KYLE THOMPSON

kylezthompson@gmail.com | (650)766-9081 | linkedin.com/in/kyle-z-thompson | github.com/KThompson2002

EDUCATION

Northwestern University Sep 2025 – Dec 2026
Master's of Science: Robotics
Relevant Coursework: Embedded Systems in Robotics, Robotic Manipulation, Dynamics, Artificial & Natural Vision

University of Illinois at Urbana-Champaign Aug 2020 – Dec 2024
Bachelor's of Science: Mechanical Engineering - Minor: Computer Science
Relevant Coursework: Data Structures and Algorithms, Intro to Robotics, Artificial Intelligence, Signal Processing

SKILLS

Programming Languages: C/C++, Python, Java, MATLAB/Simulink, Bash
Tools: ROS/ROS2, openCV, pytorch, Computer Vision, Path Planning, Kinematics
Programs: Git, Linux, Docker, Unit Testing, Gazebo, NX, Solidworks, 3D-printing, PCB design, Arena/PLM ECO

WORK EXPERIENCE

Willow
Engineering Intern *Apr 2025 – Aug 2025*
- Prototyped multi-antenna Bluetooth Channel Sounding distance measurement embedded firmware with C on Zephyr RTOS, incorporating UART communication protocols and multithread synchronization
- Developed python data analysis tool for Vacuum Profile Tests to compare performance of 2000 pumps
- Characterized behavior of capacitance-based liquid level sensor in varying conditions with DOE report
- Performed DFU and System validation of new product firmware on 150 pumps
- Released test protocols, reports, and test methods for verification of Willow Wave and Willow Sync

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

Ancora Heart
R&D Intern *Aug 2023 – Dec 2023*
- Developed dFMEA (design failure mode and element analysis), engineering specifications, test protocols, test methods, test fixtures, data analysis, and reports for design verification of 4 catheters
- Assembled, programmed, and installed automated catheter braiding machine ACS control system to reduce braiding time by 50%, applying SolidWorks, machining, soldering, ASCPL+, and C

PROJECTS

Ball Catching Franka Arm, Embedded Systems in Robotics *Nov 2025 - Dec 2025*
- Co-developed a ROS2 package for MoveIt2 and Franka Emika robot arm that plans, saves, and executes collision avoidance and cartesian paths
- Programmed openCV2 perception pipeline and trained YOLOv11 object detection model with 5000 image dataset to identify moving balls for trajectory prediction algorithm in a complex environment
- Conducted eye-in-hand camera calibration using RGB-D camera and ArUco markers for localization

Pen Grabbing Robot, MSR Hackathon *Sep 2025*
- Applied background subtraction and color thresholding with RGBD camera to identify pen centroid
- Utilized python to convert space frames and identify centroid in end-effector space to grab pen

Wrapping Tension Control, Senior Design *Aug 2024 – Dec 2024*
- Developed python and raspberry pi microcontroller circuit to analyze load cell readings, and control stepper motor to read and control tension in thermal battery wrapping system

Tic-Tac-Toe Robot, Intro to Robotics *Mar 2024 – May 2024*
- Designed and fabricated 4-degree-of-freedom robot arm and limit-switch tic-tac-toe board
- Applied inverse kinematics, DH parameters, and python ROS to model and control movement and implemented minimax decision making algorithm