RUTH J. HAMMOND

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EDUCATION

Ph.D. in Computer Science *Aug. 2023 - Present*
Ph.D. Advisor: **Dr. M. Hadi Amini**
Florida International University, Miami, FL USA

Computer Science Exchange Student *Jan. 2022 - June 2022*
KTH Royal Institute of Technology, Stockholm, Sweden

Bachelor of Science in Mechanical Engineering *Aug. 2018 - May 2023*
Rose-Hulman Institute of Technology, Terre Haute, IN USA

HONORS AND RECOGNITION

1. Awarded 2023 - 2025 NSF Bridge to Doctorate Fellowship
2. Awarded travel grants to attend the 2023 Grace Hopper celebration and SC23.
3. **Undergradute Recognition and Awards:** Apple Pathways Scholar, National Action Council for Minorities in Engineering Scholar, Google Computer Science Research Mentorship Program

RESEARCH INTERESTS

• **Machine Learning and Data Mining** (Deep Reinforcement Learning, Neural Networks, Federated Learning, Data Analytics).

• **High-Performance Computing** (Data-intensive Parallel Algorithms, Distributed Machine Learning, Cryptography).

• **Operation Research** (Resilient Network Infrastructure, control systems, energy systems).

TECHNICAL STRENGTHS

Programming language	C, Python, Java, CUDA
Database Management Systems	PostgreSQL, Nifi, Docker
Development tool	PyCharm, Anaconda, Microsoft Visual Studio
Other App	LATEX, MATLAB, Unix

WORK EXPERIENCE

Los Alamos National Laboratory May - Aug. 2023
Los Alamos Dynamic Summer School Fellow .

Created an algorithm to identify cracks in thermoelectric Bi2Te3 Wafers using Image Processing, Machine Learning, and Acoustic Resonance Spectroscopy.

IBM Research May - Aug. 2022
Climate & Sustainability Software Engineering intern .

Developed a chemical predictive ML model based on structural, topological, and chemoinformatic analysis to develop novel solvent blends and rank the performance of amine solvents.

Johnson & Johnson Sept. - Dec. 2021
R&D Data Science Intern .

Performed early data analysis to build a LightGBM and CNN machine learning script related to surgical robotics.

Penn State University Applied Research Laboratory May - Dec. 2021
Algorithm Development Research & Development intern .

Developed and implemented a data analytics pipeline that processes JSON, conducts fuzzy string matching, and calculates geodesic distance using Nifi.

Oak Ridge National Laboratory May - Aug. 2019
Pathways to Computing Internship Program (PCIP) intern .

Utilized a variety of Modeling/CAD, High Performance Computing, and Machine Learning skills to help implement and conduct a research project concerning the performance of OLCF supercomputers Summit and Frontier.

Oak Ridge National Laboratory May - Aug. 2018
Higher Education Research Experiences (HERE) intern .

Conducted Performance Tests on OLCF Supercomputers Titan and Summit.

SELECTED PUBLICATIONS (DURING PHD AT FIU:)

1. **Ruth Hammond**, Alexandra Murphy, Lindsay Wright, Milo Prisbey, and John Greenhall. "Acoustic Resonance Crack Detection in Thermoelectric Bi2Te3 Wafers" in International Modal Analysis Conference (IMAC) (2023).

PROFESSIONAL ACTIVITIES (DURING PHD AT FIU)

Machine Learning Researcher Working as the machine learning researcher at solid lab to design and analysis deep reinforcement learning algorithm to intellectualize interactions among Interdependent Critical Infrastructures.

Project SHORT Co-Director of Pre-Grad Mentorship As the Co-director of Pre-Grad Mentorship for Project SHORT, the first student-led non-profit working to shrink the socioeconomic gap in graduate school, I manage the mentoring program matching prospective graduate school applicants and current graduate students.

NSBE GSCPC Partnership Manager As the Partnership manager on the Graduate Student Conference Planning Committee, I explore new partnerships and manage all operational needs for our existing partnerships for the 2024 National NSBE convention.