

IAN WHITEHOUSE

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EDUCATION

University of Maryland

Doctor of Philosophy in Computer Science

College Park, MD

August 2024 – May 2029

• Advised by Dr William Regli and Dr. Wolfgang Losert, researching analog, neuromorphic, and living computing systems through dynamical systems and learning theory

• Relevant coursework: Computational Imaging, Machine Learning Theory, Numerical Optimization

American University

Bachelor of Science in Computer Science, summa cum laude

Washington, DC

August 2020 – May 2024

• Won the Lockheed Martin STEM Scholarship and Dean's Scholarship, inducted into Upsilon Pi Epsilon society

EXPERIENCE

University of Maryland

Graduate Assistant, Department of Computer Science

College Park, MD

August 2024 – Present

- Developed and implemented quantitative performance metrics for analog SAT solvers for a DARPA-funded program
- Worked with chemists, biologists, and physicists to characterize and build in-vitro living neuron reservoirs
- Developed and evaluated a glia-inspired learning algorithm for detecting concept drift in evolving dynamical systems

U.S. Army Research Laboratory

Neuromorphic Computing Intern

Adelphi, MD

May 2025 – August 2025

- Adapted in-house neuromorphic algorithms for concept drift detection in collaboration with Lockheed Martin
- Developed analysis pipelines to extract connectivity and dynamical structure from living neuron time-series data
- Integrated experimental and computational methods to connect in-vitro neural activity with real-world biocomputing

Leidos, Inc.

Machine Learning Intern, Leidos Innovation Center

Arlington, VA

May 2023 – August 2024

- Developed efficient, interpretable machine-learning models for low-SNR underwater acoustic sensing
- Presented research on adversarial learning to U.S. Navy personnel at the NAML conference
- Used differential-equation models and digital signal processing to generate sensor data and analyze model behavior

Lockheed Martin

Student Software Engineer, Rotary and Mission Systems

Syracuse, NY

May 2022 – August 2022

- Wrote high-performance C++ software to improve parsing, modeling, and simulation of E-2D airborne radar systems
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PUBLICATIONS [Download](#)

I. Whitehouse, R. Yepez-Lopez and R. Corizzo, “Distributed Concept Drift Detection for Efficient Model Adaptation with Big Data Streams,” in *Proceedings of the 2023 IEEE International Conference on Big Data*, Sorrento, Italy, 2023.

L. P. Damasceno, E. Rexhepi, A. Shafer, **I. Whitehouse**, N. Japkowicz, C. C. Cavalcante, R. Corizzo and Z. Boukouvalas, “Exploiting Sparsity and Statistical Dependence in Multivariate Data Fusion: An Application to Misinformation Detection for High-Impact Events,” *Machine Learning*, 2023.

PRESENTATIONS [Download](#)

I. Whitehouse, N. Chongsirawatana, H. Kang and W. Losert, “Rhythmic Sharing: An Astrocyte-Inspired Algorithm for Robust Learning of Evolving Dynamical Systems with Applications in Anomaly Detection”, Washington, DC: *Joint Mathematics Meeting (JMM)*, 2026.

I. Whitehouse, Hoony Kang and Wolfgang Losert, “Emergent Detection of Concept Drift within the Glia-Inspired ‘Rhythmic Sharing’ Algorithm”, San Diego, CA: *10th International Conference on Rebooting Computing (ICRC)*, 2025.

S. Sarkar, A. Singh and **I. Whitehouse**, “Bridging In-Vitro Neural Dynamics and Real-World Applications: Experimental, Analytical, and Computational Approaches in Biocomputing”, Aberdeen, MD: *National Security Scholars Summer Internship Program*, 2025.

I. Whitehouse and G. Byrne, “Adversarial Machine Learning Training for Signal-to-Noise Generalization in Passive Undersea Acoustics”, San Diego, CA: *Naval Applications of Machine Learning*, 2024.

SKILLS AND INTERESTS

- **Scientific Computing:** Python (NumPy, JAX, PyTorch, TensorFlow), HuggingFace; C++; Java; Apache Spark; JavaScript
- **Machine Learning Paradigms:** reservoir computing, convolutional networks, transformers, diffusion models
- **Professional Interests:** neuromorphic algorithms and hardware, living neuron computing, nonlinear dynamical systems