

Long Duong

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EDUCATION

University at Buffalo

Buffalo, NY

PhD Student (CSE). Research Areas: Novel Sensing and Robotics Perception

Aug. 2024 – May 2028 (Expected)

Advisors: Karthik Dantu and Roshan Ayyalasomayajula

Texas Tech University

Lubbock, TX

BS Electrical Engineering; Minor: Mathematics

Aug. 2020 – Dec. 2022

EXPERIENCE

Graduate Research Assistant

Aug. 2024 – Present

University at Buffalo

Buffalo, NY

- Developed an affordable, scalable, automated, multi-modal plastic-sorting pipeline using sensor fusion, physics-informed learning, and simulation to address data sparsity.
- Implemented the system on a conveyor-belt, demonstrating robust real-world performance for plastic recycling.

Undergraduate Research Assistant

Dec. 2021 – Jun. 2024

Texas Tech University

Lubbock, TX

- Conducted research on quail detection/localization and cotton phenotyping under Professor Sari-Sarraf.
- Collaborated with graduate researchers on machine-vision tasks, improving data collection and analysis workflows.

PROJECTS

Active Thermography for Plastic Sorting | *Python, Physics-Informed Neural Network*

- Developed a thermal-camera-based framework to classify post-consumer plastics.
- Designed a data-efficient, sim-to-real physics-informed neural network that extracts thermal properties with significantly faster inference (**4 seconds** vs. **5 minutes**).
- Achieved **100%** accuracy on black plastics and **94.7%** on white plastics.

Quail Localization Project | *Matlab, Python*

- Built an automated pipeline to process raw audio and localize quail calls for population estimation and conservation.
- Developed a localization algorithm that reduced error by **7.67%** and **16.90%** compared with SoundFinder (2014) and Accumulated Correlation (2010).

Autonomous Can Picking Robot | *Electrical, Embedded Systems*

- Designed and implemented a low-cost autonomous robot capable of navigating a 15×15 ft field to collect and deposit aluminum cans.
- Implemented control and sensing using Xilinx FPGA, Verilog, H-bridge motor drivers, and ultrasonic sensors.

PUBLICATION

D. Long, Charuvahan Adhivarahan, Roshan Ayyalasomayajula, Karthik Dantu, "TIPS: Thermal Image based Plastics Sorting," *The 24th ACM International Conference on Mobile Systems, Applications, and Services (MobiSys 2026)* [Featured/Spotlight Presentation];

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: Physics-informed Neural Network, Transformer models, CNNs, RNNs, Reinforcement Learning

Sensing: Vision (RGB), Thermal, mmWave Radar, Hyperspectral, ATR-FTIR, Acoustic

AWARDS

Graduate Presidential Fellowship