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: Algorithms and Data Structures, Probability and Statistics, Computer Architecture, Distributed

WORK EXPERIENCE

Incoming Research Internship Sep. 2024 – Dec. 2024
Massachusetts Institute of Technology *Cambridge, MA*

Software Engineer Intern June 2024 – Sep. 2024
Google - ML, Systems & Cloud AI *Sunnyvale, CA*
- Developed a distributed data processing pipeline in C++ to support flexible data synchronization frequencies for clients, enhancing system scalability and resilience.
- Ensured the robustness and reliability of the pipeline through rigorous unit testing, contributing to a high-quality codebase.
- Designed and documented a system for dynamic quota allocation, addressing client needs and outlining technical specifications, implementation scope, and deployment strategy.

Robotics Engineer Intern Jan. 2023 - June 2024
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.
- Designed and implemented an automated content generation and review pipeline using Google Docs API and Node.js, streamlining content creation workflows and increasing efficiency by 50%.

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, Java, C#, JavaScript, SQL, Matlab, Go, Elixir
Frameworks: ROS, Unity, TensorFlow, Docker, Node.js, React
Tools: Git, Google Cloud Platform, Azure, Linux