Channing Tan

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GitHub — LinkedIn

Education

The University of Tennessee, Knoxville Knoxville, TN
B.S. Electrical Engineering — B.A. Physics Jan 2024 – May 2026
GPA: 3.83 / 4.00

Experience

Oak Ridge National Laboratory Oak Ridge, TN
Intern – Computational Urban Sciences Group Jun 2025 – Aug 2025

- Benchmarked graph neural network, statistical, and deep learning forecasting models using PyTorch and TensorFlow
- Developed graph neural network encoding methods for large-scale spatial forecasting workloads
- Reduced forecasting RMSE by 6.7% through model architecture and preprocessing improvements
- Utilized Slurm-managed compute clusters for accelerated ML experimentation and presented findings at Smoky Mountain Conference 2025

Projects

NASA Lunabotics Competition Robotics – Tennessee Lunabotics Aug 2024 – May 2026
Controls Systems Lead

- Developed ROS2-based control architecture for autonomous lunar mining robot competing in NASA Lunabotics 2025–2026
- Implemented drivetrain, arm control, teleoperation, and autonomous mode-switching nodes using CAN
- Integrated embedded compute, stereo vision, and ROS-based VSLAM pipelines for autonomous navigation research
- Utilized Gazebo simulation with Nav2 integration for autonomous testing; team placed 14th of 47 qualifying teams

Traffic Accident Detection and Localization Using Computer Vision Spring 2026

- Developed computer vision pipeline for traffic accident classification and temporal/spatial localization from video
- Improved classification performance using motion-aware temporal clip processing and video modeling

Spiking Neural Networks for ASL Recognition Spring 2026

- Developed convolutional spiking neural network for ASL recognition using neuromorphic event-camera data
- Processed asynchronous event-stream data and implemented leaky integrate-and-fire neuron models using PyTorch and SNNTorch

FRC Competition Robotics – Team 3140 Aug 2021 – May 2024
Electrical Systems Lead

- Implemented AprilTag localization and computer vision pipelines for robot pose estimation
- Applied PID, Kalman filtering, and state-space control methods while supporting autonomous debugging and competition operations

AI-Driven FIR Filter Design Research Fall 2025

- Developed machine learning methods for FIR filter feasibility prediction and optimization
- Implemented XGBoost, Random Forest, SVM, and gradient-based optimization methods achieving up to 95% prediction accuracy

Technical Skills

Languages: Python, C++, MATLAB, Java, R
Robotics: ROS2, Gazebo, Nav2, RViz, Isaac ROS, VSLAM, CAN, UART
ML / CV: PyTorch, TensorFlow, OpenCV, YOLO, Torch Geometric Temporal, Scikit-learn
Systems: Linux, Docker, Git, Slurm, VSCode, Vim
Hardware: Jetson Orin Nano, ESP32, Arduino, Spark MAX, PCB Design, LTSpice, Soldering

Honors and Awards

Dean's List – Summa Cum Laude
UT-Battelle Scholarship