GENERAL O. OZOCHIAWAEZE

oozochia@purdue.edu obiorag.github.io LinkedIn GitHub
West Lafayette, IN

EDUCATION

Purdue University Aug 2021 – May 2027
Ph.D. in Mathematics
Focus: Inverse Problems, PDEs, Scattering Theory, Applied Analysis
Advisor: Isaac Harris & Peijun Li

New Jersey Institute of Technology May 2021
M.S. in Applied Mathematics
Focus: PDEs and Ocean Acoustics
Advisor: Christina Frederick

Rutgers University May 2018
B.A. in Mathematics

PUBLICATIONS & PREPRINTS

Authors listed in alphabetical order.

1 I. Harris and G. Ozochiawaeze, "Novel implementation of the extended sampling method for inverse biharmonic scattering" (working title), In preparation.

2 R. Ceja Ayala, I. Harris, and G. Ozochiawaeze, "Factorization method for the biharmonic scattering problem for an absorbing penetrable scatterer," arXiv preprint arXiv:2511.05711

3 I. Harris, P. Li, and G. Ozochiawaeze, "Sampling methods for the inverse cavity scattering problem of biharmonic waves," *Inverse Problems*, 42 (2026), 015002

RESEARCH EXPERIENCE

Purdue University 2023 – Present
Graduate Researcher (Inverse Problems & Wave Imaging)

- Developed mathematical and computational methods for reconstructing hidden structures from wave measurements in elastic plate models, with applications to nondestructive testing.
- Designed non-iterative imaging algorithms for recovering obstacle geometry from limited-aperture data, with emphasis on stability in high-frequency regimes.
- Presented research results in departmental seminars and international conferences, communicating inverse problem techniques to applied analysis and PDE audiences.

MIT Lincoln Laboratory 2022 – 2023
Research Intern (Radar Imaging & Image Processing)

- Developed sparse-data reconstruction methods for radar imaging of moving targets using compressive sensing principles.
- Communicated results through technical reports and internal presentations to research groups focused on missile detection & defense.

MIT Lincoln Laboratory 2022
Research Intern (Underwater Acoustics & Signal Processing)

- Analyzed degradation of sonar-based localization due to environmental noise and coherence loss in array measurements.

- Developed numerical simulations for wave propagation and signal reconstruction in complex underwater environments.

New Jersey Institute of Technology 2020 – 2021
Research Assistant (Wave Propagation Modeling)

- Modeled acoustic wave propagation in heterogeneous media using finite element and domain decomposition methods.
- Analyzed scattering behavior in high-frequency regimes to understand sensitivity to environmental structure.

AWARDS & HONORS

Bilsland Dissertation Fellowship 2026 – 2027

GEM Fellowship 2022 – 2023

Graduate C/Startup Research Grant 2020 – 2021
Research funding support for computational and applied mathematics

Tau Sigma Honors Society 2016
National honors society for transfer students (academic excellence)

TEACHING AND MENTORING

Lecturer, Purdue University Fall 2025
MA 16020 — Applied Calculus II

Teaching Assistant, Purdue University
STAT 416 — Introduction to Mathematical Probability Summer 2024
MA 251 — Multivariable Calculus Fall 2022
MA 162 — Calculus II Spring 2022
MA 161 — Calculus I

Mentoring & Service

Mentor, Directed Reading Program (Markov Chains & Stochastic Processes) 2026
mentee: Caleb Dai

Purdue Mathematics Department Graduate Representative 2025 – 2026

Mentor, Directed Reading Program (Computational Topology) 2025
mentee: Aaron (Sang Hyun) Kim

Founder & Organizer, Math History Seminar 2022 – 2025