Zachary F. Phillips

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| Summary | Fourth-year doctoral student at UC Berkeley exploring internship opportunities in both hardware and computational techniques for imaging and display |

Education

University of California, Berkeley

Ph.D. (In Progress), Graduate Group in Applied Science and Technology   2014-Present

- Cumulative GPA: 3.52/4.00
- Research Area: Computational Imaging System Design and Methods
- Research Advisor: Laura Waller

University of California, Berkeley

M.S., Graduate Group in Applied Science and Technology   2014-2016

- Thesis: Coded Illumination Techniques for Phase Imaging and Motion Blur
- Research Advisor: Laura Waller

University of North Carolina, Chapel Hill

B.S. with Highest Honors, Applied Science and Engineering   2009-2013

- Cumulative GPA: 3.33/4.00
- Research Advisor: Amy L. Oldenburg

Research Experience

Waller Lab, University of California, Berkeley, Berkeley, CA

Graduate Student Researcher - (PI: Prof. Laura Waller)   May 2013-May 2014

- Graduate research assistantship focusing on computational microscopy methods
- Developed methods for phase retreival, super-resolution, and high-throughput imaging
- Designed, constructed, and demonstrated programmable LED illuminators
- Mentored 10 undergraduates for summer and semester projects

DISP Lab, Duke University, Durham, NC

Associate in Research - PI.: David Brady   May 2013-May 2014

- Full-time (staff) research engineer position as part of the DARPA AWARE program
- Primary optomechanical designer for AWARE 40 (2.3 Gigapixel) camera
- Work featured in NPR's *All Things Considered*

Coherence Imaging Lab, UNC Chapel Hill, Chapel Hill, NC

Undergraduate Research Assistant - PI: Amy Oldenburg   May 2011-May 2013

- Assisted with experiments using Optical Coherence Tomography system
- Developed methods of robust segmentation for approximatly 10,000 images
- Maintained MCF10DCIS.com and MCF10A cell lines for a period of 14 months

Relevant Awards

Eagle Scout, Boy Scouts of America	2008
Invention Lab Fellow, UC Berkeley CITRIS Invention Lab	2014-2016
Qinf Fellowship Recipient, Qualcomm inc.	2016-2017

Software Proficiencies

Working knowledge

Python, Matlab, CAD (Solidworks, Fusion360), PCB Design and Fabrication (CADSoft EAGLE, KiCAD), LaTeX and MS Office, Git, Unix/Bash Scripting, C++ Development (Desktop (Linux) and embedded)

Basic knowledge
Java (Android and Desktop Development), Adobe Creative Suite, ZEMAX OpticStudio

Activities & Interests   UC Berkeley SEED Elementary School Outreach (2016-), UNC WaterSki Club Team (2010-2012), UNC Underwater Hockey Club (2009-2013)

Publications   **Phillips, Z.F.**, Chen, M. & Waller, L. (13 May 2015). *Single-shot quantitative phase microscopy with color-multiplexed differential phase contrast (cDPC)*. PLoS ONE 12(2): e0171228. doi:

Phillips, Z.F. D'Ambrosio, M.V., Tian, L, Rulison, J.J.,Patel, H.S., Sadras, N., Gande, A.V., Switz, N.A. Fletcher, D.A. & Waller, L. (13 May 2015). *Multi-Contrast Imaging and Digital Refocusing on a Mobile Microscope with a Domed LED Array*. PLoS ONE 10(5): e0124938. doi: 10.1371/journal.pone.0124938

Marks D.L., Llull P.R., **Phillips Z.F.**, *et.al.* (2014). *Characterization of the AWARE 10 two-gigapixel wide-field-of-view visible imager*. Applied Optics 53(14) C54-C63. doi: 10.1364/AO.53.000C54

Chhetri, R.K., **Phillips, Z.F.**, Troester, M.A., Oldenburg, A.L. (2012). *Longitudinal study of mammary epithelial and fibroblast co-cultures using optical coherence tomography reveals morphological hallmarks of pre-malignancy*. PLoS ONE 7(11) e49148 doi: 10.1371/journal.pone.0049148

Talks

Waller, L., **Phillips, Z.F.**, Chen, M., Eckert, R., Yeh, L.H., Waller, L. (7 Nov. 2017) *Algorithmic Self-Calibration in Computational Imaging*. SIAM Data Driven Approaches in Imaging Science 2017.

Phillips, Z.F., Eckert, R., Waller, L. (7 June. 2017) *Quasi-Dome: A Self-Calibrated High-NA LED Illuminator for Fourier Ptychography*. OSA Imaging Systems and Applications, Paper IW4E.5.

Phillips, Z.F., Chen, M., Waller, L. (7 April. 2017) *Quantitative Differential Phase Contrast Imaging with Pupil Recovery*. OSA Bio-Optics, Design and Application, Paper JTu5A.2.

Phillips, Z.F., Chen, M., Waller, L. (7 July. 2016) *Single-Shot Quantitative Phase and Amplitude Retrieval Using Color-Multiplexed Differential Phase Contrast Microscopy*. OSA Computational Optical Sensing and Imaging, Paper CT1D.4.

Phillips, Z.F., Chen, M., Waller, L. (7 April. 2016) *Amplitude and Phase Recovery from Motion Blur Deconvolution*. SPIE DCS Computational Imaging, Paper 9870-17.

Gunjala, G., **Phillips, Z.F.**, Waller, L. (7 April. 2016) *Optimal LED illuminator design for Fourier ptychographic microscopy* SPIE DCS Computational Imaging, Paper 9870-13.

Phillips, Z.F., Gunjala, G., Varma, P., Zhong, J., Waller, L. (7 June. 2015) *Design of a Domed LED Illuminator for High-Angle Computational Illumination*. OSA Imaging Systems, Paper FTu2F.5.

Phillips, Z.F., D'Ambrosio, M.V., Tian, L., Rulison, J.,Patel, H.S., Sadras, N. Gande, A., Switz, N., Fletcher, D.A., Waller, L. (12 April. 2015) *Computational CellScope: Multi-Contrast Imaging on a Smartphone-Based Microscope Using a Domed Programmable LED Array*. OSA Bio-Optics: Design and Application, Paper BM3A.7.

Phillips, Z.F., Chhetri, R.K., Cooper, J., Troester, M.A., Oldenburg, A.L. (2 feb. 2013) *Fractals and fluctuations: spatial and temporal correlations in optical coherence tomography of human breast cancer models*. Dynamics and Fluctuations in Biomedical Photonics X (SPIE Photonics West), Paper 8580-2.

Marks, D.L., Anderson, J.G., **Phillips, Z.F.**, McCain, S.T., Brady D.J. (19 oct. 2014) *Gigapixel Whole-Body Microscopy*. Frontiers in Optics, Paper FTu2F.5.

Marks, D.L., **Phillips, Z.F.**, Feller, S.D., Brady D.J. (22 June. 2014) *Multiscale Camera Objective with sub 2 Arcsec Resolution, 36 degree Field-of-View* Computational Optical Sensing and Imaging, Paper CTh1C.3.