

# Cameron Blocker

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## Computational Imaging, Image Reconstruction, Large-Scale Optimization

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### Education

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- Ph.D. Electrical and Computer Engineering**, *University of Michigan* *Fall 2021*
- Researching image processing and reconstruction for light-field cameras
  - Certificate program in Computational Discovery & Engineering
- M.S. Electrical and Computer Engineering**, *University of Michigan* *Dec 2018*
- 3.71 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

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- Graduate Student Instructor**, *University of Michigan* *Jan 2019 – May 2019*
- EECS 598: Optimization Methods for Signal Processing and ML, Part-time
  - EECS 505: Computational Data Science and Machine Learning, 1/6 time
- Image Science Intern**, *Radiant Solutions* *May 2018 – Aug 2018*
- Explored and Implemented sparsity-based and deep learning-based image regularization for multi-frame de-aliasing and super-resolution of geo-spatial images.
- 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
  - Implemented hologram algorithms on GPUs for real-time 3D video rendering
- 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

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- Image restoration and reconstruction
- Applied large-scale optimization
- Image system modeling
- Optical bench prototyping
- Embedded firmware programming
- Teaching and Tutoring
- Programming (by experience level)
  - Python
  - Julia
  - Rust
  - C
  - MATLAB

### Professional Societies

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- Member of IEEE (Signal Processing Society and Computer Society)
- Member of SIAM

## Publications

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### Conference Papers

- **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