

Cameron Blocker

cameronjblocker@gmail.com ♦ (214) 493 -5351 ♦ cameronblocker.com

Computational Imaging, Image Reconstruction, Large-Scale Optimization

Education

- Ph.D. Electrical and Computer Engineering**, *University of Michigan* Aug 2022
 - “Adaptive Regularization for Inverse Problems in Imaging”
- M.S. Electrical and Computer Engineering**, *University of Michigan* Dec 2018
 - 3.79 GPA
- B.S. Electrical Engineering**, *Brigham Young University* Aug 2016
 - 3.99 GPA
 - Recipient of Tau Beta Pi Scribner Scholarship for 2015-16
 - Minors in Computer Science and Mathematics

Experience

- Graduate Student Instructor**, *University of Michigan* Jan 2019 – May 2022
 - EECS 598: Optimization Methods for Signal Processing and ML, Part-time
 - “One of the best GSIs I have met in my 1st year at U of M. Very helpful with homework, and knows every context in the course. Friendly and warmhearted. Excellent job” – Anonymous student evaluation
 - EECS 505: Computational Data Science and Machine Learning, 1/6 time
 - ENGR 100: Music Signal Processing, Part-time
- Image Science Intern**, *Maxar Technologies* May 2018 – Aug 2018
 - Explored and implemented sparsity-based and deep learning-based image regularization for geo-spatial multi-frame de-aliasing and super-resolution.
- Research Assistant**, *BYU Electro-Holography Lab* Sept 2014 – Aug 2016
 - Researched methods for improved hologram display resolution by redesigning scan control circuitry, 3D printed parts and firmware
- DDG Technical Intern**, *Intel, Device Development Group* May 2015 – Aug 2015
 - Developed Python library to assist post-silicon debug of SoC clocks
 - Designed experimental RTL clock hardware for SoCs in SystemVerilog
- Full-time Volunteer Representative**, *LDS Church, Cambodia* Dec 2011 – Dec 2013
 - Conducted, planned, and taught at meetings for groups of up to 20 volunteers on ethics, communication and teaching skills

Skills

- Image restoration and reconstruction
- Applied large-scale optimization
- Single Engine Land Airplane Pilot
- Optical bench prototyping
- Contributor to Open Source Software
- Programming (by experience level)
 - Python
 - Rust
 - Julia
 - C

Professional Societies & Clubs

- Member of IEEE (Signal Processing Society and Computer Society)
- Member of SIAM
- Former Vice President of UM amateur radio club

Publications

- D. Zhang, Z. Xu, Z. Huang, A. R. Gutierrez, **C. J. Blocker**, C. Liu, M. Lien, G. Cheng, Z. Liu, I. Y. Chun, J. A. Fessler, Z. Zhong, T. B. Norris, "Neural Network Based 3D Tracking with a Graphene Transparent Focal Stack Imaging System," *Nature Communications*, 12(1):1–7, 2021
- **C. J. Blocker**, J. A. Fessler, "Blind Unitary Transform Learning for Inverse Problems in Light-Field Imaging," in IEEE International Conference on Computer Vision (ICCV) Learning for Computational Imaging Workshop, 2019
- D. Zhang, Z. Xu, Z. Huang, A. R. Gutierrez, I. Y. Chun, **C. J. Blocker**, G. Cheng, Z. Liu, J. A. Fessler, Z. Zhong, T. B. Norris, "Graphene-Based Transparent Photodetector Array for Multiplane Imaging," CLEO: Science and Innovations, 2019
- **C. J. Blocker**, I. Y. Chun, J. A. Fessler, "Low-Rank plus Sparse Tensor Models for Light-field Reconstruction from Focal Stack Data," in IEEE Image, Video, and Multidimensional Signal Processing (IVMSP) Workshop, 2018
- S. Ravishankar, A. Lahiri, **C. Blocker**, and J. A. Fessler, "Deep Dictionary-Transform Learning for Image Reconstruction," in IEEE International Symposium on Biomedical Imaging (ISBI), 2018

Work Under Review

- **C. J. Blocker**, H. Raja, J. A. Fessler, L. Balzano, "Dynamic Subspace Estimation with Piecewise Geodesics," 2022