

CURRICULUM VITAE

Jannick P. Rolland, Ph.D.

November 29, 2007

Professor of Optics

Florida Photonics Center of Excellence (FPCE) Professorship 2007-2012

Joint Appointments in the School of Electrical Engineering and Computer Science

Joint Appointment in Modeling and Simulation

University of Central Florida

CREOL, College of Optics and Photonics

Phone: Office (407) 823-6870

E-mail: jannick@odalab.ucf.edu

Website: Please visit, <http://odalab.ucf.edu/> for an overview of our research projects and to meet the ODALab team and partners.

FIELDS OF MAJOR CURRENT RESEARCH

3D Optical Imaging/Sensing and 3D Display Systems; Biophotonics Instrumentation; Physics-based Modeling for Medical Imaging and 3D Visualization.

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.

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

Bachelor in Math and Physics** (Baccalaureate C/S) (Versailles, France), June 1978.

* The Ecole Supérieure d'Optique was recently renamed Institut d'Optique – Graduate School; This School combines Masters and Bachelors unlike the US that combines Masters with PhD.

** The Bachelor is the equivalent of a High School Degree in the United States.

SHORT BIO SKETCH

Jannick Rolland is Professor at the University of Central Florida (UCF). She received a Master Degree 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) and designed the optics for SPOT4 (Satellite for Observation of the Earth working in the Visible-IR region of the spectrum), which was successfully put into orbit where it met all expectations. Following the completion of her Master degree, while visiting the University of Arizona for an extended abroad experience to master English, she was invited to join the PhD program in 1985. Prior to joining the PhD 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 "Star Wars". During the summers 1985 and 1986 she had an opportunity to work at Perkin-Elmer in the optical design groups in CT and CA, respectively. She committed to the PhD in 1987, when she joined Harry Barrett's research group in the summer of that year and received her Ph.D. in Optical Science from the University of Arizona in May 1990.

From there Jannick 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 went on to lead the Vision Research Group from 1992 to 1996. While leading the Vision Group at UNC-CH, she supervised a small team of four people working on human perception. In this role, responsibilities have included system engineering, such as the design of head-worn displays for investigating perception issues, 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 will serve as the Grand Marshal at the December 15 2007 UCF graduation Commencement Ceremony.

Professor Rolland holds fourteen patents, has written 6 book chapters, and has over 60 peer reviewed publications related to optical design with a focus on head-worn displays, augmented reality and 3D visualization, biophotonics, vision, and image quality assessment for medical and biomedical imaging. She has authored and co-authored over 150 other publications related to the same topics. She has been on the Editorial Board of Presence (MIT Press) 1996-2006, and was Associated Editor of Optical Engineering 1999-2004. She is currently a Guest Editor of the Journal of Display Technology for a 2007 special issue on Medical Displays. She is a Fellow of the Optical Society of America and a member of SPIE, IEEE, and SID.

Jannick Rolland's experience has been concentrated in three areas, Conception and Design of Optical Systems, Biophotonic Imaging combined with Image Quality Assessment, and Physics-based modeling combined with 3D Visualization. Most recently, she has been leading a team of graduate and post graduate students in the fields of Optics, Computer Science, Modeling and Simulation, Electrical Engineering, and Industrial Engineering. 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 for \$600K/year (on average) in government funding from NSF, NIH, ONR, US ARMY, NASA, and Industry.

EMPLOYMENT

2007-present Professor of Optics, CS-ECE and Modeling and Simulation, CREOL, College of Optics and Photonics, University of Central Florida

Summer 2007 Visiting Professor at the National University of Ireland, Galway (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 at l’Institut D’Optique Théorique et Appliquée (IOTA), (UCF Sabbatical on Biophotonics – August 1st 2004-July 1st 2005) Orsay, France.

2001-2006 Associate Professor, College of Optics and Photonics, University of Central Florida (UCF), Orlando. Joint Appointment in the School of EE-CS since 1996. Joint Appointment in the Modeling and Simulation Program since 2003.

1996-2000 Assistant Professor, School of Optics/CREOL University of Central Florida (UCF), Orlando. Joint Appointment in School of EE-CS.

Summer 1998 Visiting Professor at El Centro de Investigaciones in Optica, Leon, Mexico.

Summer 1999 Visiting Professor at El Centro de Investigaciones in Optica, Leon, Mexico.

1992-1996 Research Assistant Professor, Head of the Vision Group 94-96, Computer Science, University of North Carolina at Chapel Hill (UNC-CH).

1990-1992 Postdoctoral Student, Computer Science, UNC-Chapel Hill.

1985-1990 Research Associate, Optical Science, University of Arizona (UofA).

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.

- 2007 **College of Optics and Photonics 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 Taught

Foundation of Bio Imaging Science (IDS 5937), fall 2006, 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 (OSE 6562), University of Central Florida, spring 2002, 2004, 2006, 2007, fall 2008

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

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

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

Lecture on Optics and Perception Issues in Virtual Environments, Comp 239, Virtual Worlds, UNC, 1995.

Topics in Computer Science: Medical Image Display: Lecture on Mathematical Observers for Assessing Image Quality in Greyscale Images, Comp 290-6, UNC, 1994.

Picture and Pattern Recognition: Lectures on Image Quality for Greyscale Images, Comp 254, UNC, 1992 and 1994.

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

New UCF Courses Developed

IDS5937 Foundation of Bio Imaging Science. This new course was conceived fall 2005, and was developed summer 2006. Jannick Rolland is co-director of the course with Steven Ebert, Associate Professor of the Biomolecular Science Center. It was first offered fall 2006. It is planned for second offering spring 2008.

- OSETBD** Systems of 3D Vision. A new UCF course planned to be taught earliest spring 2009.
- OSE5203** Fundamentals of Applied Optics - Helped with defining course and prepared an appropriate set of notes that built in part on EEL5453.
- EEL5453** Geometrical Optics: This course was redesigned in 1997 to provide students with an in-depth knowledge of the fundamentals of geometrical optics.
- 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 Taught

- Head-worn Displays (HWD) Fundamentals and Applications:** Short Course at ISMAR 2006. (International Symposium on Mixed and Augmented reality), Lead Instructor. (Total 3 instructors)
- 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,** 1/2 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 Investigaciones in Optica, Leon, Mexico, 1999.

Independent Study Courses Taught

>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.

International Undergraduate/Master Internships Supervised and Impact

1. Summer 1998, Design of a novel projective head-mounted display, David Poizat (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**).
2. Summer 1998, Eyetracking in head-mounted displays, Laurent Vaissie (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**). (As of year 2005, he completed his PhD in Optics).
3. 1998-1999, Statistical analysis of texture, Alexei Goon (**Exchange student from Moscow University Russia**). (As of year 2006, he completed his PhD in Physics).

4. Summer 1998, Modeling imaging in interferometry, Emmanuel Maillart (**Exchange student from Ecole Supérieure D'Optique, France**). (As of year 2004, he completed his PhD in Biophotonics).
5. Summer 1999, Assembly and investigation of a projective head-mounted display, Axelle Girardot (exchange student from France – 3 months internship – also selected for the **REU program**).
6. Summer 1999, Development of a method for optical 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, Characterization of optical materials, Stephanie Catdevielle (**REU program – France**).
13. Summer 2003, Modeling of optical coherence imaging, Tony Delemos (**Exchange student from Ecole Supérieure De Physique de Marseilles, France**).
14. Spring 2004, Mathematical modeling of image quality in medical imaging, Aurelie Cartier (**Exchange student from from Ecole Supérieure D'Optique, France**).
15. Spring 2006, Lung modeling, Antonio Moreno (**Exchange student from Ecole Nationale Supérieure des Télécommunications (ENST) in Paris, France**).
16. Summer 2006, Lung modeling, Alexis Motir (**Exchange student from Ecole Spéciale des Travaux Publics, du Batiment, et de l'Industrie (ESTP) in Paris, France**).
17. Summer 2007, Modeling of alveolar gas exchange, Lisa Fluck (**Exchange student from Esil/Biomedical, Marseilles, France**).
18. Summer 2007, Optical coherence microscopy, Mayank Jain (**Exchange student from India Institute of Technology, Bangalore, India**).
19. Fall 2007-Spring 2008, Design of head-worn displays, Sophie Vo (**Exchange student from Institut d'Optique, Paris, France**).
20. Fall 2007-Spring 2008, internship, Charline Motir (**Study abroad after completion of her high school degree; Exchange student from Paris X University Nanterre, Paris, 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 summer program**). (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 summer program**).
10. Summer 2003, Modeling of deformable models, Amir Tal (**REU summer program**). (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)**.

Also, 1997-1998 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.

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 from Kodak for best use of pictures, and Price from the US Armed Forces.

Going International.

- 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.

Mentoring of Ph.D. and M.S. Students: Currently supervising 10 PhD Graduate Students (underlined) and 1 Post Doctoral Student at UCF.

<i>Student, Degree, Department Dissertation/Thesis Title</i>	<i>Degree Status</i>	<i>Job Status</i>
Anantha Kancharla, M.S., CS Non-thesis Option Project: Calibration of Augmented Reality Head-Mounted Display	Graduated spring 95	Microsoft Corporation Seattle95-present
Yohan Baillot, M.S., CS MS Thesis Option: First implementation of the Virtual Reality Dynamic Anatomy (VRDA) Tool	Graduated spring 99	Naval Research Lab Washington DC 99-present
Charmaine Harris, M.S., Optics Thesis Option: Normalized Second-order Statistics for Texture Characterization	Graduated spring 99	Life Touch Detroit 99-present

Larry Davis, Ph.D., ECE PhD Thesis: Conformal Tracking for Virtual Environments	Graduated spring 04	Research Scientist Staff Scientist Institute for Simulation and Training 04-present
Vesselin Shaoulov, Ph.D., Optics PhD Thesis: Design and Assessment of Compact Optical Systems towards Special Effects Imaging	Graduated fall 04	Director of Research ADASTRA Labs LLC, Orlando FL 04-present
Felix Hamza-Lup, Ph.D., CS PhD Thesis: Dynamic Shared State Maintenance in Distributed Virtual Environments	Graduated summer 04 (Co-advised with Dr. Charles Hughes, CS)	Assistant Professor AASU, Savannah, GA 05-present
Ceyhun A. Akcay, Ph.D., Optics PhD Thesis: System Design and Optimization of Optical Coherence Tomography	Graduated summer 05	Research Scientist ALCON Labs, Houston, Texas 05-present
Supraja Murali, M.S., Optics MS Thesis-option: Design of a Dynamic Focusing Microscope Objective for OCT Imaging	Graduated fall 05	Ph.D. Candidate at UCF 05-present
Anand Santhanam, Ph.D., CS PhD Thesis: Modeling, Simulation, and Visualization of 3D Lung Dynamics	Graduated summer 06 (Co-advised with Dr. Sumant Pattanaik, CS)	Joint Postdoc at MD Anderson Cancer Center Orlando and the ODALab at the University of Central Florida, Orlando, FL 06-present
Cali Fidopiastis, Ph.D., IEMS PhD Thesis: User-Centered Virtual Environment Assessment and Design for Cognitive Rehabilitation Applications	Graduated summer 06 (Co-advised with Dr. Peter Kincaid, IST)	Postdoctoral Fellow at the Institute of Simulation and Training 06-present
Weiyao Zou, Ph.D., Optics PhD Thesis: Curvature Sensing and Wavefront Estimation via Zonal Reconstruction	Graduated spring 07	Postdoctoral Student with Stephen Burns Indiana University working on optical imaging for eye research 07-present

Mohammed Salem, Ph.D., Optics 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 Institute of Optics as a Postdoctoral Fellow. 07-present
Jeff Covelli, Ph.D, IEMS PhD Thesis: Augmented Reality Vehicle Simulator: Quantitative Measurement of Presence	Graduated fall, 2007 (Co-advised with Dr. Peter Kincaid, IST)	Northrop Grumman
Kit-Iu Cheong, Ph.D., Optics PhD Thesis: Analysis of an Optical Coherence Imaging Modality on the Detection of an Abnormality in Biological Tissue with a Nanoparticule Contrast Agent	Graduated fall 2007 (Dr. Eric Clarkson at the University of AZ was the primary advisor, I provided the topic and co-advised her work.	TBD.
<u>Ozan Cakmakci</u> , Ph.D., Optics PhD Thesis: Off-axis Optical Design and Application to Eyeglasses Displays	Plans to graduate summer 08	Did internship at Optical Research Associates (summer 05) and at Canon Corp. in Japan (summer 06); has a job offer with Optical Research Associates, a leading software company in optical design and illumination optics.
<u>Kye-Sung Lee</u> , Ph.D., Optics PhD Thesis: Optical Coherence Endoscopy for Lung Imaging.	Plans to graduate fall 08	TBD.
<u>Supraja Murali</u> , Ph.D., Optics PhD Thesis: Design of A Dynamic Focusing Probe for Optical Coherence Microscopy Applied to Skin and Lung Cancer Imaging and Guided Surgery.	Plans to graduate fall 08	Plans to join General Optics Asia, Pondicherry, India
<u>Panomsak Meemon</u> , Ph.D, Optics PhD Thesis: Optical Coherence Microscopy and Elastography applied to Skin and Lung Cancer Diagnosis and Guided Surgery	Plans to graduate spring 2010	TBD

<u>Florian Fournier</u> , Ph.D., Optics PhD Thesis: Illumination Optics	Plans to graduate summer 09	Did internship at Optical Research Associates (summer 07) & has been offered a full Fellowship and a Job by Optical Research Associates per the completion of his PhD.
<u>Tobias Schmid</u> , Ph.D., Optics PhD Thesis: Development of Nodal Aberration Theory and Application to the Alignment of Optical Systems	Plans to graduate fall 09	TBD
<u>Ricardo Martins</u> , Ph.D., Modeling and Simulation PhD Thesis: Wearable Outdoors Displays	Plans to graduate fall 08	Also working for DEI Service Corporation, Orlando FL since January 06
<u>Long Nguyen</u> , Ph.D., IEMS PhD Thesis: Multimodal AR Assessment	Plans to graduate fall 08	Also working for Navair, Orlando, FL
<u>Ilhan Kaya</u> , Ph.D., CS PhD Thesis: Volumetric Lung Dynamics for Registration of 4D CTs and Extraction of Alveolar Ventilation	Plans to graduate spring 2010	TBD
<u>John Harben</u> , Ph.D., Optics PhD Thesis: Development of a Space Imaging System to Measure 3D Velocities of Particulates	Plans to graduate fall 2010	TBD

Other Graduate Students Supervised with Significant Publications

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

Postdoctoral Fellows

- Liyun Yu, *Texture based image synthesis* 1996-1997 (ECE/CS)
- Hong Hua, *Optical instrumentation for virtual environments* (1999) (ECE/Optics)
- Haocheng Zheng, *Optical coherence tomography instrumentation* (1999-2001) (ECE/Optics)
- Yonggang Ha, *Optical instrumentation for virtual environments* (2000-2002) (Optics/ECE)
- Pascale Parrein, *Optical coherence instrumentation and microscopy* (2001-2003) (Optics)
- Felix Hamza-Lup, *Networked augmented reality environments* (2004-2005) (CS)

7. Cali Fidopiastis, *User-centered virtual environment assessment and design for cognitive rehabilitation*, (2006-2007)(Industrial Engineering)
8. Anand Santhanam, *Lung dynamics for radiation oncology*, (2006-2007) (CS)

Senior Scientists

- 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)

Active Member / Mentor on other Students Dissertation Committees

Graduate Students

- 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)
- 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: Dr. Mickael Bass, College of Optics and Photonics: CREOL & FPCE).
- Jiangjian Xiao, Ph.D. Dissertation, *Image based view synthesis* (fall 04) (Advisor: Dr. Murabak Shah, CS, UCF).
- Chandran Reddy, Master Thesis, *A non-obtrusive head mounted face capture system* (summer 03) (Advisor: Dr. George Stockman, CS, Michigan State University).
- Glenn Stellar, Ph.D. Dissertation, *High efficiency hyperspectral imaging (HEHSI)*, (spring 03) (Advisor: Dr. Glenn Boreman).
- Dijana Bugonovic, Master Thesis, *A non-paraxial scalar treatment of diffraction grating behavior* (summer 2002) (Advisor: Dr. 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: Dr. Yasner Hosni).
- Dimitrios Charalampidis, Ph.D. Dissertation, *Analysis of images based on wavelets and multifractals with application to remote sensing* (spring 2000) (Advisor: Dr. 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: Dr. Kay Stanney).
- Jason Schaeffer, Master Thesis, *Design of an infrared antenna characterization system* (spring 99) (Advisor: Dr. Glenn Boreman).
- Anita Kotha-Thompson, Ph.D Dissertation, *Scattering effects of machined optical surfaces* (spring 98) (Advisor: Dr. James Harvey).
- Curtis Lisle, Ph.D Dissertation, *A framework for distributed computation of recursive, physically-based models* (spring 98) (Advisor: Dr. Rebecca Parsons).

Undergraduate Students

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).

International Academic Partnerships for Teaching

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-present *L'Ecole Supérieure Nationale de Physique in Marseilles* (France). I offer 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 Investigaciones in Optica (CIO)*, Leon, Mexico. Taught a short course in Lens Design at CIO in April-May 99.

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

RESEARCH (more information may be found under <http://odalab.ucf.edu>)

RECOGNITION AWARDS

- 2007 **Promotion to Full Professor of Optics with joint appointments in CS, ECE, and Modeling and Simulation**
- 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.**
- 2003 **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 (Career) Award (5 years).**

RECOGNITION AWARDS TO GRADUATE STUDENTS UNDER MY MENTORING

- 2007-10 **NASA Fellowship** to Jon Harben (\$30,000/yr)
- 2007-09 **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 2005** to Florian Fournier
(1 award/yr from the Memorial Kidger Fund, International Award for Optical System Design).
- 2007 **UCF I²Lab 2007 Fellowship** for Interdisciplinary Research to Panomsak Meemon (\$25,000)
- 2007 **Won 2nd place in the I2Lab 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 Price Scholarship** to Costin Curatu (1 award per year – International Award).
- 2006 **UCF I²Lab 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,
(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**) and Vesselin Shaoulov (**\$3,000**).
- 2004 **William Price Scholarship** to Vesselin Shaoulov (1 award per year International Award).
- 2003 **LINK Foundation Fellowship** to Felix Hamza-Lup (**\$25,000**)
- 2003 **SPIE Fellowship** to Ceyhun A. Akcay (**\$2,000**).

FUNDING AWARDS As Principal Investigator (PI) or Co-PI

Current Support

- 2007-08 ASRC/NASA Kennedy Space Center. Design of a Lunar Soil Instrument: II (**\$45,000**)
- 2007 NASA in relation to ASRC project (**\$30,000**)
- 2007-09 US Army Medical Research and Materiel Command. Human in Vitro Lung Model for
Infectious Disease (**\$999,969/yr with \$225,000/yr to Rolland**, one of 4 Co-PIs; Pappachan
Kolattukudy, PI – renewable for 2 more years).
- 2007-08 Disney Imagineering. Design of eyeglass displays (**\$39,957**)
- 2007-08 REI Optronics. Design of eyeglass display Phase I (**\$46,000**)
- 2006-07 LINZ University (Vienna). Institute für Pervasive Computing. Eyeglass Display. (**\$76,194**).
- 2006-07 VDC Display Systems. LED Illumination System. (**\$137,528**).
- 2006-08 ASRC/NASA Kennedy Space Center. Design of a Lunar Soil Instrument. (**\$73,000**)
- 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**).
- 2005-07 Optical Research Associates, Test Macro Development, (**\$20,000**).
- 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**).
- 2004 UCF Foundation/Motion Analysis. Donation (**\$10,000**).
- 2004-06 METI, 3D Display for Medical and Engineering Visualization, (**\$100,000**).
- 2003-08 National Science Foundation “IIS/HCI: Collaborative Research: Development and
assessment of head-mounted fovea-contingent display technology” (**\$375,000**).

Completed

- 2005-06 US ARMY SBIR phase 1 through Nvis Corporation, “Wide angle HMD” (**\$17,000**).
- 2004-06 Adastra Labs, “Teleportal face-to-face collaboration”, (**\$10,000**).
- 2003-05 ONR, “Research in Augmented and Virtual Environment Systems(RAVES): HMDs”
(**\$400,000**).
- 2002-05 US ARMY SBIR phase 1 & 2 through Nvis Corporation, “Head Mounted Display for
Cockpit” (**Phase 1: \$20,000**); (**Phase 2: \$200,000 to UCF**).
- 2002-05 ONR STTR phase 1&2 through Nvis Corporation, “Improved Head Mounted Display for
Close Quarter Battle Training”, (**Phase 1: \$22,000**); (**Phase 2: \$148K to UCF**).
- 2000-04 National Science Foundation, ITR/HCI: “Development of Head-Mounted
Displays for Distance Collaboration”, (**\$204,984**).

- 2002-03 ONR, “Immersion Center: Achieving Excellence in Multimodal Interactive Systems Design,” (PI: **Brian Godiez; Co-PIs: Jannick Rolland and Kay Stanney**) (**\$966,000**).
- 2002-03 Army-Stricom, “Organic-based See-Through HMD for Outdoor Augmented Reality,” (**\$68,002**).
- 2002-03 Army-Stricom, “Deployable 3D Trauma Training Center: Modules One and Two,” (**\$200,000**).
- 2001-03 Army-Stricom (NAWCTSD), “Development of a Projection Head-Mounted Display for Integration with the Mannequin for the Military Medics ”, (**\$415,000**).
- 2001-03 Office of Naval Research (ONR), “VIRTE: Analysis and Development of a Full Immersion Projective Head-mounted Display for Dismounted Infantry Training”, (**\$145,000**).
- 2001 ELF Exploration Production “An interferometer for curvature measurement”, (**\$34,914**).
- 2000-01 In-House Research Award, UCF (**\$7,500/year**).
- 2001 UCF Research Grant, “ Investigation of Non-Invasive Diagnosis of Cervical Cancer Using Optical Coherence Tomography”, (**\$7,500**).
- 1997-02 National Institutes of Health First Award, “3D Dynamic Anatomy: a Virtual Reality Prototype”, (**\$500,000**).
- 1999-03 National Science Foundation, “ Interactive Distributed Physical Modeling and Augmented Virtual Reality”, (**\$176,928**) (Co-principal investigators: Charles E. Hughes).
- 1999-01 SmARTlens Corp./ I4-Corridor “Redefining Photography: Simulating Painterly Effects in Images”, (**\$254,000**).
- 2000 ELF Exploration Production “Development of Optical Coherence Tomography for 3D Imaging”, (**\$34,914**).
- 1999-00 Michigan State University, “Design of an Ultra-Light Weight Projective Head-Mounted Display”, (**\$37,000**) (+ **\$8,000 in kind donation**).
- 1999 ELF-France-Aquitaine, “Research Support Grant - Phase 1: Design of a Light-Weight Projective Head-Mounted Display”, (**\$33,304**).
- 1999 Lockheed-Martin, “Augmented Reality Research and Instrumentation Grant”, (**\$31,125**).
- 1997-99 Artificial Reality Corporation, “Design of a High-Speed Optical Tracker”, (**\$15,000**).
- 1997-98 Tacom US Army Research Laboratory, “Stereoscopic and HMD System Test Development”, (**\$47,416**).
- 1998 Florida Hospital, “Optical Colposcopy”, (**\$16,000**).
- 1998 I4-Corridor, “Investigation of Vection in a Rotating Drum”, (**\$40,000**).
- 1997-98 UCF Research Grant, “Texture Based Segmentation”, (**\$7,500**).
- 1994-98 Office of Naval Research Grant Award, “Psychophysical Investigations of See-Through Head-Mounted Displays for 3D Visualization”, (**\$459,626**).

FUNDING AWARDS as Investigator

- 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

- 2003-Present **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-Present **Columbia University**, Medical School, Dr. Celina Imielinska, Ph.D., collaborating on 3D medical models rendering.
- 2002-05 **University of Pittsburgh**, Cancer Institute, Dr. Robert Ferris, PhD/MD, collaborating on OCT and skin cancer diagnosis.
- 1998-present **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-present **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.
- 1993-00 **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

- 2007-present **Nationale University of Ireland, Galway**. Professor Chris Dainty, Collaborating on optical instrumentation applied to astronomy and biophotonics
- 2006-present **University of LINZ, Austria**, Simon Vogt and Loi Ferscha, Collaborating on the design of eyeglass displays
- 2005-present **Institut d’Optique et Théorique et Appliquée**. Michael Canva, Head of the Biophotonics team. Collaboration on methods for biochips design and measurements.
- 2006-present **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.
- 1997-99 **L ’institut des Sciences de L’ingénieur at Clermond Ferrand (France)**. Dr. Peuchot, Head of the Computer Vision Lab. Collaboration on methods for augmented reality.
- 1996 **Centro de Investigaciones in Optica (CIO)**, Leon, Mexico. Collaboration with Dr. Stavroudis on differential geometry.

Industrial Partnerships

- 2007-present **Disney Imagineering**, Glendale, CA (not specified)
- 2007-present **Revision Eyewear**, Montreal, Quebec, Canada
Development of head-worn displays
- 2006-present **Silhouette**, LINZ, Austria (not specified)
- 2006-07 **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 optical software testing and GPU computations

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

2004-present **Optimax Corporation**
 Collaboration on optical fabrication

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PUBLICATIONS

Articles in Refereed Journals

(This list is built from earliest to most recent)

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, 1279–1293 (1990).
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, 1091–1109 (1991).
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. Rolland, T. White, and J. Yao, "Linear discriminate and image quality," *Image and Vision Computing*, 10 (6), 458-473 (1992).
5. Rolland, J.P., and H.H. Barrett, "Effect of random background inhomogeneity on observer detection performance," *J. Opt. Soc. Am. A*, (9), 649-658 (1992).
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, 9758–9765 (1993).
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).
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).
12. Rolland, J.P., and R. Strickland, "An approach to the synthesis of biological tissue," *Optics Express*, 1(13), 414-423 (1997).
13. Rolland, J.P., A. Goon, and L. Yu, "Synthesis of textured complex backgrounds," *Optical Engineering*, 37(7), 2055-2063 (1998).
14. Rolland, J.P., A. Yoshida, L. Davis, and J.H. Reif, "High resolution inset head-mounted display," *Applied Optics*, 37(19), 4183-4193 (1998).
15. Schachar, R.A., D.P. Cudmore, T.D. Black, J.C. Wyant, V.W. Shung, T. Huang, R.T. McKinney, and J.P. Rolland, "Paradoxical optical power increase of a deformable lens by equatorial stretching," *Annals of Ophthalmology*, 30(1), 10-18 (1998).
16. Biocca, F., and J.P. Rolland, "Virtual eyes can rearrange your body: adaptation to virtual eye location in see-thru head-mounted displays," *Presence: Teleoperators and Virtual Environments (MIT Press)*, 7(3), 262-277 (1998).
17. Goon, A., and J.P. Rolland, "Texture classification based on comparison of second-order statistics I: 2P-PDF estimation and distance measure," *J. Opt. Soc. Am. A*, 16(7), 1566-1574 (1999).
18. Rolland, J.P., V. Vo, B. Bloss, and C.K. Abbey, "Fast algorithms for histogram matching: application to texture synthesis," *Journal of Electronic Imaging*, 9(1), 39-45 (2000).
19. Rolland, J.P., "Wide angle, off-axis, see-through head-mounted display," *Optical Engineering - Special Issue on Pushing the Envelope in Optical Design Software*, 39 (7), 1760-1767 (2000).
20. Baillot, Y., J.P. Rolland, K. Lin, and D.L. Wright, "Automatic modeling of knee-joint motion for the virtual reality dynamic anatomy (VRDA) tool," *Presence: Teleoperators and Virtual Environments (MIT Press)*, 9(3), 223-235 (2000).

21. Rolland, J.P., and H. Fuchs, "Optical versus video see-through head-mounted displays in medical visualization," *Presence: Teleoperators and Virtual Environments (MIT Press)*, 9(3), 287-309 (2000).
22. Rolland, J.P., M. Krueger, and A. Goon, "Multi-focal planes in 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), 3814-24 (2000).
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).
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*, January-February 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, Dec. (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).
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., Davis L., Hughes C., and Rolland J.: "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. Rolland, F. Hamza-Lup, Y. Ha, J. Norfleet, B. Pettitt, and C. Imielinska, "Alice's Adventures in Wonderland: A Unique Technology 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).
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. Fodopiastis "Albertian Errors in Head-Mounted Displays: Choice of Eyepoints Location for a Near or far Field Task Visualization", *J. Opt. Soc. Am. A*, 21(6), 901-912 (2004).

40. Shaoulov, V. and J. 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., Rolland J., and Hughes C. "A Distributed Augmented Reality System for Medical Training and Simulation", *Energy, Simulation-Training, Ocean Engineering and Instrumentation: Research Papers of the Link Foundation Fellows*, Vol. 4, 213-235, Rochester Press, (2004).
42. Rolland, J.P., J. O'Daniel, T. Delemos, A. Akcay, K. Lee, K. Cheong, E. Clarkson, Ratna Chakrabarti, and Robert 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).
48. Curatu, C., G. Curatu, and J. Rolland, "Tolerance analysis method for Shack-Hartmann sensors using a variable phase surface," *Opt. 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., Stapleton, C.B., Whiteside, J.D., Hughes, C.E., Fiore, S.M., Martin, G.A, Rolland, J.P., Smith E.M. "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, *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).
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., 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 of a transducing coefficient of a surface plasmon resonance biosensor using 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, 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).
64. Fournier, F., and J. Rolland. Design Methodology for High Brightness Projectors. *Journal of Display Technology*. December 2007.
65. Hippalgaonkar, N., A. Sider, A. Santhanam, F. Hamza-lup, B. Jagannathan, and J.P. Rolland. Generating scaled mandibles for augmented reality. *Journal of Simulation in Health-care*. (Accepted). (2008)
66. 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* (January 2008). Can be seen on line at: <http://ieeexplore.ieee.org/iel5/4233/4358869/101109TITB2007899489.pdf?tp=&arnumber=101109TITB2007899489&isnumber=4358869>
67. Salem M. and J.P. Rolland," Heterodyne detection of partially polarized, partially coherent beams propagating in free space", Submitted to *Opt. Commun.* (Accepted – under final revision)
68. Fournier, F. and J.P. Rolland, "Optimization of freeform lightpipes for LED projectors", *Applied Optics* (Accepted – under final revision).

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). Rolland, J. P., "Depth and size perception in virtual environments," *Optical Society of America General Meeting*, Albuquerque, NM, (September, 1992), (Abstract).
4. Barrett, H. H., J. Yao, and J. P. Rolland, "Applications of the Hotelling observer in medical imaging," *Optical Society of America General Meeting*, Albuquerque, New Mexico (September, 1992) (Abstract).
5. Rolland, J.P., "Depth perception in see-through head-mounted displays" *Virtual Reality International Symposium*, Seattle, WA, (1993).
6. 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).
7. Rolland, J.P., "Development of a virtual reality dynamic anatomy (VRDA) tool," *Symposium on High Tech Education for the Third Millenium*," Oregon Institute of Technology, Klamath Falls, Oregon, (April, 1997).
8. Rolland, J.P., "Depth and size perception in virtual environments," *MIT Media Lab*, (September, 1995).

9. 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).
10. Rolland, J.P. "Depth perception in virtual environments," *American Psychological Association Annual Convention*, Chicago, IL, (1997).
11. 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).
12. Rolland, J.P., "Building the future of biology and medicine," *Bioengineering and Clinical Medicine Symposium*, National Institutes of Health. Bethesda, Maryland, (February 27, 1998).
13. Rolland, J.P., "Optical texture in images" *Third International Conference on Optical Signal Processing Conference*, Moscow, Russia, (May 28–31, 1999).
14. Rolland, J.P., "Advances in texture synthesis, analysis, and imaging," *SIAM/SEAS*, Knoxville, TN, (March 19, 1999).
15. Rolland J. P., "Augmented Reality with Innovative Displays", Augmented Reality Workshop, *Navy Research Lab (NRL)*, Washington DC, December 7, 2000. (Invited talk).
16. 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*, May 2001, Reno, NV.
17. 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).
18. 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, Rhode Island, October 22-26th, 2000 (Abstract and Oral Presentation).
19. Hua, H., and J.P., Rolland "Technologies of Head-mounted displays for 3D visualization and wearable applications", Nov. 29th, 2000, *Computer Graphics Seminar at the Computer Science Department at the University of Illinois at Urbana-Champaign* (Abstract and Oral Presentation).
20. 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 May, 2000, (Workshop).
21. 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).
22. 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*, Aug. 12-17th, 2001, Los Angeles.
23. Rolland, J.P., "Augmented reality with potential use in the fields of orthopedics and rehabilitation" *Department of Mechanical Engineering*, September 7th, 2001, at the Louisiana State University, Baton Rouge, New Orleans, LA
24. Rolland, J. P., 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*, June 2001, San Diego, CA.
25. 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)
26. 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 (CGA)*, January 2002).
27. Rolland, J.P. "Wearable displays: Demonstration of the 3D ARC Display" (Special Event – *Optical Society of America Annual Meeting*) Orlando, (2002).
28. Rolland, J.P. "Emerging Visual Technologies: The developments in visual displays," *SMI'03* (January 2003 & March 2003).

29. Rolland, J.P., "Surgical Displays" *Photon Forum*, Tucson, Arizona (April 6 2004).
30. Rolland, J.P. "Past, Present, and Future of Wearable Displays", *Keynote Invitation at the CITSA '04*, July 23 2004, Orlando, FL.
31. Rolland, J.P. and Ozan Cakmakci, "Past, Present, and Future of Wearable Displays", *Photonics Asia Beijing China* (November 8-12 2004).
32. 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).
33. Pansing, C., H. Hua, 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*, 31 July-4 August 2005, San Diego, CA. *Proceedings of SPIE* 5875 (2005).
34. Rolland, J.P. "Visualisation 3D avec la réalité augmentée", *Institut d'Optique Théorique et Appliquée*, Université Paris Sud, France (February 11 2005).
35. Rolland, J.P., "Imagerie a basse cohérence optique", *Institut d'Optique Théorique et Appliquée*, Université Paris Sud, France (April 14 2005).
36. Rolland, J.P., "Vers L'imagerie a basse cohérence optique quantitative", *Ecole Supérieure de Physique et de Chimie Industrielle*, Paris, (June 2005).
37. Rolland, J.P., "Visualisation 3D avec la réalité augmentée", *Ecole Nationale Supérieure des Télécommunications*, Paris France (March 18 2005).
38. Santhanam, A. and J.P. Rolland. "Visualization of 3D Lung dynamics". *Mayo Clinic, College of Medicine*. (July 2005).
39. Rolland, J.P., "Head-mounted Displays". *SID Student Chapter Meeting Kickoff*. (October 2005)
40. Rolland, J.P., "Overview of Head-mounted Display (HMD) Research and Development", *AFRL/HEAE*, Mesa AZ. (December 2005).
41. 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).
42. Rolland, J.P., "In Situ 3D Visualization with Deployable and Head-worn Displays" *Affiliates Day, College of Optics and Photonics* (April 21 2006).
43. Rolland J.P. "Design of head-worn displays", *University of LINZ*, Austria (June 2006).
44. Cakmakci Ozan, and Jannick Rolland, Head-worn displays, *IEEE/OSA Journal of Display Technology*, 2(3) (September 2006). (Co-listed under peer review publications).
45. Curatu Costin, and Jannick Rolland, "Fundamental and specific steps in Shack-Hartmann wavefront sensor design", *Annual Meeting of the SPIE* (August 2006).
46. Rolland, Jannick, "Beyond the Desktop: Emerging Technologies for Supporting 3D Collaborative Teams," *Virtual Concept 2006*, Cancun Mexico (2006).
47. Rolland, Jannick, Kye Sung Lee, Ceyhun Akcay, Lars Furenlid, and Huikai Xie. "Fiberoptic-based Optical Coherence Imaging with Broadband Couplers: Robustness and Deployability", *PTAP Annual Meeting*. Maui, Hawaii. (2007).
48. Rolland Jannick, "Visualization with deployable and head-worn displays", *University of Galway*. Ireland. (July 2007)
49. Rolland Jannick, "Mountain tops and wilderness: A new vision", (Invited Tutorial Talk). *OSA Annual Meeting*. San Jose, CA (September 2007).
50. Rolland, Jannick and Ozan Cakmakci, "Beyond the desktop: Emerging technologies for supporting 3D collaborative teams", *Proceedings of Photonics Asia*. Beijing, China. (November 12 2007).
51. Thompson, Kevin, Tobias Schmid, and Jannick Rolland, "Alignment induced aberration fields of next generation telescopes", *Proceedings of Photonics Asia*. Beijing, China. (November 12 2007).

Patents

Technology transfer to date, brought \$60,000 to UCF to this date and three corporations have engaged in technology licensing with UCF based on the patents issued below.

Issued

- **Starred patents have been licensed to industry through technology transfer agreements**

Rolland, J.P., and P. Delfyett, “Three dimensional optical imaging colposcopy”, U.S. Patent **5, 921, 926** July 13, 1999.

Rolland, J.P., and P. Delfyett, “Three dimensional optical imaging colposcopy”, U.S. Patent **6,141,577** Oct. 31, 2000.

Rolland, J.P., and P. Delfyett, “Optical disk readout method using optical coherence tomography and spectral interferometry, **6,072,765**, June 6, 2000.

*Vaissie, L., and J.P. Rolland, “Eye-tracking integration in head-mounted displays,” U.S. Patent **6,433,760 B1**, August 13, 2002.

*Baillot, Y. and J.P. Rolland, “Algorithm to find the stable position and orientation of two rigid bodies”, Patent **6,708,142**, March 16, 2004.

*Hua H., and J.P. Rolland, “Compact lens assembly,” US Patent **6,731,434B1**, May 2004.

*Ha, Y. and J.P. Rolland, “Compact lens assembly for the teleportal augmented reality system,” US Patent: **6,804,066 B1**, Oct. 12, 2004.

*Biocca F., and J.P. Rolland, “Teleportal face-to-face system,” US Patent **6,774,869**, August 10 2004

*Rolland, J.P., R. Martins, and Y Ha “Head-mounted display by integration of phase-conjugate material,” US Patent **6,963,454**, Nov 8, 2005.

*Martins, R., and J.P. Rolland, “Ultra-compact lens assembly for a head-mounted projector” US Patent **6,999,239 B1**, February 14, 2006.

Chaoulov, V., R.F. Martin, and J.P. Rolland, “Compact microlenslet arrays imager” US Patent **7,009,773 B2**, March 7, 2006.

Weiyao, Zou and Jannick Rolland Iterative least-squares wavefront estimation algorithm for general pupil shapes, U. S. Patent **7,088,457 B1** August 8, 2006

*Ha, Y, J.P. Rolland, L.D Davis Jr. “Head mounted projection display with wide field of view” US Patent **7,119,965** October 10, 2006

Zou, Weiyao, and Jannick Rolland. Differential Shack-Hartmann curvature sensor, U. S. Patent Provisional Application Number is 60/692,884. 2005 (Approved 07 – number to be issued)

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Ha, Y., Rolland, J., and O. Cakmakci, “ A compact optical see-through head worn display with occlusion support”, UCF Filed May 2004

Biocca Frank, Rolland, Jannick P., Stockman, George C., Reddy, Chandan K., Figueroa, Miguel Villaneuva, “Mobile face capture and image processing system and method”, App. 20050083248, 21 April 2005

Curatu, Costin, Jannick Rolland, "Projection-based Head-Mounted Display with Eye-tracking capabilities" U.S. Patent Filed 2005.

Shaoulov, Vesselin, Yanggang Ha, and Jannick Rolland. Ultra compact illumination system for head-mounted displays. US Patent Filed, July 2005.

Ilegbusi, Olusegun, Jannick Rolland, Marco Costa. Integrated high-resolution guided optical imaging and flow-structure characterization of coronary artery disease – October 2005.

Cakmakci , Ozan, and J. Rolland. Off-axis eyeglass display using a dual optical element combined with an image source. US Patent Filed, Dec. 9 2005.

Rolland, Jannick, and Supraja Murali. Dynamic focusing microscopic optical probe for optical coherence imaging. US Patent Filed, Dec. 15, 2005.

Rolland, J.P., Huikai Xie, Olusegun Ilegbusi, Kye-sung Lee, and Marco Costa, “Biophotonics cardiac catheter,” US Patent filed, January 2006

Santhanam, A., J.P. Rolland, and C. Fidopiastis, “Real-time 3D lung dynamics using high-resolution 3D lung models,” US Patent Filed, January 2006.

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Oranchak, Adam, and Jannick Rolland, “Elastic head mounting platform cap”, US Patent Filed July 2006.

Biocca, Frank and Jannick Rolland. AR aerial terrain dome: Hybrid display for high volume, geo-operational visualization and operational control. (March 31, 2007)

Jannick Rolland, Panomsak Meemon, Supraja Murali, Dynamic focus catheter design for endoscopic OCT and OCM (26 October 2007) (App 60981396)

Ozan Cakmakci, Jannick Rolland, Brendan Moore, and Hassan Foroosh. Optimal local shape description for non-rotationally symmetric optical surface design and analysis (October 26, 2007).

Jannick Rolland and Kevin Thompson. Dynamic focusing probe for optical coherence microscopy. (October 26, 2007). (App 60981398)

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Rolland , J.P., F. Biocca, H. Hua, Y. Ha, C. Gao, and O. Harrison, “Teleportal augmented reality system: Integrating virtual objects, remote collaborators, and physical reality for distributed networked manufacturing,” in *Virtual and Augmented Reality Applications in Manufacturing* Chap. 13, Eds. S.K. Ong, and A.Y.C. Nee, Springer-Verlag London Ltd, p400, (June 2004).

Rolland, J.P., “Synthesizing anatomical images for image understanding”, Chapter 13 in *Handbook of Medical Imaging, Volume II, Progress in Medical Physics and Psychophysics*, Ed. Beutel, Van Metter, and Kundel. (SPIE Press), 683-717, (2001).

Rolland, J.P., Davis, L. D., and Y. Baillet, “A survey of tracking technology for virtual environments”, in *Fundamentals of Wearable Computers and Augmented Reality*. (Chapter 3) Ed. Barfield and Caudell (Mahwah, NJ), 67-112, (2001).

Rolland, J.P., and H. Fuchs, “Optical versus video see-through head-mounted displays”, in *Fundamentals of Wearable Computers and Augmented Reality*.(Chapter 4) Ed. Barfield and Caudell ((Mahwah, NJ) 113-156, (2001).

Robinett, W., and J. P. Rolland, “A computational model for the stereoscopic optics of a head-mounted display, in *Virtual Reality Systems*”, Chapter 5, R. A. Earnshaw, M. A. Gigante, and H. Jones, eds. Academic Press (1993).

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

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

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

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

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

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

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

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

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

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Radiographic Technology IMAGE, Special issue on education. “A classroom by computer design: Virtual reality technologies are changing the tools of education”, by Micheal Ryan, January 29, 9(3), (1996).

Articles/Abstracts in Conference Proceedings

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- 1 Rolland, J., K. Lee, A. Mahmood, L. Fluck, J. Duarte, I Kaya, A. Santhanam, P. Meemon, S. Murali, O. Ilegbusi, P. Kupelian, W. Warren, P. Molnar, J. Hickman, and P. Kolattukudy “Collaborative Engineering: 3-D Optical Imaging and Gas Exchange Simulation of *In-Vitro* Alveolar Constructs”, in *Proceedings of Medicine Meets Virtual Reality*, February 1, (2008).
- 2 Murali, S., K.S. Lee, and J.P. Rolland. Invariant high resolution optical skin imaging. in *Proceedings of BIOS08 at Photonics West* (2008).
- 3 Cheong K., J.P. Rolland, and E. Clarkson. Detection of abnormality in biological tissue using Optical Coherence Tomography. in *Proceedings of BIOS08 at Photonics West* (2008).
- 4 Chambon, S. A. Moreno, A. Santhanam, R. Brocardo, J. Rolland, E. Angelini, and I. Bloch. Introduction d’un model de respiration 3D dans une methode de recalage a partir de points d’interet, d’images TEP and and TDM du poumon. in *Proceedings of RFIA* (2008).
- 5 Covelli Jeff, Jannick Rolland, and Peter Hancock, A Quantitative Measurement of Presence in Flight Simulators. *Interservice/Industry Training, Simulation, and Education Conference (ITSEC)* (2007).
- 6 Kaya I., A. Santhanam A., C. Imielinska, and J. Rolland. Modeling air-flow in the tracheobronchial tree using computational fluid dynamics, in *Proceedings of MICCAI 2007*. Presented at the Computational Biomechanics for Medicine Workshop, Brisbane, Australia (2007).
- 7 Moreno, A., S. Chambon, A. Santhanam, R. Brocardo, P. Kupelian, J. Rolland, E. Angelini, and I. Bloch. Thoracic CT-PET registration using a 3D breathing model. *10th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2007)*, LNCS 4791, pp. 626-633, Brisbane, Australia, Oct-Nov (2007).

- 8 Meemon, P., K.S. Lee, S. Murali, and J.P. Rolland. Dynamic Focus Catheter Design for Endoscopic OCT. *in Proceedings of 20th Annual Lasers and Electro Optics Society Meeting (LEOS)*. October 22 (2007).
- 9 Murali, S, K.S. Lee, and J.P. Rolland. Dynamic Focusing Imaging Probe for Optical Coherence Microscopy. *in Proceedings of 20th Annual Lasers and Electro Optics Society Meeting (LEOS)*. October 22 (2007).
- 10 Meemon, P. M. Chopra, M. Salem, K. Sung Lee, and J. Rolland, "Measurement of the Coherency Matrix of a Stochastic Electromagnetic Broadband Beam, *OSA Annual Meeting / Frontier in Optics*, San Jose Sept. 20 (Abstract) (2007)
- 11 Fournier, J. Rolland, "Optimization of freeform non-imaging components for LED-based projector light engines", *OSA Annual Meeting / Frontier in Optics*, San Jose Sept. 17 (2007) (**Best Paper Award in Optical System Design**).
- 12 Zou W., and J.P. Rolland. Principal curvature measurements: towards wavefront optical testing with next level of accuracy. *OSA annual meeting* (2007), San Jose. (Abstract)
- 13 Fournier, J. Rolland, "Freeform components for projection displays", *UK Optical Designers' Meeting*, Oxfordshire (2007).
- 14 Moreno.A, S. Chambon, A. Santhanam, J.P.Rolland, E.Angelini, I.Block. CT-PET registration of thoracic images using a breathing model for the characterization of tumors in the lungs. *International Conference on Image Analysis and Processing (ICIAP 2007)*, pp. 691-696, Modena, Italy, Sept. (2007).
- 15 Lee, K. S., L. Wu, H. Xie, O. Ilegbusi, M. Costa, and J. Rolland, *A 5mm catheter for constant resolution probing in Fourier domain optical coherence endoscopy,* SPIE International Symposium on Biomedical Optics/Photonics West, *in Proceedings of SPIE Vol. 6432* (2007).
- 16 Murali, S. and J. P. Rolland. Invariant high resolution optical skin imaging, SPIE International Symposium on Biomedical Optics/Photonics West, *in Proceedings of SPIE Vol. 6424* (2007).
- 17 Cakmakci, O., A. Oranchak, and J.P. Rolland. "Dual-Element Off-Axis Eyeglass-Based Display", International Optical Design Conference (IODC), *in Proceedings of SPIE 6342* (2006).
- 18 Murali, S., and J.P. Rolland. "Dynamic-Focusing Microscope Objective for Optical Coherence Tomography", *International Optical Design Conference (IODC)*, *in Proceedings of SPIE 6342* (2006).
- 19 Lee, K.S., C. Koehler, E.G. Johnson, E.V. Teuma, O. Ilegbusi, M. Costa, H. Xie, J.P. Rolland. "2mm Catheter Design for Endoscopic Optical Coherence Tomography", *International Optical Design Conference (IODC)*, *in Proceedings of SPIE 6342* (2006).
- 20 Curatu, C., H. Hua, J.P. Rolland. "Dual-Purpose Lens for an Eye-tracked Projection Head-Mounted Display", *International Optical Design Conference (IODC)*, *Proceedings of SPIE 6342* (2006).
- 21 Santhanam, A. and J.P. Rolland. An inverse 3D lung deformation analysis for medical visualization. *in Computer Animation and Social Agents*. Geneva, Switzerland: Computer Graphics Society (2006).
- 22 Santhanam, A., C. Fidopiastis, K. Langen, S. Meeks, P. Davenport, and J.P. Rolland. Real-time visualization of subject specific lung dynamics. *IEEE Computer-based Medical Systems* (2006).
- 23 Santhanam, A., C. Fidopiastis, K. Langen, P. Kupelian, S. Meeks, L. Davis and J.P. Rolland, "Visualization of Tumor-influenced 3D lung dynamics", *SPIE medical Imaging* (2006).
- 24 Lee, Kye-Sung , Chuck Koehler, Eric G. Johnson and Jannick P. Rolland, "Fourier domain optical coherence tomography with an 800um diameter axicon lens for long-depth-range probing," *SPIE International Symposium on Biomedical Optics / Photonics West*, San Jose, CA (Jan 21-26. 2006).
- 25 Santhanam, A., C. Fidopiastis, J.P. Rolland, and P. Davenport. Pneumothorax-influenced 3D lung deformations. *in Medicine Meets Virtual Reality*. January 27. San Diego CA. (2006).
- 26 Anand P Santhanam, Cali M Fidopiastis, Jannick P Rolland. Visualization of 3D real-time lung dynamics. *UCF Graduate Research Forum 2005*. (**UCF Best Paper Award for Graduate Student of Science and Engineering**).

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- 28 Lecaruyer, Pierre, Michael Canva, and J.P. Rolland. Multidimension Potential of Surface Plasmon Resonance Imaging for Dynamic Surface Characterization: Application to Optical Biochip Systems. In *Proceedings of the European Conferences On Biomedical Optics (ECBO)* session on Optical Biosensing Methods and Assays (Munich, June 15, 2005).
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- 30 Zou, Weiyao, and Jannick Rolland, "Differential wavefront curvature sensor", *SPIE Internal Symposium on Optics and Photonics/SPIE 50th Annual meeting*, San Diego, CA, (July 31-Aug. 4, 2005).
- 31 Cakmakci, O., Y. Ha and J. Rolland, "Design of a compact optical see-through head-worn display with mutual occlusion capability", in *Novel Optical Systems Design and Optimization VIII*, SPIE Symposium on Optics and Photonics, 31 July-4August, San Diego, CA (2005).
- 32 Curatu, Costin, Hong Hua, and Jannick Rolland, "Projection-based Head-mounted Display with Eye-tracking capabilities", in *Proceedings of the SPIE Annual Meeting*, San Diego, August (2005).
- 33 Akcay, A.C., K.S. Lee, and J.P. Rolland, "Dispersion manipulation in optical coherence tomography with Fourier-domain optical delay line," in *Coherence Domain Optical Methods and Optical Coherence Tomography in Biomedicine IX*, V.V. Tuchin, J.A. Izatt, and J.G. Fujimoto eds., Proc. SPIE 5690, 512 522 (2005).
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Optical Society of America, Fellow since 2003, Member since 1990
International Society for Optical Engineering (SPIE), Member since 1990
IEEE, Member 1996-present
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Optical Engineering, Associate Editor 1999-2004

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- 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
- 2004-08 **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
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- 1998 **Tutorial Chair for the IEEE Virtual Reality Annual International Symposium**
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- 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

Reviewer for Journal Articles including: the Journal of Optical Society of America, Applied Optics, Optical Engineering, Optics Letters, Optics Express, Journal of Display Technology, Journal of Digital Imaging, Presence (MIT Press), IEEE Transactions on Medical Imaging, other IEEE Transactions 2000-Present.

Program and Technical Committee Member

- International Optical Design Conference (IODC’02, 06, 10)**
- 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**
- 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 2001-2007**

University Committees

- 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** (replacement) 2006-present
- UCF information and technology resources** 2006-present
- BMS committee for setting up guidelines for promotion and tenure** 2005-2006
- CREOL committee to work on improving the MS and PhD degrees**
- CREOL curriculum committee** 2006-present
- CREOL space utilization committee** 2006-present

CREOL sabbatical committee 2006-present
CREOL IT committee 2001-present
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-present
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