Name: Christy K. Sheehy

CONTACT INFORMATION:

University of California, Berkeley
School of Optometry
Berkeley, CA 94720

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EDUCATION:

August 2010 – present: University of California, Berkeley
PhD Candidate in Vision Science

May 2010: University of Rochester, Rochester NY
Master of Science in Optics, concentration in Business Administration

May 2007: University of Rochester, Rochester NY
Bachelor of Science in Optics, Minor in Probabilistic Mathematics

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INDUSTRY EXPERIENCE

Corning Tropel Corporation
Optical System Test Engineer June 2007-Feb 2009

- Tested various optical components using both visible and UV laser systems for: reflectivity, transmission, absorption, damage thresholds, fluorescence and polarizations
- Analyzed and presented data for both internal meetings and customer conference calls
- Assisted with construction and alignment of absorption testing bench to test mirrors at 193nm
- Wrote laboratory procedures detailing testing processes for technicians: Beamsplitter Transmission/Reflectivity Testing Procedure for both S and P polarizations at 364nm, 257nm, and 532nm, Absorption Testing Procedure at 193nm, Reflectivity Testing at 193nm, and Damage Threshold testing at 193nm
- Took part in alignment and troubleshooting of 213nm interferometer
- Modified existing test bench to develop a process to quantify fluorescence of an existing product
- Regularly used Shack-Hartmann wave front testing techniques for lenses
- Level I and Limited Level II Cymer excimer laser training (focusing on the Cymer 6000 and 7000 series ArF laser systems)

RESEARCH EXPERIENCE

University of California, Berkeley – School of Optometry

Graduate Student August 2010-present

- Designed and built a scanning laser ophthalmoscope system for eye tracking applications (TSLO)
- Characterized system performance: threshold velocity, stabilization/motion reduction, stimulus delivery accuracy and latency, system resolution
- Coupled TSLO with adaptive optics scanning laser ophthalmoscope (AOSLO) for real-time active eye tracking.
- Assisted in the coupling of the TSLO with the *Bioptigen* Optical Coherence Tomography (OCT) system for retinal imaging.

Center for Visual Science, University of Rochester

Technical Assistant II June 2009-June2010

- Worked to gather, process, and analyze data regarding the cones in the human retina taken on the adaptive optics scanning laser ophthalmoscope system (AOSLO)
- Assisted in the alignment and calibration of the AOSLO for imaging sessions
- Analyzed subject data for the following types of patients: Normal Controls, Cone Rod Dystrophy, Pattern Dystrophy, AMD, Retinitis Pigmentosa and Mactel patients

Technical Assistant II May 2006-October 2006

- Worked to gather, process, and analyze data regarding the retinal pigment epithelium (RPE) cells in the human retina taken on the adaptive optics scanning laser ophthalmoscope system
- Helped with system set-up for human imaging and also ran the adaptive optics or real-time movie imaging computer programs during the imaging sessions.

Summer Intern June 2005-August 2005

- Took part in the construction of an alternative adaptive optics retinal imaging system.
- Developed a quantitative description of the spectral performance that predicts the reflectance of L and M cones in the human eye for comparison with the experimental observations.

TEACHING EXPERIENCE

Vision Science Lab Leader, Summer of 2011, 2012, 2013
Center for Adaptive Optics Summer School Program
University of California, Santa Cruz

Graduate Student Instructor, Spring semesters of 2011 and 2012
University of California, Berkeley
Course: VS203b - Aberrations and Physical Optics for Optometry students

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INVITED LECTURES

Smith-Kettlewell Colloquium
Smith-Kettlewell Eye Institute, San Francisco, CA
Title: Usages of the tracking scanning laser ophthalmoscope (TSLO) (February 19, 2015)

Vision Science 84 – Sophomore Seminar.
University of California, Berkeley
Title: Optical Aberrations of the Eye: An Inquiry Based Lab (September 2013, 2014).

National Student Leadership Conference (NSLC)
University of California, Berkeley
Title: The Amazing World of Vision Science (July 2013)

MENTORSHIP AND OUTREACH

Berkeley Graduate/Undergraduate Mentorship Program.
University of California, Berkeley – Spring semester 2013
Mentor undergraduate engineering student in future career/education path

Expanding Your Horizons Workshop
University of California, Berkeley - Spring 2012
Annual day-long workshop for K-12 girls to teach them about career options in the STEM fields (science, technology, engineering and mathematics).

English as a Second Language (ESL)
YWCA Berkeley, California – Fall semester 2011, Fall semester 2013
Weekly conversational meetings with a graduate student beginning to learn English.

PUBLICATIONS

1.) **Sheehy,C.K**., Yang,Q., Arathorn,D.W., Tiruveedhula,P., de Boer,J.F., & Roorda,A. "High-speed, image-based eye tracking with a scanning laser ophthalmoscope." Biomedical Optics Express, **3**(10) 2612-2622 (2012).

2.) Vienola,K., Braaf,B., **Sheehy,C.K.,** Tiruveedhula,P., Arathorn,D.W., de Boer,J.F., & Roorda,A. "Real-time eye motion compensation in OCT imaging with tracking SLO". Biomedical Optics Express, **3**(11)2950-2963 (2012)

3.) Braaf,B., Vienola,K., **Sheehy,C.K**., Yang,Q., Vermeer,K.A., Tiruveedhula,P., Arathorn,D.W., Roorda,A., & de Boer,J.F. "Real-time eye motion correction in phase-resolved OCT angiography with tracking SLO" Biomedical Optics Express, **4**(1), 51-65. (2013).

4.) Stevenson, S.B., **Sheehy, C.K**., and Roorda, A. "Binocular eye tracking with the Tracking Scanning Laser Ophthalmoscope." 2015, doi:10.1016/j.visres.2015.01.019

5.) **Sheehy, C.K**., Tiruveedhula, P., Sabesan, R., and Roorda, A. "Active eye-tracking for an adaptive optics scanning laser ophthalmoscope," Biomed. Opt. Express **6**, 2412-2423 (2015).

PAPER/POSTER PRESENTATIONS

Nicole M. Putnam, **Christy K. Sheehy**, Pavan Tiruveedhula, and Austin Roorda. "The use of Tracking Scanning Laser Ophthalmoscopy (TSLO) for psychophysical experiments." ARVO, Denver, CO May 2015 (Poster Session).

Christy K. Sheehy and Austin Roorda. "Usages of the Tracking Scanning Laser Ophthalmoscope." Bay Area Vision Research Day (BAVRD), Berkeley, CA, February 2015 (Poster Session).

Christy K. Sheehy and Austin Roorda. "Usages of the Tracking Scanning Laser Ophthalmoscope." European Summer School on Eye Movements, Freiburg, Germany, August 2014. (Poster Session).

Christy K. Sheehy, Ramkumar Sabasen, Pavan Tiruveedhula, Qiang Yang, Austin Roorda. "Active eye-tracking for AOSLO." *ARVO,* Orlando, FL, May 2014. (Poster Session).

Christy K. Sheehy, Ramkumar Sabasen, Pavan Tiruveedhula, Austin Roorda. "Active eye-tracking for AOSLO imaging with a tracking SLO." SPIE Photonics Europe, Brussels, Belgium, April 2014. (Poster Session).

Scott Stevenson, **Christy K. Sheehy**, Austin Roorda. "Binocular Scanning Laser Ophthalmoscope design for eye tracking." Fall Vision Meeting, Houston, TX, October 2013. (Poster Session).

Boy Braaf, Kari V. Vienola, **Christy K. Sheehy**, Qiang Yang, Koenraad A. Vermeer, Pavan Tiruveedhula, David W. Arathorn, Austin Roorda, Johannes F. de Boer. Real-time eye motion correction in phase-resolved OCT angiography with tracking SLO. *ARVO,* Seattle, WA, May 2013 (Talk session*).*

Kari V. Vienola, Boy Braaf, **Christy K. Sheehy**, Qiang Yang, Pavan Tiruveedhula, David W. Arathorn, Johannes F. de Boer, Austin Roorda. Imaging of optic nerve head pore structure with motion corrected deeply penetrating OCT using tracking SLO. *ARVO,* Seattle, WA, May 2013 (Poster session).

Vienola,K., Braaf,B., **Sheehy,C.K**., Tiruveedhula,P., Arathorn,D.W., de Boer,J.F., & Roorda,A. "Real-time eye motion compensation in OCT imaging with tracking SLO." SPIE Photonics West, San Francisco, CA, February 2013 (Poster session).

Braaf,B., Vienola,K., **Sheehy,C.K**., Yang,Q., Vermeer,K.A., Tiruveedhula,P., Arathorn,D.W., Roorda,A., & de Boer,J.F. "Real-time SLO eye tracking for improved phase-resolved OCT angiography." SPIE Photonics West, San Francisco, CA February 2013 (Talk session).

Sheehy,C.K., Yang,Q., Arathorn,D.W., Tiruveedhula,P., de Boer,J.F., & Roorda,A. "High-speed, Image-based Eye Tracking With A Scanning Laser Ophthalmoscope." UC Berkeley Vision Science Fall Retreat, Marin, CA, December 2012 (Lightning Talk).

Sheehy,C.K., Yang,Q., Arathorn,D.W., Tiruveedhula,P., de Boer,J.F., & Roorda,A. "High-speed, Image-based Eye Tracking With A Scanning Laser Ophthalmoscope." Bay Area Vision Research Day (BAVRD), Berkeley, CA, August 2012 (Poster presentation).

Sheehy,C.K., Yang,Q., Arathorn,D.W., Tiruveedhula,P., de Boer,J.F., & Roorda,A. "High-speed, Image-based Eye Tracking With A Scanning Laser Ophthalmoscope." Association for Research in Vision and Ophthalmology (ARVO) Conference, Ft. Lauderdale, FL, May 2012 (Poster presentation).

Sheehy,C.K., Yang,Q., Arathorn,D.W., Tiruveedhula,P., & Roorda,A. "Wide Field Scanning Laser Ophthalmoscope for Eye Tracking Applications." Center for Adaptive Optics (CfAO) Fall Retreat, Lake Arrowhead, CA, November 2011 (Poster presentation).

Wolfing Morgan, J.I., Gray, D.C., Dubra, A., Wolfe, R., Gee, B.P., Merigan, W., **Sheehy, C.**, Masella, B., Williams, D.R. "High-resolution autofluorescence imaging of individual retinal pigment epithelial cells in vivo." Journal of Vision 2006 6(13); 19 (Talk Session).

Sheehy, C.K., Chen, L. Carroll, J, Williams, D.R. "An Alternative Method to Classify Cones in the Living Human Eye." Industrial Associates Meeting, Institute of Optics – University of Rochester, Rochester, NY, October 2005 (Poster presentation).

Sheehy, C.K., Chen, L. Carroll, J, Williams, D.R. "An Alternative Method to Classify Cones in the Living Human Eye." SACNAS National Conference poster competition of undergraduate research, Denver, CO, September 2005 (Poster presentation).

Sheehy, C.K., Chen, L. Carroll, J, Williams, D.R. "An Alternative Method to Classify Cones in the Living Human Eye." Summer School Symposium at the Center for Visual Science, University of Rochester, Rochester, NY, August 2005 (Poster presentation).

Sheehy, C.K., Chen, L. Carroll, J, Williams, D.R. "An Alternative Method to Classify Cones in the Living Human Eye." Center for Adaptive Optics (CfAO) Summer School, UC Santa Cruz, Santa Cruz, CA, August 2005 (Talk session).

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AWARDS/HONORS

- 2015 Acceptance into the *Free Ventures* Start-up Accelerator Program
- Fall 2015 Invitation to join the Berkeley chapter of The National Society of Leadership and Success, Sigma Alpha Pi
- 1st place – Center for Entrepreneurship and Technology's (CET) Collider Launch Pitch Competition ($500)
- Graduate Division Travel Grant Award Spring 2014: $1000
- Graduate Assembly Travel Grant Award Spring 2014: $300
- Best Graduate Student Talk - 2014 Vision Science Departmental Retreat

- 2014 Turner Memorial Fund for Impaired Vision Research Award Recipient
- 2013 Turner Memorial Fund for Impaired Vision Research Award Recipient
- 2013 SPIE Optics and Photonics Education Scholarship
- Outstanding Graduate Student Instructor Award - Spring 2012
- 2009 Mark Ain Business Model Competition Finalist, University of Rochester
- University of Rochester Optics Faculty Award (May 2007): Recognizes a senior who has consistently participated in, promoted and promulgated all aspects of the Optics program.
- University of Rochester Humanities/Social Sciences Scholarship (2003-2007)
- New York State Lottery Leaders of Tomorrow Scholarship (2003-2007)

SKILLS

- MS Word, MS Excel, Powerpoint
- MATLAB
- Adaptive Optics Scanning Laser Ophthalmoscope Systems (AOSLO)
- Cymer UV Excimer Laser System maintenance
- ZEMAX
- Solidworks

REFERENCES

Name: Austin Roorda, PhD
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Name: Susana Chung, PhD
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