

JACOB SAYONO

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EXPERIENCE

Retina

Nov 2024 – Present

Lead Systems Engineer

Owings Mills, MD

- Created multiple **internal tools** that provided data-driven part replacements and actionable predictive maintenance from PLC alarms coming from various systems and vendors, reducing overall downtime and operational costs by **\$100,000+ per month**.
- Designed **mechanical retrofits** and ladder-logic **PLC improvements** for mail flow, increasing mail induction **throughput by 20%** while reducing unwarranted package jams and bottlenecks.

Automation Engineer

Indianapolis, IN

- Provided on-site support by interpreting electrical schematics and mechanical drawings to **troubleshoot technical issues** with maintenance crew, documenting key operator feedback, and reporting critical insights to HQ for process improvements.
- Handled procurement, material logistics, and work order coordination to **manage and organize inventory stock levels**, maintaining efficient workflow for production demands.

Human-Centered Computing & Intelligent Sensing Laboratory at UCLA

Jan 2022 – Jun 2024

Undergraduate Researcher

Los Angeles, CA

- Published 3 research papers ([Google Scholar](#)) on interaction-based energy to power self-sustaining smart devices for sensing and actuation, contributing to **\$550,000+ in funding grants** and gaining press attention [1], [2].
- Designed iterative 3D-printed prototypes, analyzed electrical energy expenditure data, and conducted clear user studies.

Verifiable & Control-Theoretic Robotics Laboratory at UCLA

Jun 2022 – Jun 2024

Undergraduate Researcher

Los Angeles, CA

- Implemented C++ algorithms for multi-robot systems to **validate optimization solutions** derived from mathematical theory.

ROBOTIS

Jan 2019 – Aug 2019

Mechatronics Intern

Lake Forest, CA

- Designed a robust stress analysis machine for under **\$300** budget by utilizing company's Dynamixel servo encoders, **saving \$10,000+** in hardware material testing costs.
- Produced an array of 3D print outcomes with various settings and dual-nozzle configurations, serving as a practical **reference tool** for employees to expedite prototyping **workflows by 50%**.

Unison Consulting

Jun 2018 – Dec 2018

Data Analyst Intern

Mission Viejo, CA

- Automated Excel macros to save **manual data entry labor time by 90%** and presented documented analyses to team meetings.

PROJECTS

DevX: Autonomous Rover

Dec 2021 – Jun 2024

Autonomy Algorithms Engineer

Los Angeles, CA

- Designed and implemented a ROS 2 navigation system for an autonomous rover, handling electrical architecture, **multi-language software development** (C++, Python, Shell), and integrated camera control and robotic arm for object manipulation.

The American Society of Mechanical Engineers (ASME)

Oct 2019 – May 2022

Robotics Software Engineer

Los Angeles, CA

- Reduced project costs by **\$100+** in developing a DIY high-power H-Bridge solution, enabling high-torque, bi-directional motor control with a high-resolution Hall-effect encoder and improved rover's energy **efficiency by 3%**.

SKILLS

Industrial Automation: PLC, HMI/SCADA (Cimplicity & EcoStruxure OTE), TCP/IP Networking, SQL Database, Cloud DevOps.

Software Programming: C++, Python, Shell, Git, Linux, ROS/ROS 2, MATLAB, Jupyter, LaTeX, VS Code Extensions, Vim, Tmux, SSH.

Electrical Hardware: Panel Circuit Design, Embedded Microcontrollers, Sensors, Motors, Soldering, Multimeter, Oscilloscope.

Mechanical Design: SolidWorks (CSWP), Finite Element Analysis (FEA), 3D Printing, CNC Manufacturing, Milling Drill Press.

EDUCATION

University of California, Los Angeles (UCLA)

B.S. in Mechanical Engineering, Minor in Data Science Engineering – GPA: 3.53/4.00