General Ozochiawaeze

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Education

Purdue University   *West Lafayette, IN*
PhD Candidate in Mathematics   *Aug 2021 - May 2026*
Research Interests: Inverse Problems, Partial Differential Equations, Scattering Theory, Computational Sensing, Shape Reconstruction
Awards: GEM Fellowship, NSF Computational Mathematics Program Award DMS-2208256

New Jersey Institute of Technology   *Newark, NJ*
M.S. in Applied Mathematics   *Sep 2019 - May 2021*
Awards: Graduate C/Startup Research Grant

Rutgers University   *New Brunswick, NJ*
B.A. in Mathematics & Philosophy   *Jan 2016-May 2018*
Honors: Tau Sigma Honors Society, Dean's List

Skills

Computing	Python, MATLAB, Java, C++/C#, COMSOL, FeNiCs, LaTeX(Overleaf/R Markdown), Mathematica, Maple
Engineering	Digital Signal Processing, Finite Element Methods, Numerical Analysis, Large-Scale Optimization, Systems Analysis, Mathematical Modeling, Technical Writing & Communication
Languages	English, French (Conversational), Latin

Scientific & Technical Experience

MIT Lincoln Laboratory   *Lexington, MA*
Group 36 Research Intern– Integrated Missile Defense Technology   *May 2023-Oct 2023*
- Built (inverse) synthetic aperture radar imaging algorithms to improve waveform design for missile detection and defense systems.
- Provided advanced technical expertise in compressive sensor modeling.
- Performed technical activities associated with radar waveforms and signal and data processing techniques that provide robust performance in electromagnetic interference (EMI), multipath, ducting, and clutter environments.
- Applied Bayesian inference techniques that can perform radar imaging under the constraints of sparse-sensing for a limited number of spatially distributed sensors.

MIT Lincoln Laboratory   *Lexington, MA*
Group 37 Research Intern– Advanced Undersea Systems & Technology   *May 2022 - Aug 2022*
- Optimized real operational performances of sonar arrays deployed in random ocean environments.
- Designed signal processing algorithms in MATLAB for active and passive sonar applications to shallow ocean environments.
- Performed parameter estimation of acoustic spatial and temporal coherence degradation of signals of a multi-acoustic sonar array system.
- Delivered technical findings to sponsors, contractors, and working staff, and developed proposals for future program funding.

New Jersey Institute of Technology   *Newark, NJ*
Graduate Researcher   *Jul 2020 - May 2021*
- Devised oceanographic models and simulated acoustic wave propagation in underwater environments in Python and COMSOL.
- Critically analyzed properties, trends, and features in ocean beds by solving problems in high frequency underwater acoustics.
- Communicated professionally with faculty to meet deadlines and complete research.

New Jersey Institute of Technology   *Newark, NJ*
Research Assistant   *Jul 2020 - May 2021*
- Improved algorithms for motion-planning shape formation of multi-robot systems, reducing arm collisions by 65%.
- Analyzed data on the shape formation and assembly of a group of robots via intermittent diffusion and the conjugate gradient method.
- Maintained and re-configured different target-tracking robotic systems for experiments.

Teaching & Leadership

Purdue University   *West Lafayette, IN*
Graduate Teacher Assistant   *Aug 2021 - Present*
- Prepared and led active learning lectures for undergraduate university students.
- Coordinated with other lecturers to unify course material and improve student experiences.
- Guided students in a fun and professional manner that encouraged their attendance, engagement, and long-term investment in their math learning.
- Consistently obtained high evaluations from students.

Little Ivy Academy   *Ridgewood, NJ*
STEAM Summer Camp Counselor   *Jun 2021 - Aug 2021*
- Passionately taught hands-on classes in robotics, programming smartphone apps in C#, stop animation movies, and website design.
- Successfully managed campers and junior staff with patience and good humor.