree University of Technology(SUT), Thailand.**
40. **Spring22,** Edith Hartmann, AOSLO project (**Exchange student from Ecole Supérieure De Physique de Marseilles**, **France**).

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 MathLab **(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 Res." (**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 Berstein,"Hilbert Telescope" **(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”
55. Fall18-Spring19, Li Zhang, ““Hyperion: Eikonal+ augmented reality platform”
56. Fall18-summer19, Samuel Tyler Phyllips, “Hyperion: Eikonal+ augmented reality platform”
57. Fall18-spring19, Nicole Naselaris, “NURBS modeling” **(Optics, UofR)**
58. Summer19, Anthony Plonczynski, “Metasurfaces design and metrology” **(REU)**
59. Fall18-summer20, Andres Coleto, “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. Summer25, TBD (in progress)

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

1. 2001, Optical Imaging Fundamentals, Masha Shikari, University High School, Orlando, FL.
2. 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 form Kodak for best use of pictures, and Price form 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.

Student, Degree, Department *Dissertation/Thesis Title*	*Degree* *Status*	*Job Status*
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	Computer Programmer 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 1999-2020
Ricardo Martins, M.S., Optics Project: Wearable Outdoors Displays	**Graduated** spring 2003 (MS) fall 2010 (PhD)	Optical Engineer Clear Align 2008-2012 MTEQ 2012 Teledyne Technologies 2013-2014 Exton 2016-2017 Faro Technologies 2015-2016 Northrop Grumman 2016-present

1. Larry Davis, Ph.D., ECE Thesis: Conformal Tracking for Virtual Environments	**Graduated** spring 2004	Founder of Tirrion LLC. 04-06 Adaptive Assess. Services 05-17 IST at UCF 2006-2009 Lumina Datamatics Limited 2015-20 Co-Founder XchainZ.io 2018-2020
2. Felix Hamza-Lup, Ph.D., CS Thesis: Dynamic Shared State Maintenance in Distributed Virtual Environments	**Graduated** summer 2004 (Co-advised with Dr. Charles Hughes, CS)	Assistant (05-11) Professor Associate Professor (2006-2017) ASU, Savannah, GA Professor (2017-2020) Georgia Southern Univ.
3. Vesselin Shaoulov, Ph.D., Optics Thesis: Design and Assessment of Compact Optical Systems towards Special Effects Imaging	**Graduated** fall 2004	Director of Research Founder ADASTRA Labs (03-16) CTO/Management Consulting
4. Ceyhun A. Akcay, Ph.D., Optics Thesis: System Design and Optimization of Optical Coherence Tomography	**Graduated** summer 2005	Senior Director, Research & Dev. ALCON Labs, Houston, Texas 2005-2020
Supraja Murali, M.S., Optics Thesis: Design of a Dynamic Focusing Microscope Objective for OCT Imaging	**Graduated** fall 2005	Ph.D. at UCF 05-09
5. Anand Santhanam, Ph.D., CS Thesis: Modeling, Simulation, and Visualization of 3D Lung Dynamics	**Graduated** summer 2006 (Co-advised with Dr. Sumant Pattanaik,	Postdoc (jointly at MD Anderson Cancer Center Orlando and UCF [2006-2008] Research Faculty, CREOL 2008-2010 Assistant/Associate Prof., UCLA Medical Center 2010-2020 Siemens AI, Princeton NJ 2022-2024 Stealth Mode – MENA 2024-present
6. Cali Fidopiastis, Ph.D., IEMS Thesis: User-Centered Virtual Environment Assessment and Design for Cognitive Rehabilitation Applications	**Graduated** summer 2006 (Co-advised with Dr. Peter Kincaid, IST)	Postdoc at IST, UCF (06-07) Research Faculty, IST (08-09) Assist. Prof., Univ. of Alabama at Birmingham (09-14) Design Interactive (16-21)

7. Weiyao Zou, Ph.D., Optics Thesis: Curvature Sensing and Wavefront Estimation via Zonal Reconstruction	**Graduated** spring 2007	Post Doc: Indiana University 07-11) Engineer: ASML (11-16) Archcom Techn. (17-20) Zygo Corporation (22-)
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-advised with Prof. Emil Wolf, Univ. of Rochester)	Joined Professor Emil Wolf at the University of Rochester, Physics Department, as a Postdoctoral Fellow. 07-2010 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) (Dr. Eric Clarkson, Univ. of AZ, primary advisor)	Nguyen & Tarbet IP Law 07-08 BRO Research Corp., 08-2018 Founder Illumiris 2018-present 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-advised with Dr. Peter Kincaid, IST**)**	Human Factor Engineer Northrop Grumman (2001-2010) Computer Sciences Corp. (11-2020) Innovative Technol. Prof. (2011-…) CSRA (2015-2020) 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	Optical Engineer Optical Research Associate 09-11 Synopsys/ORA 11-14 GoogleX 2014-present
12. Kye-Sung Lee, Ph.D., Optics Thesis: Optical Coherence Endoscopy	**Graduated** fall 2008	Postdoctoral Student 08-10 Research Associate 10-present University of Rochester Institute of Optics and Medical Center. Korea Basic Sci. Instit. (12-present)
13. Supraja Murali, Ph.D., Optics Thesis: Optical Coherence Microscopy	**Graduated** summer 2009	General Optics Asia 2009-2012 Aptina 2013-2015 ON Semiconductor 2014-2016 GoPro 2016-2017 Tesla 2017-2018 Cruise 2018-2020

14. Florian Fournier, Ph.D., Optics Thesis: Freeform Reflector Design With Extended Sources	**Graduated** summer 2010	Opt. Eng./ Soft. Dev. ORA 2010-2014 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	Optical Engineer OSRAM Corp., Germany 2010-11 OSRAM Corp. Detroit 2011-14 Synopsys (2014-present)
16. Panomsak Meemon, Ph.D. Optics Thesis: Development of Optical Coherence Tomography For Tissue Diagnostics	**Graduated** fall 2010	Postdoc. 2010-2011 University of Rochester. Associate Professor School of Laser Technology and Photonics, Institute of Science, Suranaree University of Technol., Thailand
17. Ilhan Kaya, Ph.D., CS Thesis: Mathematical and computational methods for freeform optical shape description	**Graduated** fall 2013	Software Engineer VESTEL Turkey 2013-present Özyeğin University 2018-present

University of Rochester (MS 11; PhD 28)		
Sophie Vo, M.S., Optics Non-Thesis Option Project: Airy beams	**Graduated** spring 2009	CNRS Innovation
Robert Gray, M.S., Optics Non-Thesis Option Project: Optical aberrations	**Graduated** spring 2011	PhD UofR – Optics
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	LTT 2014 -2025

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 Meta 2021-present
Zongjie (George) Chen, M.S. Thesis: Design and Illumination for a Cerny-Turner Spectrometer	**Graduated** summer 2015	Navitar 2015-2022
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	Corning 2015-2016 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	Assistant Professor University of Rochester 2016-present
22. Jinxin Huang, Ph.D., Physics Thesis: Task-based Assessment of OCT for Measuring the Tear Film Dynamic	**Graduated** summer 2016	Corning 2017-2022 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	Apple 2016-2019 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	ASML 2019-2023 Samsung 2024-present
26. Eric Schiesser, PhD, Optics Thesis: Design Methods for Two Regimes of Unobscured Reflective Optical Systems	**Graduated** fall 2019	Synopsys 2019-present
27. Fernando Zvietcovich Zegarra, PhD, ECE Thesis: Dynamic Optical Coherence Elastography	**Graduated** fall 2019 (co-advised with Prof. Kevin Parker, ECE)	Assistant Professor Pontificia Universidad Católica del Peru
28. Daniel Nikolov, PhD, Optics Thesis: Software and Hardware Enabling the Next-Generation Near-Eye Displays	**Graduated** summer 2020 (co-advised with Prof. Nick Vamivakas, Optics/Physics)	Research Engineer Institute of Optics Univ. of Rochester
Yiwen Fan, MS, Optics Thesis: Numerical calculation of Zernike polynomials and the sample selection method of NURBS spline generation	**Graduated** summer 2020	Optics PhD program University of Rochester
Eric Kwasniewski, MS, Optics Thesis: Interferometric Null Optical Testing with a CGH	**Graduated** spring 2021	AFRL 2017-2023 RTX 2023-2024 Teledyne-FLIR 2025-

29. Di Xu, PhD, Optics Thesis: Cascade Optical Coherence Tomography (C-OCT) for Surface Form Metrology of Freeform Optical Components	**Graduated** fall 2020	Meta 2020-present
30. Nick Takaki, PhD, Optics Thesis: Orthogonal polynomials and mathematical surface descriptions in freeform optical design	**Graduated** spring 2021	Synopsys 2021-present
Alen Philip, MS Optics Thesis: Real-time rendering of and interacting with optical systems in three-dimensions	**Graduated** summer 2021	CREOL PhD program UCF
Chi Zhang, MS Optics Thesis: Robust numerical evaluation of Chebyshev polynomials and bridging optical design, visualization, and fabrication software	**Graduated** summer 2022	Optics PhD Program Univ. of Rochester
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) 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, Institute of Optics @ Univ. of Rochester
35. Benjamin Moon, PhD, Optics Thesis: Adaptive Optics Retinal Imaging and Eye-tracking for Investigating Anatomical Influences on Human Oculomotor Behavior	**Graduated** fall 2024	Bausch & Lomb 2024
36. Jeremy Goodsell, PhD, Optics Thesis: Fundamentals of Waveguides in Augmented Reality	**Graduated** spring 2025	Synopsys
37. Woo Kim, PhD, Optics	**Planned** summer 2025	ASML
38. Jessica Steidle, PhD, Optics	**Planned** fall 2025	TBD
39. Yiwen Fan, PhD, Optics	Estimated spring 2026	TBD
40. Chi Zhang, PhD, Optics	Estimated spring 2026	TBD
41. Renuka Manjula, PhD, Optics	Estimated spring 2026	TBD
42. Nikolas Romer, PhD, Optics	Estimated spring 2026	TBD
43. Matthew Ferguson, PhD, Optics	Estimated 2027	TBD
44. Anis Idrizovic, PhD, Optics	Estimated 2027	TBD
45. Hangyue Zou, PhD Optics	Estimated 2028	TBD
46. Anes Macic, PhD Optics	Estimated 2028	TBD
47. Jade Barret, PhD, Optics	Estimated 2029	TBD

Other Graduate Students Supervised with Significant Publications

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

Postdoctoral Fellows

1. Liyun Yu, *Texture based image synthesis* 1996-1997
2. Hong Hua, *Optical instrumentation for virtual environments* (1998-1999)
3. Haocheng Zheng, *Optical coherence tomography instrumentation* (1999-2001)
4. Yonggang Ha, *Optical instrumentation for virtual environments* (2000-2002)
5. Pascale Parrein, *Optical coherence instrumentation and microscopy* (2001-2003)
6. Felix Hamza-Lup, *Networked augmented reality environments* (2004-2005)
7. Cali Fidopiastis, *User-centered virtual environment assessment and design for cognitive rehabilitation*, (2006-2007)
8. Anand Santhanam, *Lung dynamics for radiation oncology*, (2006-2008)
9. 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. Hamidresa Asemani, *Optical Coherence Elastography* (2022-present)

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, *Computational Science Engineer* (2014-2018)
11 Patrice Tankam, *Vision Science, Optical Coherence Microscopy* (2015-2017)
12 Cristina Canavesi, *Freeform Optics* (2015-2020)
13 Aaron Bauer, *Freeform Optical Design* (2017-2021) – promoted to Research Assistant Prof. 2021
14 Kai Xin, *Freeform Optics Software* (2018-2021)
15 Fei Cheng, *Metasurfaces* (2019-2020)
19. Ozgur Karci, *Nodal Aberration Theory and Metrology* (2019-2021)
20. Daniel Nikolov, *Soft. And Opt. Engineer* (2021-present)
21. Ibrahim Akkaya, *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 opthalmolscopes* (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)

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 Gambra 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)

University 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 nanoparticule 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, *IImage-basedview 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 deBosu, 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

2022 *L'Ecole Supérieure Nationale de Physique in Marseilles* (France).

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 Clermond Ferrand* (France). Dr. Peuchot, Head of the Computer Vision Lab, and I collaborated on methods for augmented reality.

1998-2000 *El Centro de Investigationes 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 **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)**

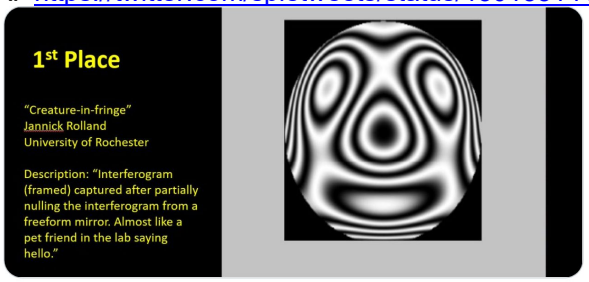
2020 **Fellow of the National Academy of Inventors (NAI)**

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, SmARTlens™ won the Digital Imaging Marketing Association **(DIMA)'s prestigious "Most Innovative Product Line" award**. As head of optics research for SmARTlens 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

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 yeas)
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^2Lab 2007 Fellowship for Interdisciplinary Research to Panomsak Meemon ($25,000)
2007 Won 2nd place in the UCF I^2Lab Poster Competition 2007 for Supraja Murali.
2007 LINK Foundation Fellowship to Ozan Cakmakci ($25,000)
2007 Won 1st 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^2Lab 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

Selected Current Support as PI or co-PI

2025-2026 Industry- RAMP (**$76,896**)
2025 Industry – AVR **($151,032)**
2023-2026 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 **~$1M annual**
2022-2025 Industry – 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

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 Corporation **($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/ORA – 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/Adastra Labs 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 Cokpit" (**Phase 1: $20,000); (<u>Phase 2:</u> $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); (<u>Phase 2</u>: $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 URMC, Rochester
2010-pre part of NIH core grant in Center for Dermatology at URMC. 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

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

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. Etiennes, 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'ingenieur at Clermond Ferrand (France).** Dr. Peuchot, Head of the Computer Vision Lab. Collaboration on methods for augmented reality.

1996 **Centro de Investigationes in Optica (CIO),** Leon, Mexico. Collaboration with Dr. Stavroudis on differential geometry.

Industrial Partnerships

2023-2025 **Trestle Optics** (Freeform Optics)

2023 **Samsung** (Freeform Optics)

2023-2025 **VisionProducts (**Freeform Optics**)**

2020 **SAPhotonics** (Freeform Optics Design for Manufacture – Visual Instrument)

2020 **AOS**, USA (Freeform Optics Design for Manufacture – Space Optics)

2015-2019 **ARRI,** Germany (Freeform Optics from Design to Manufacture)

2014-2023 **LTT**, Rochester NY

2014-2016 **PerkinElmer**, USA (Freeform Optics Design)

2013-present **CeFO** members (Freeform Optics)(www.centerfreeformoptics.org)

2013-2014 **Intel,** USA, (Optical System Design)

2013-2014 **Thales,** France (Freeform Optics Design)

2011-2014 **Carl Zeiss**, Germany (Nodal Aberration Theory and Freeform Optics)

2011-2012 **Revision Military**, Quebec Canada (Freeform Optics)

2010- present **Optipro Corporation**, Webster NY (Freeform Optics)

2010 **QED Corporation**, Rochester NY (Aspherics and Freeform Optics)

2009-present **II-VI Corporation**, Saxonburg Pennsylvania (Freeform Optics)

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
Collaboration on macro development for software related to optical simulation

2004-present **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 WH
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**, Rayleigh, 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

PUBLICATIONS

Google Scholar Citations updated 01/12/2025: 24192 citations, h-index = 76, i10-index=305

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," *Annuals of Opthalmology* **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 Envelop 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).

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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).

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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).

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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. Furenlid, 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. Forroosh, 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 Optics http://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).
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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).

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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).
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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).

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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**, 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**, no. 2, pp. 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,** 362-377 (2025).
230. Zhang, C., J.P. Rolland, and A. Bauer, "Continuous zoom freeform afocal telescope" *Optics. Letters* **50,** 1827-1830 (2025).
231. 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" *arXiv*:2504.06520v1 [physics.med-ph] (April, 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* (2025)(Accepted)
233. Kuhn, J. et al., "Creating ground-based telescopes for imaging interferometry: SELF and ELF" *Light: Advanced Manufacturing* (Accepted)(2025).
234. 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* (Submitted)(2025).

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).

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., “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).
9. Rolland, J.P., “Depth and size perception in virtual environments,” MIT Media Lab, (September, 1995).
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. 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).
23. 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).
24. 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).
25. 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).

26. 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).
27. 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).
28. Rolland, J.P., "Wearable displays: Demonstration of the 3D ARC Display," (Special Event – Optical Society of America Annual Meeting) Orlando, FL, (2002).
29. Rolland, J.P., "Emerging Visual Technologies: The developments in visual displays," SMI'03 (January, 2003 & March, 2003).
30. Rolland, J.P., "Surgical displays," Photon Forum, Tucson, AZ, (April 6, 2004).
31. Rolland, J.P., "Past, present, and future of wearable displays," Keynote Invitation at the CITSA'04, Orlando, FL, (July 23, 2004).
32. Rolland, J.P., and O. Cakmakci, "Past, present, and future of wearable displays," Photonics Asia Beijing, China, (November 8-12, 2004).
33. 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).
34. 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).
35. Rolland, J.P., "Visualisation 3D avec la réalité augmentée," Institut d'Optique Théorique et Appliquée, Université Paris Sud, France, (February 11, 2005).
36. Rolland, J.P., "Imagerie a basse cohérence optique," Institut d'Optique Théorique et Appliquée, Université Paris Sud, France, (April 14, 2005).
37. Rolland, J.P., "Vers L'imagerie a basse cohérence optique quantitative," Ecole Supérieure de Physique et de Chimie Industrielle, Paris, France, (June, 2005).
38. Rolland. J.P., "Visualisation 3D avec la réalité augmentée," Ecole Nationale Supérieure des Télécommunications, Paris, France, (March 18, 2005).
39. Santhanam, A. and J.P. Rolland, "Visualization of 3D lung dynamics," Mayo Clinic, College of Medicine, (July, 2005).
40. Rolland, J.P., "Head-mounted Displays," SID Student Chapter Meeting Kickoff, (October 2005)
41. Rolland, J.P., "Overview of head-mounted display (HMD) research and development," AFRL/HEAE, Mesa, AZ, (December, 2005).
42. 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).
43. Rolland, J.P., "In situ 3D visualization with deployable and head-worn displays," Affiliates Day, College of Optics and Photonics (April 21, 2006).
44. Rolland. J.P., "Design of head-worn displays," University of LINZ, Austria, (June 2006).
45. 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).
46. 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).
47. Rolland, J.P., "Beyond the Desktop: Emerging technologies for supporting 3D collaborative teams," Virtual Concept 2006, Cancun, Mexico, (2006).
48. 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).
49. Rolland, J.P., "Visualization with deployable and head-worn displays," University of Galway. Ireland, (July, 2007)
50. Rolland, J.P., "Mountain tops and wilderness: A new vision," (Invited Tutorial Talk). Optical

Society of America Annual Meeting, San Jose, CA, (September, 2007).

51. Fournier, F. and J.P. Rolland, "Freeform components for projection displays," UK Optical Designers' Meeting, Oxfordshire, United Kingdom, (2007) (Abstract)
52. 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).
53. 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).
54. 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).
55. 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).
56. 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).
57. 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).
58. 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).
59. 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).
60. 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).
61. 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).
62. 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).
63. 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 thorough new eyes?" Optical Society of America Annual Meeting, San Jose, CA, (October 10-16, 2009).
64. 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).
65. 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.
66. Jannick P. Rolland, Ilhan Kaya, Kevin P. Thompson, and Ozan Cakmakci "Head-worn Displays – Lens Design," Proceedings of SID2010 (57.3)(Seattle, WA) (2010).
67. Thompson, K.P., T. Schmid, and J.P. Rolland, "Misalignment-induced Aberrations of JWST", NASA Mirror Technology, Boulder CO., June 7-9 (2010).
68. 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.

69. 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).
70. Rolland, J.P., "Gabor Domain Optical Coherence Microscopy", GE Research, Albany NY July 22 (2010)
71. Rolland, J.P., "Evolving methods for specifying freeform optical surfaces for optimization and fabrication", SBIR Review Program, July 13 (Rochester, NY, 2010.
72. 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).
73. 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.
74. 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).
75. Rolland, J.P., **"**Tomography for Depth Imaging of Biological Systems at Micron Resolution", In AAAS Annual Meeting, Washington DC (Feb 17-21 2011).
76. 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).
77. Rolland, J.P., "Augmented Reality Displays: A Playground for Freeform Surfaces" in Freeform Optics Incubator, (OSA, Washington, D.C., USA, OCT31-NOV1- 2011)
78. 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)
79. 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, 2011)
80. 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, 2011)
81. 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)
82. 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)
83. 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)
84. 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)
85. 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)
86. Rolland, J.P., "Freeform Optics" Optical Sciences Center Colloquium (2012, April 19 Tucson AZ)
87. Rolland J.P., Optiques FreeForm feront elles parties de notre futur?, Journée thématique Calcul Optique, Palaiseau, France (May 31, 2012)
88. Rolland, J.P., Review of Research Activities in the Optical Diagnostics and Applications Lab - ODALab -, LP2N Seminar, Bordeaux France (July 9, 2012)
89. Rolland, J.P., Seminars at Carl Zeiss, Oberkochen Germany (July 17-18, 2012)
90. Rolland, J.P., "Seeing Through Skin with Light", Invited to Speak for the REU students, University of Rochester (July 2012)
91. Rolland, J.P., "Freeform Optical Surfaces" Local OSA Chapter of Boston, MA (November 15, 2012)
92. Rolland, J.P., "Tomography of GRIN Optics at Micron-class Resolution", Laser Laboratory for Energetics (LLE) (April 2013)

93. Rolland, J.P., “The Center for Freeform Optics (CeFO): The vision”, Schott North America (May 14, 2013)
94. Rolland, J.P., K. Fuerschbach, A. Bauer, and K. Thompson, “Freeform Optics Enabling Optics in 3D” COSI, OSA Meeting, (June 26, 2013)
95. Rolland, J.P., “Freeform Optics Enabling Optics in 3D” University of GRAST, Korea (July 29, 2013)
96. Rolland, J.P., “Freeform Optical Surfaces” AMOS, MAUI, (August 19, 2013)
97. 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)
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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).
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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).
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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).
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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 2013-2025
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

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

2020	Nominated and running in the OSA elections for Vice President
June 2018	NIH SBIR Phase I with LighTopTech Corp./CEIS ($275,000)
September 2015	NSF SBIR Phase II with LighTopTech Corp./CEIS ($750,000)
November 2013	Meeting of the IAB – Tucson Az. (NOV. 7-8 2013)
April 2013	LighTopTech Corp. Spin off - board member
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
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 5th, 2012	Attended OSA Board Meeting during CLEO
May 2013	co-Founded LighTopTech Corporation
August 2013-2023	NSF I/UCRC Center for Freeform Optics (CeFO) Awarded

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

Program and Technical Committee Member

DOT Conference – collocated with Laser Munich 2023-2025
SPIE AVR 2021-present
SPIE 3OM, December 2021, 2023
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

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-present
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 I^2Labs 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