KYLE THOMPSON

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EDUCATION

Northwestern University   Expected Dec 2026
Master of Science in Robotics

University of Illinois at Urbana-Champaign   Aug 2020 - Dec 2024
Bachelor of Science in Mechanical Engineering, Minor in Computer Science

TECHNICAL SKILLS

Software Development: C, C++, Python, Java, MATLAB/Simulink, Bash, Git, Linux, Docker, Unit Testing
Robotics: ROS/ROS 2, Pytorch, OpenCV, YOLO, CLIP, Path Planning, Kinematics, Gazebo, MoveIt2, SLAM, HuggingFace
Mechanical: NX, Solidworks, 3D-printing, PCB design, Arena/PLM ECO, Rapid Prototyping

WORK EXPERIENCE

Willow   Mountain View, CA
Engineering Intern   Apr 2025 – Aug 2025
- Prototyped multi-antenna Bluetooth Channel Sounding distance measurement embedded firmware with C
- Integrated Zephyr RTOS, UART communication protocols and multithread synchronization in proof-of-concept system
- Developed Python data analysis tool to compare vacuum performance across 2,000 pumps
- Characterized capacitance-based liquid level sensor performance across environmental conditions using DOE
- Performed DFU and System validation of embedded firmware on 150 Willow Sync pumps

Mechanical Engineering Intern   Jun 2024 – Aug 2024
- Performed reliability testing for design verification of Willow Go Rev 2 and second sourced components
- Applied NX and SLA printing to rapidly fabricate soft plastic prototypes in design sprint to product release
- Created test models and generated vacuum waveforms to improve prototype system efficiency by 20%

Ancora Heart   Santa Clara, CA
R&D Intern   Aug 2023 – Dec 2023
- Developed dFMEA and verification test documentation for design verification of 4 catheter designs
- Executed verification testing, fixture development and data analysis to support catheter performance evaluation
- Assembled, programmed C, and installed automated catheter braiding system to reduce braiding time by 50%

PROJECT EXPERIENCE

End-to-End Optics and Event Stream Pipeline (Pytorch)   Jan 2026 – Current
- Building end-to-end optics-event-stream learning PyTorch pipeline to optimize downstream perception performance

Language Guided SLAM on Unitree Go (ROS 2, Transformers)   Jan 2026 – Current
- Integrating ROS 2 VLM Pipeline to build verbal semantic memory of environment using GroudingDINO, CLIP, and SAM
- Applying ORB-SLAM2 and Lidar point cloud integration on Unitree Go2 to localize and explore environment

Simultaneous Localization and Mapping (SLAM) from Scratch (ROS 2, C++)   Jan 2026 – Current
- Developing an Extended Kalman Filter SLAM pipeline library for use on a differential drive wheeled robot

Ball Catching Franka Arm (Python, ROS 2, YOLO)   Nov 2025 – Dec 2025
- Led team of 4 engineers using Git to develop motion planning ROS 2 package with MoveIt2 on Franka Emika Panda
- Trained YOLOv11 object detection model with 5000 image dataset to identify moving balls for trajectory prediction
- Conducted eye-in-hand camera calibration using RGB-D camera and ArUco markers for localization

Pen Grabbing Robot (Python, OpenCV)   Sep 2025
- Applied background subtraction and color thresholding with RGBD camera to identify pen centroid
- Architected python to convert space frames and identify centroid in end-effector space to grab pen

Wrapping Tension Control (Python, Linux)   Aug 2024 – Dec 2024
- Designed Python-based Raspberry Pi embedded system with load cell interface for real-time tension measurement
- Controlled stepper motor actuation to regulate wrapping tension in thermal battery wrapping system