Jaxon Poentis

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EDUCATION

Washington University in St. Louis, St. Louis, MO   *May* 2026
Bachelor of Science, Computer Science + Math
- GPA: 3.75/4.0
- Relevant Coursework: *Data Structures Algorithms, Linear Algebra, Rapid Prototype and Development, Intro to Computer Engineering, Data Science*

EXPERIENCE

WashU Robotics, St. Louis, MO
Software Team Lead   *June 2024 – Present*
- Leading design and implementation of 3 modular **ROS2 Humble Nodes** with **Python** and **C++** system for real-time robotic tracking and publishing of an Occupancy Grid using an overhead camera and pub-sub data exchange.
- Developed **HSV filtering** and **position scanning algorithms** for precise robot localization in under 2ms.
- Utilized **Agile** project management with **Pylint** and code reviews to increase efficiency and code quality by 40%.

Software Developer   *Sep. 2023 – May 2024*
- Developed **Active SLAM** and **SLAM** algorithm with **Python** and **Ros2** to create autonomous exploration of simulated swarm robots, exploring more than 89% of an unknown environment.
- Optimized exploration algorithm with a **greedy** approach to path planning, increasing speeds by **over 50%.**
- Created an **92% precision** CV model with **YoloV5** using over 200 custom images to track target rubber balls.

Flashcardify.ai, St. Louis, MO   *Sep. 2024 – Nov. 2024*
Software Engineer Intern
- Developed a community sharing feature for flashcards with using **Next.js** and **PostgreSQL** enabling more than 100 users to share decks via links.
- Integrated keyword-based search with **PostgreSQL** and **TypeScript** to query 70+ public decks.
- Presented work at WashU Venture Competition, winning **Semi-Finalist**, and **People's Choice Awards**.

WashU Developer Student Club, St. Louis, MO   *Sep. 2024 – Present*
X-Ray XR Project Lead
- Led a team of 5 student developers to create an XR Healthcare assistant, winning **1st place** at St. Louis Tech Confluence Demo Day.
- Developed Extended Reality wrist button feature with **MetaQuest** and **Unity3D** that integrated with custom **Python** and **FastAPI** backend to fetch medical information and create an XR information popup.

Washington University in St. Louis, St. Louis, MO   *Jan. 2024 – Present*
Data Structure and Algorithm Teacher Assistant
- Held office hours for over 50 students to help go over course questions and challenges for over 10 hours a week.
- Gave feedback to students on implementation of **algorithm and data structure** design.

PROJECTS

Online Hand Tracking Robot | *Python, C++, OpenCV, C#, UDP, Node.js, Esp32, MongoDB*   *Dec. 2023*
- Developed a four-layer full-stack system for remote robotic hand control using **UDP sockets.**
- Optimized system design and data processing with threading to allow for sub 20ms delay of robotic joint control.
- Integrated an **HTTP server** with **Node.js** and **MongoDB** to manage user states and socket servers.
- Designed robotic hand with **Arduino** and **C++** that interacts with **Backend Servers** for user control of servo pully system for finger control.

SKILLS

Frameworks & Technologies: *Node.js, React.js, Express.js, Flutter, UDP, TCP, RESTful APIs, Docker, MongoDB, Postgress, Unity, Vercel, Azure, Arduino, ESP32, Next.js, OpenCV, ROS2, Git, Microsoft Suite*
Program Languages: *C++, C, Javascript, TypeScript, Java, Rust, Python, C#, Go, Dart, HTML/CSS, PHP, MYSQL*

HONORS AND AWARDS

- Eagle Scout, Troop 181   *Mar 2023*