Adán Flores Ramírez

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Education

Instituto Tecnológico y de Estudios Superiores de Monterrey — Nuevo León, Mexico
B.S. in Mechatronics Engineering — *Aug. 2021 – Jun. 2025*
Relevant coursework: Computational Thinking, Industrial Automation, Design and Development of Robots

Work Experience

Incoming AI and Spatial computing Research Internship — Sep. 2024 – Dec. 2024
Massachusetts Institute of Technology - Device Realization Laboratory — *Cambridge, MA*

Software Engineer Intern — June 2024 – Sep. 2024
Google - Cloud AI & Industry solutions — *Sunnyvale, CA*

- Increased enterprise customers' satisfaction with the search platform, as required in a feature request to provide flexible data sync frequency, by implementing a new periodic parallel database processing pipeline in C++.
- Optimized internal computing resources, as measured by a decrease in daily data ingestion procedures, by separating and enhancing the processing of expensive sync requests using C++ and SQL for E2E testing.
- Contributed to the platform scalability, as a data ingestion pipeline migration was ongoing, by defining supporting features in C++ for the tool, tested with APIs via RPC and collaborating with multi-region team members.
- Experienced project launch cycle, by fixing in dev environment until monitoring success in prod stage.

Robotics Engineer Intern — Jan. 2023 - Present
ITESM - Smart Factory — *Monterrey, Mexico*

- Created and maintained digital twins of a cyber-physical factory within a Unity VR environment, facilitating real-time simulation and analysis of manufacturing processes.
- Developed a C++ algorithm to optimize robotic arm placement within the virtual factory, achieving an efficient O(N) time complexity solution for object manipulation tasks.
- Demonstrated strong leadership and communication skills while managing a team of students on projects related to automation, vision, and virtual reality systems.

Software Engineer Intern - AI Integration — Aug. 2023 - Mar. 2024
Ixmatix Robotics — *Remote*

- Engineered a high-performance, real-time voice assistant platform leveraging OpenAI's GPT API, Google Cloud's Speech Recognition, and ElevenLabs' Speech Generation, achieving a 60% increase in user engagement.
- Utilized chunked transfer encoding and multithreading to optimize response times and enhance the user experience within the voice assistant application.

Projects

RoboCup @HOME - Robot Development | *C++, Python, ROS* — Nov 2022 - Present

- Contributing to the development of an autonomous service robot for the RoboCup @Home competition, focusing on implementing robust navigation, object recognition, and manipulation capabilities.
- Working with a team to integrate advanced perception and planning algorithms into the robot's software architecture, enabling it to navigate complex environments and interact with objects.
- Leveraging ROS framework for efficient communication and modularity within the robot's software stack, ensuring seamless integration of different components and functionalities.

IEEE LARC Open Challenge - Robot Development | *C++, Python, ROS* — Jan 2023 - Oct 2023

- Led the development of a robust and scalable robot control system for a warehouse automation challenge, utilizing advanced algorithms for path planning, object detection, and manipulation.
- Optimized the robot's navigation strategy using a C++ Dijkstra algorithm, achieving efficient pathfinding and task completion within a competitive timeframe.

Technical Skills

Languages: C++, Python, C#, Java, SQL, Matlab, Elixir, Javascript
Frameworks: ROS, Unity, TensorFlow, PyTorch, JAX, Node.js, Laravel, Borg
Tools: Git, Google Cloud Platform, Docker, Linux, Jira, Postman