

Joseph Shenouda

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Research Interests

Signal Processing, Machine Learning, Network Science

Education

University of Wisconsin-Madison 2021-2026
Ph.D. Electrical and Computer Engineering (In Progress)
Advisors: Kangwook Lee & Robert D. Nowak

Rutgers University 2017-2021
B.S. Electrical and Computer Engineering
Summa Cum Laude

Technical Skills

Python, MATLAB, C++, Signal Processing, Linux, Machine Learning, Git

Experience

MIT Lincoln Laboratory: Summer Research Intern **Summer 2021**

- Worked with the satellite communication group.
- Developed graphical techniques to segment RF spectrograms, and compared it with deep learning approaches.

Undergraduate Research Assistant (INSPIRE Lab) **Fall 2020-Spring 2021**

- Senior thesis investigating hypergraph signal processing advised by Dr. Waheed Bajwa.

Los Alamos National Laboratory: Electrical Engineer Intern **Summer 2020**

- Research and development of digital signal processing algorithms for X-Ray radiation detection in space, to replace current analog approaches.
- Optimized simulation scripts to decrease simulation time by 75%
- Conducted analysis to determine the best parameters for our filter to accurately measure the energy levels of the signals coming into the detector.

Undergraduate Research Assistant (INSPIRE Lab) **Fall 2019-Spring 2020**

- Researched reproducibility of computational experiments in signal processing and machine learning under Dr. Waheed Bajwa.
- Read through recent publications of the lab to reproduce results of computational experiments; codebases can be found at <https://github.com/INSPIRE-Lab-US>.
- Created a set of standards and best practices for the lab to ensure that all computational experiments are readily reproducible by other researchers at the time of publication.

Lockheed Martin: Software Engineering Intern **Summer 2019**

- Successfully implemented a new messaging interface in C++ for radar simulation software.
- Independently worked to incorporate this new protocol into an existing system while learning about new technologies such as C++, gdb and network programming.

Relevant Coursework

- High Dimensional Statistics
- Detection and Estimation Theory
- Stochastic Signals and Systems
- Convex Optimization
- Error Control Coding
- Linear Algebra
- Real Analysis
- Digital Signal Processing
- Machine Learning

Awards and Memberships

ECE 2021 Wisconsin Distinguished Graduate Fellowship-Richardson

JJ Slade Scholar

Tau Beta Pi

Recipient of the Kuhl Memorial Engineering Scholarship