Tung Do

M.Sc. ECE – Robotics candidate | Research Assistant | University of Michigan, Ann Arbor | Seeking Summer 2024 Internship
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EDUCATION

University of Michigan, Ann Arbor — Aug 2023 – May 2025
Candidate for Master of Science in Electrical and Computer Engineering, Robotics area — Ann Arbor, MI
- Cumulative GPA: 4.0/4.0. Member of the Institute of Electrical and Electronics Engineers.

California State Polytechnic University, Pomona — Aug 2018 – May 2023
Bachelor of Science, magna cum laude, in Electromechanical Systems Engineering Technology - Valedictorian — Pomona, CA
- Cumulative GPA: 3.7/4.0. Member of Tau Beta Pi – The Engineering Honor Society.

PROFESSIONAL EXPERIENCE

Research Assistant/Embedded Software Engineer at the University of Michigan, Ann Arbor — Ann Arbor, MI
Heron Autonomous Maritime Robots Research with UM Field Robotics Group — Dec 2023 - Present
- Set up the simulation environment to do tests with the robot.

TD-Rex Rover Research with ROAHM Lab — Aug 2023 - Present
- Migrated the legacy code of ROS Python from the Jetson TX2 board to the Jetson AGX Orin board. Then, I optimized and modified the legacy code to be compatible with the new version of PyTorch, TensorFlow, CUDA, CUDNN, and NumPy.
- Optimizing the board's performance with UNet deep learning architecture to increase the semantic segmentation's efficiency.
- Implement the algorithm from the simulation into real-world behavior of multi-agent experiments for both rovers.
- Built and programmed embedded control on STM32 VESC and Jetson TX2's Linux environment for a second autonomous rover.

Embedded Software Engineer — Aug 2022 – May 2023
Unmanned Aerial & Ground Vehicle (UAV & UGV) for Northrop Grumman Collaboration Project — Pomona, CA
- Developed Python scripts on Jetson Nano's Linux environment and uploaded the mission to the Pixhawk. Launched autonomous flights, keeping the UAV in the air at 200 feet from the ground for 20-minute flights.
- Programmed STM32 microcontroller using Embedded C and controlled it using the Raspberry Pi through serial communication. Integrated ROS Python to communicate between two Raspberry Pi to control the UGV wirelessly in a range of 700ft.
- Successfully demo both UAV and UGV to Northrop Grumman.

PROJECTS

Monocular 3D Object Detection | Lead Engineer — Oct 2023 – Dec 2023
- Analyzed and trained the MonoCon deep learning architecture with PyTorch to improve object detection under challenging conditions like rain and fog.

Advanced Driver Assistance Systems (ADAS) Simulation | Embedded Software Engineer — Aug 2023 – Dec 2023
- Develop embedded C code, block diagram, and S-function to implement Adaptive Cruise Control and manual control on the NXP S32 board, which controls car simulation in Simulink from a haptic wheel attached to an encoder DC motor. The car simulation is connected to other car simulations through the CAN network and mutually transmits each other's position to show on the screen.

FPGA Projects | Hardware Engineer — Jan 2023 – May 2023
- Compiling/Developing a complete FPGA development toolchain for MacOS CLI users.
- Developed Verilog code for I2C communication between an FPGA and a current sensor, including a clock signal synchronizing data transfer between devices. Integrated a PMOD display into the system to monitor current readings of the phone under charge.

Autonomous Robot Competition | Lead Engineer — Aug 2022 – Dec 2022
- Won 2nd place in the competition using C, C++, Python, OpenCV on Raspberry Pi, and STM32 microcontroller.
- The robot was praised as the best and most stable performance throughout the competition. The hardware never had any issues.
- Administered weekly meetings to check progress, give feedback, test more than 200 times, and assign new tasks to 6 team members.

Autonomous/RC Mecanum Wheel Tesla Roadster 1:6 | Project Owner — Jan 2022 – Dec 2022
- Successfully developed wireless control/automatic features, including signal lights, driving wheel, windshield wiper, backlights, and headlights, on the vehicle with 6 Arduinos communicating with each other through NRF24L01 radio modules within a range of 160ft.
- Successfully developed autonomous functions, including self-parking and object avoidance, using C and C++.

SKILLS

- **Robotics:** ROS, Rviz, Gazebo, OpenCV, PyTorch, TensorFlow, UNet, PointNet, CUDA, TensorRT
- **Software:** C, C++, Python, Linux, Bash/Shell Scripting, Vim, Git, Debugger IDE, Docker, Google Colab, MATLAB, Simulink
- **Hardware:** Microcontroller, FPGA, Verilog, x86, arch, ARM, GPIO, ADC, PWM, Timer, ISR, RTOS, CAN, I2C, SPI, USART, USB
- **CAD:** SolidWorks, 3D Printing, Ansys