Jose Rojas

Experienced AI researcher, software engineer, and patent inventor, specializing in autonomous systems, computer vision, and machine learning. Seeking opportunities to apply expertise in building innovative robotics and AI solutions.

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EDUCATION

- **MS Computer Science - Autonomy, Machine Learning** | University of Texas - Austin | 2021-2024
- **BS Computer Science** | University of Illinois, Urbana-Champaign
- **Autonomy Certification - Perception, Control Theory, System Integration** | Udacity

SKILLS

- **Programming:** Python, C, C++, Go, Rust, MATLAB, JavaScript, TypeScript, Java, Kotlin, Swift, SQL
- **Machine Learning & AI:** TensorFlow, PyTorch, Hugging Face, Jupyter, Spacy, Numpy, Pandas, Scikit-Learn, LangChain, Reinforcement Learning
- **Robotics:** ROS, LiDAR, OpenCV, SLAM, Autonomous Navigation, Simulation
- **Cloud & DevOps:** AWS, Docker, Kubernetes, Flask, SQLAlchemy, Postgres, DynamoDB, Spark, Kinesis
- **Networking & Security:** Cryptography, WebSocket, HTTPS/SSL, WebRTC, BTLE
- **Embedded Systems:** CUDA, Arduino, ESM32

RELEVANT EXPERIENCE

Software Solutions Engineer | Redline Softworks | *2010 - Present*

Delivered 15+ client and internal R&D projects in IoT, robotics and autonomous systems, from prototyping to production.

- Currently working on document processing pipelines using AI agents and LLMs. Frameworks: **LangChain**
- **VizViewer [2021-2022]** (**Link**) Engineered a cloud-native toolkit for visualizing multi-sensor AV datasets (LiDAR, cameras, CAN). Built real-time dashboards using **ROS**, **OpenGL**, and **WebRTC** streaming. Integrated with Waymo/Lyft data pipelines. Published in ***Towards Data Science***.
- **OpenCaret [2018-2019]** (**Video**) Designed drive-by-wire system for Hyundai Sonata with PID controllers and RTK localization. Enabled **autonomous navigation** in closed environments. Featured in ***New York Times***.

Deep Learning Researcher | VITA Research Group, University of Texas | *2023 - 2024*

Spearheaded neural network sparsity research, optimizing LLM and vision models via **Mixture of Experts** architectures.

- Analyzed 10+ sparsity related papers; created framework to reproduce and compare different training techniques.
- Authored **research thesis** documenting methodology and results.
- Executed 500 training experiments on multiple GPU nodes, scheduling and optimizing to maximize utilization.

Senior Integration Engineer | Urbo (Contract) | *2020 - 2021*

Deployed tele-operated low-speed vehicles for private communities using human-in-the-loop autonomy.

- Slashed control latency by 75% via firmware optimizations and non-linear feedback controllers.
- Architected fail-safe mechanisms to halt vehicles during network interruptions.
- Integrated **VizViewer** dashboards into tele-operation interfaces for real-time situational awareness.

Software Engineer | Sense Photonics (Contract) | *2020*

Developed calibration tools for solid-state LiDAR systems using Python and computer vision.

- Engineered light-field calibration tools with pattern recognition (4+ intensity profiles) and user validation, reducing emitter / receiver misalignments and light intensity error by 60%.
- Automated LiDAR unit configuration via Python and verified device integrity post-calibration.

Application Engineer | Dash Robotics (Contract) | *2015 - 2018*

Shipped iOS/Android apps for a programmable toy robots (100K+ units sold). Collaborated with firmware engineers on controls API. Developed scripting functionality for user-customized behaviors and real-time control via BTLE.

Application Developer | Toyota - Robotics Division (Contract) | *2015 - 2016*

Built a vision-assistant mobile app for the visually impaired, combining real-time CV and audio navigation. App was developed as a hardware prototype simulator. Successfully shipped features for 5 rounds of UX testing.

Founding Software Engineer | August (Contract) | *2013 - 2015*

Launched flagship **August Smart Lock** mobile apps (500K+ units sold, 4-star App Store ratings).

- Led Android app development with BLE-based proximity unlocking and granular access controls.
- Devised AES-encrypted OTA firmware update protocol, reducing security vulnerabilities by 60%.

RELEVANT PROJECTS

Reinforcement Learning Agents | University of Texas - Austin | *2022*

Led 3 engineers, developing deep RL network for a virtual hockey game using PyTorch. Individually trained subnetworks with policy gradients for strategic behaviors, then merged for reliability.

Semantic Segmentation Research for Lane Keeping | Redline Softworks | *2018*

Applied CV research to develop semantic segmentation neural networks for autonomous driving simulation. Demonstrated lane keeping and boosted real-time performance by 10x using GPU acceleration using CUDA. Published in ***Towards AI***.

Didi Chuxing Challenge | Udacity Certification Program | *2017*

Led a team of 10 engineers in a global competition, developing a deep learning sensor fusion localization algorithm. Trained with LiDAR, camera, and radar sensor data. Achieved top 10% ranking among 250 teams worldwide.

Bosch Path Planning Demo | Udacity Certification Program | *2017*

Coded C++ path planning algorithms, using physical motion contraints for smooth lane transitions. Achieved a 100% improvement in real-time path planning efficiency through algorithm optimizations.

ADDITIONAL EXPERIENCE

Teaching Assistant | University of Texas - Austin | *2024 - Present*

- ***Data Science for Health Discovery & Innovation*** - MSDS Program, Spring 2024
- ***Advances in Deep Learning*** MSDS, MSAI, MSCS Program (over 800 students), Spring 2025.

Full-Stack Engineer | Caban Systems, Inc. (Contract) | *2019*

Engineered scalable cloud services for solar battery telemetry data using AWS, Python, and Flask, improving data processing efficiency by 75%. Designed and engineered web dashboards using VueJS and Bootstrap for searching customer data logs.

Full-Stack Developer | Element Science, Inc. (Contract) | *2017 - 2019*

Created full stack cloud infrastructure for a Bluetooth-enabled, FDA-approved life-saving wearable defibrillator. Enabled real-time ECG data processing, supporting 100 trial patients. Engineered iOS application for real-time monitoring of ECG data via BTLE.

Mobile Application Engineer | Sano Intelligence, Inc. (Contract) | *2015 - 2017*

Led iOS app development for wearable glucose sensors using BTLE 4.x. Incorporated APIs for ingress/egress of glucose data. Implemented custom graphs and alerts for glucose monitoring. Built demos driving a $6M seed funding round and acquisition by OneDrop.

PATENTS

- **Graphics streaming and compression (7659907, 7769900B1, 8046404B1):** (Link)