Clayton Seitz

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OBJECTIVE

I work on a mathematical description of memory formation and probabilistic inference by networks of neurons in the brain. I am particularly interested in a Bayesian interpretation of neural dynamics and the neural sampling hypothesis, which provide a rich framework for investigating information transmission, storage, and compression by neurons. Much of this work utilizes techniques derived from physics, information theory, and statistics.

EDUCATION

Master of Science, Biophysics
University of Chicago, Chicago, IL, Winter 2021
Thesis: *Towards a theory of stable cell assembly formation in excitatory-inhibitory neuronal networks*

Bachelor of Science, Physics
Purdue University, Indianapolis, IN, 2019
Minor: Mathematics

Bachelor of Science, Informatics
Luddy School of Informatics, Computing, and Engineering, Indiana University Bloomington, 2019
Concentration: Mathematics

COMPUTER SKILLS

Languages & Software: Python, Tensorflow, C, Git, LaTeX, Bash

EXPERIENCE

Research Software Developer 2019-2021
Indiana University, Indianapolis, IN

- Develop an image processing software pipeline for high-throughput quantification of images in fluorescent microscopy
- Utilize high performance computing clusters for image segmentation, single particle tracking, and image registration

Undergraduate Researcher 2019-2020

- Utilize time-correlated single photon counting (TCSPC) to characterize the sub-Poissonian emission of organic quantum dots dispersed in a thin film of poly-methyl methacrylate (PMMA)
- Design and utilize a 3-color imaging protocol to perform single-molecule imaging of mRNA transcripts in human epithelial kidney and osteosarcoma cells

Undergraduate Tutor 2018-2019

- Tutored undergraduate students in introductory physics courses covering classical mechanics, classical electromagnetism, circuit analysis, and modern physics

Information Security Intern 2018-2019
Liberty Mutual Insurance
- Performed attestation testing on externally facing servers

AWARDS

PS-ON Annual Investigator Meeting Travel Award 2019
Purdue University, Indianapolis, IN

Hudson and Holland Scholarship for Diversity and Inclusion 2013-2017
Indiana University, Bloomington, IN

Founders Scholar 2013-2017
Indiana University, Bloomington, IN

Cigital Scholarship 2016-2017
Indiana University, Bloomington, IN

Dean's List 2013-2019
Indiana University, Bloomington, IN

PUBLICATIONS