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Luis Enrique Preciado Muñiz

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Analytical software developer with a strong background in machine learning and full-stack development. I dedicate my time to creating innovative solutions that solve complex problems and produce high-quality products.

Experience

Software Engineer Intern August 2023 – July 2024
Robert Bosch México *Guadalajara, México (Hybrid)*

- Designed and implemented a Python and Rasa framework-based Chatbot to facilitate new developer onboarding and provide troubleshooting assistance, complete with a local SQL database for response management, a ChatGPT-based model API for enhanced query handling, and Github for version control.
- Automating report generation for fault-mapping between customer defined fault application and ECU's real monitors using Python scripts, leveraging Pandas, Anaconda, and fuzzy logic libraries, to ensure accurate tracking of monitor-fault mappings and to guarantee software quality deliverables.
- Developed scripts to cross-reference client requirements with ECU header files, identifying potential inconsistencies and streamlining the verification process.

  Key Metrics: Enhanced quality of deliverables and improved efficiency by 40%, reducing inconsistencies by 90%.

Robotics Intern Jun. 2022 - Aug. 2023
Intelligent Systems Laboratory *Guadalajara, México*

- Supported the development of research on consensus algorithms for the Turtlebot robot platform and other holonomic robots using motion capture technology, optical tracking (OptiTrack), and ROS drivers on a Linux environment.
- Extensively worked with Linux in the assembly, programming, and testing of UAV units, as well as the implementation of monocular and stereoscopic visual-inertial odometry algorithms focused on indoor flights.
- Performed PCB and circuit design to synchronize measurements from optical and inertial sensors at the hardware level, which was required for the implementation of visual odometry.

  Key Metrics: Modified existing ROS/ROS2 C++ drivers in a Linux environment to synchronize visual-inertial measurements and developed new drivers to control holonomic robots and UAV kinematics

Education

University of Guadalajara Guadalajara, México
Master's Degree in Machine Learning and Artificial Intelligence *January 2025 – Currently*

- Developing an EW-ACF-based forgetting mechanism for LSTM networks to optimize long-term memory retention in time-series forecasting systems through bio-inspired memory reset.

University of Guadalajara Guadalajara, México
Bachelor's Degree in Robotics Engineering *January 2020 – June 2024*

- Bachelor's degree providing hands-on training in developing machine learning algorithms and robotic vision systems (Python, Matlab), designing and programming the underlying electronic circuits and embedded system (C/C++ and VHDL).

Projects

Chat React Component | *Live* | *Github* React, Next.js, Express, Tailwind CSS

- Engineered a modular React chat component, serving as the core user interface for a Fitness AI Assistant web application built with Next.js.
- Leveraged Tailwind CSS and CSS Modules to create a fully responsive, customizable, and visually appealing chat interface.
- Integrated the component with a back-end Express API to handle conversational logic and data exchange.
- **Key Skills:** Component-Based Architecture, State Management, API Integration, Responsive UI/UX.

Omni-Control Driver | *Live* | *Github* Python, OpenCV, ROS, C++, CMake, Bash

- Developed a real-time C++ ROS driver for the robot's kinematics, achieving precise and responsive motion control.
- Created and deployed Python-based neural control algorithms, enabling the robot to autonomously follow complex, pre-defined trajectories with high fidelity.
- Integrated advanced capabilities including SLAM for real-time environment mapping and motion planning for obstacle avoidance.

Technical Skills

Programming Languages: Python, Javascript, Typescript, HTML, CSS, C/C++
Technologies: Tensorflow, Pandas, React JS, Next JS, Node, Express JS, FastAPI, Tailwind, SQLite, PostgresQL, Supabase
Tools: Git, GitHub, Visual Studio Code