Jingkun (Allen) Liu

jingkunliu2025@u.northwestern.edu +1 (917) 803-7037 https://www.linkedin.com/in/jingkun-liu

EDUCATION

NORTHWESTERN UNIVERSITY **Sept 2023 - Present**

Master of Science in Robotics

ROSE-HULMAN INSTITUTE OF TECHNOLOGY **Sept 2018 - May 2022**

Bachelor of Science in Mechanical Engineering and Computer Science

- Minor in Multidisciplinary Robotics
- Dynamics System and Controls Concentration
- Dean's List from Winter 2018-19 to Spring 2021-22
- Best Project Selection for Computer Architecture I
- Best Mechanical Engineering Sophomore Students

SKILL

- **Programming Skills:** R, Python, Shell, Scheme, Lisp, C/C++, C#, Java, SQL, JavaScript, TypeScript, HTML, CSS, XML, Swift, Storyboard, Kotlin, MATLAB, Forth, YAML
- **Technical Skills:** ROS/ROS2, Bash Shell, Simulink, Firebase, Git, Linux, Computer Network, .NET, MoveIt/MoveIt2, Nav/Nav2, RViz, Gazebo, Node.js, React.js, OCR, YOLO, MS Office, Visual Studio, Arduino IDE, Docker, XCode, Android Studio, Xilinx ISE Design Suite, SOLIDWORKS, ANSYS, LoggerPro, LabView, Machine Shop, PCB

EXPERIENCE

DEKA RESEARCH AND DEVELOPMENT CO. - Manchester, NH **Jul 2022 - Jul 2023**

Robotics Embedded Software Engineer (Jul 2022 - Jul 2023)

- Programmed in **C++** on **ROS Melodic** for **TeleOperation** of the same-day delivery and security robot.
- Developed and tested the firmware on **Embedded Linux** of a customized multi-channel modem.
- Configured the **Netwotk Bounding** through **VLAN**.
- Wrote the **ROS** nodes to monitor hardware status

ROSE-HULMAN VENTURE - Terre Haute, IN **Nov 2021 - May 2022**

Software Engineer Internship

- Programmed in **C#** in backend and **Typescript** in front end using **React.js** framework.
- Used **.NET** framework and **SQL** as data storage.
- Worked on the website tracking the taxation of multiple counties in state of Indiana

ROSE-HULMAN INSTITUTE OF TECHNOLOGY - Terre Haute, IN **Jun 2021 - Nov 2021**

Breast Cancer Early Detection Research Assistant

- Redesigned and manufactured a robot arm for collecting force and displacement data on experiment.
- Programmed in **C++** over **Arduino IDE** to write the embedded software for the robot arm.
- Programmed in **MATLAB** to write the software on performing calculations on **Kinematics** and interacting with users.

ACADEMIC PROJECTS

Polyglot Bot **Oct 2023 - Dec 2023**

- A system that reads in a text, translate it then wrote it out on a whiteboard.
- Programmed in **Python** on **ROS2**.
- Implemented text recognition using **OCR** and human recognition using **YOLO**.
- Worked on the motion control of the **Emika Franka Panda** robot arm to write the specified character on the write board.

Feedback Control of KUKA youBot **Nov 2023**

- Used the **Copeliasim** to simulate the motion of the KUKA youBot.
- Programmed in **MATLAB** to implement the feedback control to pick up a block in a world and place it at another place.
- Generated fifth order **Cartesian Path** from start to goal.

Extended Kalman Filter based SLAM **Jan 2024 - Mar 2024**

- Programmed in **C++** over **ROS2** platform.
- Implemented **Extended Kalman Filter** based **SLAM** algorithm from scratch on **Turtlebot3 Burger**.
- Modeled and implemented the **Kinematics** for **Differential-Dirve Mobile Robot**.
- Implemented **Supervised and Unsupervised Learning** model for landmark detection using **2D LiDar** input.