

Long Duong

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EDUCATION

University at Buffalo

PhD Student

Advisors: Karthik Dantu and Roshan Ayyalasomayajula

Buffalo, NY

Aug. 2024 – Present

Texas Tech University

BS Electrical Engineering; Minor: Mathematics

Lubbock, TX

Aug. 2020 – Dec. 2022

EXPERIENCE

Graduate Research Assistant

University at Buffalo

Aug. 2024 – Present

Buffalo, NY

- Developed a plastic sorting algorithm using multi-modal sensor fusion, with physics-informed machine learning and simulation to address data sparsity.
- Implemented the framework on a conveyor belt, validating robustness and enabling real-world application for plastic recycling.

Undergraduate Research Assistant

Texas Tech University

Dec. 2021 – Jun. 2024

Lubbock, TX

- Performed individual research on Quail Detection and Localization, and Cotton Phenotyping projects under the supervision of Professor Sari-Sarraf.
- Collaborated with graduate researchers on machine vision projects, contributing to improved data collection and analysis workflows.

Signal Processing Engineer

Viettel High Tech

Nov. 2023 – Jun. 2024

Hanoi, Vietnam

- Developed wireless channel estimation ML algorithm to increase the robustness of uplink data to noise.
- Implemented the solution on existing base transceiver stations' hardware (Intel and DSP chips).

PROJECTS

Plastic Sorting Project | *Python, Physics-Informed Neural Network*

- Built a framework to classify post-consumer plastics with a thermal camera.
- Designed a physics-informed neural network to extract thermal properties of plastic objects.
- Created a simulator that generates realistic thermal responses for unseen objects, improving model generalization.

Quail Localization Project | *Matlab, Python*

- Developed an automated framework to process raw audio signals from field recorders and outputs the quail's location for population estimation and conservation purpose.
- Created efficient localization algorithm that demonstrates notable reductions in localization error by 7.67% and 16.90% respectively, when compared to popular algorithms of SoundFinder (Wilson, 2014) and Accumulated Correlation (Collier, 2010).

Autonomous Can Picking Robot | *Electrical, Embedded Systems*

- Designed and implemented a low-cost autonomous robot that can navigate a 15 x 15 feet field while picking up and depositing aluminum cans to a designated area for beach clean-up.
- Used Xilinx FPGA, Verilog, state diagram, PWM, motor controller (H-Bridge), ultrasonic sensors.

PUBLICATION

D. Long, R. White, D. Brad, S. Hamed, "A complete framework for hyperbolic acoustic localization with application to northern bobwhite covey calls," *Ecological Informatics*, 2024

SKILLS

Programming Languages: Python, C++, C, Matlab, Verilog, Assembly

Machine Learning: Transformer models, CNNs, RNNs, Reinforcement Learning

Libraries & Tools: PyTorch, TensorFlow, OpenCV, Git, Linux, Docker