

**CAREER OBJECTIVE**

To leverage my hard skills as a scientist and soft skills as an active member of the optics community to enable emerging technology industries through innovative research, governmental relations, technology transfer, and workforce development.

**EDUCATION**

**University of Central Florida, Orlando FL**

*Optics, PhD GPA 3.72*

*Expected: Dec 2012*

*Optics, MS GPA 3.78*

*Dec 2009*

**Rensselaer Polytechnic Institute, Troy NY**

*Physics, BS GPA 3.89*

*May 2007*

**TECHNICAL COMPETENCY**

**University of Central Florida:** CREOL, the College of Optics & Photonics – Orlando, FL

*Graduate Research Assistant to Winston V. Schoenfeld, PhD*

*2007 - Present*

- Design and simulate integrated photonic devices via numerical modeling and analytical studies
- Fabricate micro- and nano-scale structures in optical semiconductor systems under clean room settings
- Image devices, and processing steps using optical, electron, and atomic force microscopy
- Optically characterize micro-scale devices and thin films using freespace and fiber based equipment

**Rensselaer Polytechnic Institute:** Department of Physics – Troy, NY

*Undergraduate Research Assistant to Peter Persans, PhD*

*Aug 2006 - May 2007*

- Characterized thin film CIGS photovoltaic cells by photo-reflectance modulation spectroscopy

**Kollmorgen Electro-Optical:** Submarine Optronics – Northampton, MA

*Systems Engineer Co-Op*

*Jun 2006 - Aug 2006*

- Developed quantitative naval periscope image resolution metrics across functional groups

**Rensselaer Polytechnic Institute:** Lally School of Management & Technology – Troy, NY

*Student of Management*

*2003 - 2007*

- Completed 32 credit hours of coursework in management, economics, finance, and marketing

**PUBLIC POLICY COMPETENCY**

**The Optical Society (OSA)**

*Public Policy Committee*

*2012 - 2014*

- Guide the political advocacy effort of the international optics community on behalf of the Optical Society's 17,000+ members
- Generate policy statements for immigration, natural resource management, and journal open access

*Harnessing Light II Advisory Committee*

2012

- Advise a joint OSA, SPIE, APS and IEEE Communications Team on the dissemination of the National Academy of Science's report, *Optics and Photonics: Essential Technologies for Our Nation*

*Federal Science Funding Advocacy*

2010 - 2012

- Annually visit DC establish and maintain relationships with House and Senate offices from Florida and Oregon to relay the importance of consistent federal funding support of research and commercialization
- Facilitated site visits from Florida Congresswomen Kosmas and Adams (District 24) to UCF

## **LEADERSHIP & COMMUNICATION COMPETENCY**

**The University of Central Florida:** Office of Technology Transfer – Orlando, FL

*Technical Writer*

Jun 2009 - Aug 2009

- Translated US Patent documentation of 46 UCF owned technologies into single-page summary sheets for license marketing purposes (examples available upon request)
- Performed portfolio analyses of 9 pieces of related intellectual property and developed a “Fields of Use” report targeting viable markets for technology valuation during licensing negotiations

**NSF – Research Experience for Undergraduates:** The College of Optics & Photonics

*Program Organizer*

2012

- Selected 6 undergraduate students from around the US and placed them in research opportunities at CREOL for a 10 week summer program which includes industrial visits to local high-tech organizations
- Conducted weekly meetings to review progress, discuss research projects and fill in knowledge gaps

**Professional Society Leadership (OSA, SPIE):** The College of Optics & Photonics

*UCF Student Chapter President, Treasurer, Outreach Coordinator*

2007 - 2011

- Wrote and won \$2,125 in grants to fund educational outreach and professional development activities
- Developed and led *CREOL Educators' Day* to better prepare local K-8 teachers in the presentation of optics and physics in their curriculum. Attendees represented 10 Orange County schools
- Wrote and won \$8,500 in grants to fund the construction of educational demonstrations by members
- Built partnerships and organized 34 educational outreach events reaching over 2100 students, teachers and parents, in more than 15 schools around Florida

**Phalanx Society:** Rensselaer Polytechnic Institute

*Inductee/President*

2006 - 2007

- Recognition of leadership roles in Residence Life, community service, athletics, and campus events

## **SCIENTIFIC CONTRIBUTIONS**

### **Journal Publications**

[1] H.P. Seigneur, M.D. Weed, M.N. Leuenberger, and W.V. Schoenfeld, "Controlled On-Chip Single-Photon Transfer Using Photonic Crystal Coupled-Cavity Waveguides," (Invited Paper) *Advances in OptoElectronics* (2011)

### **Conference Proceedings & Presentations**

[2] M.D. Weed, C. Williams, P.J. Delfyett, W.V.Schoenfeld, "Feedback in coupled-resonance optical waveguides," *CLEO 2012, Proc. OSA* (2012)

[3] M.D. Weed, H.P. Seigneur, and W.V. Schoenfeld, "Cladding index engineering of the photonic properties of single-mode photonic crystal devices," Optics & Photonics 2010, Proc. SPIE, Vol. 7764, 776403 (2010)

[4] M.D. Weed, H.P. Seigneur, M.N. Leuenberger, and W.V. Schoenfeld, "Optimization of complete band gaps for photonic crystal slabs through use of symmetry breaking hole shapes," Photonics West 2009, Proc. SPIE, Vol 7223, pp. 72230Q-72230Q-9 (2009)

#### **Other Presentations**

[5] H.P. Seigneur, M.D. Weed, G. Gonzales, and M.N. Leuenberger, and W.V. Schoenfeld, "The Physics and Challenges of Realizing Quantum Teleportation Using Quantum Dots Within a Quantum Network," (Invited Talk) NanoFlorida (2009)

[6] H.P. Seigneur, M.D. Weed, M.N. Leuenberger, and W.V. Schoenfeld, "Self-assembled quantum dots within photonic crystal nanocavities for the realization quantum networks," (Invited Talk) Particles (2008)