

Brian Bogue Jimenez



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ABOUT

Engineering professional with experience spanning software development, deep learning, machine learning, computer vision, microscopy, optics, and metrology. Experienced in working with international team of researchers. Proficient skill in working well across multiple projects and tasks, enjoying the combination of project development, lab work, comprehensive analysis and telling the story. Collaborates effectively with team peers, cross functional resources, and all levels within an organization's hierarchy. Conscientious, reflective, and reliable. Pro-active learner who accelerates quickly into assignments, always monitoring the quality of work. Passionate about advancing science and technology.

EDUCATION

Master of Science, Electrical and Computer Engineering

University of Memphis, Memphis, TN

Major: Electrical and Computer Engineering Graduation date: Dec 2021 GPA 3.81

Bachelor of Science, Electrical and Computer Engineering,

University of Memphis, Memphis, TN

Major: Electrical Engineering Graduation date: May 2020 GPA 3.56 (cum laude)

COURSEWORK

Linear Optical Systems, Electro-Optics, Computer Vision, Pattern Recognition, Random Signals and Noise, Probabilistic Systems Analysis, Signals and System Processing, Machine Learning, Artificial Intelligence, Electromagnetic Field Theory, Photonics, Linear Algebra, Image Processing

SKILLS (# years)

MATLAB (6), Holography (5), Optics (5), Python - i.e. Jupyter, numpy, scipy, Keras, pandas, etc. (4), Computer Vision (4), Automation (3), Artificial Intelligence (3), C++ (1), Microsoft Office (8)

EXPERIENCE

Research/Teaching Assistant, August 2018– December 2023

Optical Imaging Research Laboratory, Herff College of Engineering, Memphis, TN

- Formation of project proposal and associated technical documentation.
- Engineered software for automation, image processing and simulations.
- Developed lesson plans, delivered instruction to students and content evaluation.

PROJECTS

Diatom Classification via Deep Learning using Raw Holograms, 2022-2024

- Used image segmentation techniques on public datasets to train Deep Learning

Citation: B. Bogue-Jimenez, et al. "Diatom Classification via Deep Learning using Raw Holograms captured by a Lensless Holographic System," Proc. SPIE 12903, AI and Optical Data Sciences V (31 Jan. '24).

Comprehensive Phase Retrieval Application for Holographic Microscopy, 2022–2024

- Developed and implemented an open-source application in Python and MATLAB to correct phase information from holographic images. Applied typical methods & M.L. solutions.

Citation: B. Bogue-Jimenez, et al. "Comprehensive tool for a phase compensation reconstruction method in digital holographic microscopy operation in non-telecentric regime," PLoS ONE, 18(9), e0291103 (2023);

Utilization of Deep Learning for reconstructing of Quantitative Phase Images, 2021–2023

- Development, trained, and evaluated D.L. pipelines on auto-collected image datasets.

Citation: B. Bogue-Jimenez, et al. "Utilization of Deep Learning methods for automatic reconstruction of quantitative phase images in non-telecentric digital holographic microscopy," AIP Conf. Proc. 28 September 2023; 2872 (1): 040004.

Advantages of Fresnel biprism-based Digital Holographic Microscopy, 2019-2020

- Alignment, calibration, data collection, and assessment of a novel DHM system.

Citation: C. Hayes-Rounds, B. Bogue-Jimenez, et al. "Advantages of Fresnel biprism-based digital holographic microscopy in quantitative phase imaging," *J. Biomed. Opt.* 25(8) (4 Aug '20).