JACOB SAYONO

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EDUCATION

University of California, Los Angeles (UCLA) — GPA: 3.53/4.00
B.S. in Mechanical Engineering, Minor in Data Science Engineering.

EXPERIENCE

Retiina Nov 2024 – Present
Automation Engineer *Indianapolis, IN*

- Created an **alarms heatmap tool** to perform data-driven decisions for part replacements and predict maintenance of mail sorting system composed from multiple vendors, reducing downtime and operational costs by **$100,000+ per month**.
- Implemented **mechanical retrofits** and ladder-logic **PLC improvements** for mail flow, increasing induction **throughput by 18%** while reducing unwarranted package jams and bottlenecks.
- Optimized USPS sort plans and operational logistics by analyzing hourly **mail volume data** and collecting human operator **feedback**, improving **delivery efficiency** for key ZIP-code destinations by **26%**.

Human-Centered Computing & Intelligent Sensing Laboratory at UCLA Jan 2022 – Jun 2024
Undergraduate Researcher *Los Angeles, CA*

- Published 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 media attention [1], [2].
- Designed **iterative** 3D-printed prototypes, analyzed electrical energy for **data visualization**, and conducted clear **user studies**.

Verifiable & Control-Theoretic Robotics Laboratory at UCLA Jun 2022 – Jun 2024
Undergraduate Researcher *Los Angeles, CA*

- Refactored **task-swapping algorithms** for a multi-robot system and implemented test scripts to validate optimization solutions derived from **mathematical theory**, improving C++ **execution efficiency by 11%**.
- Provided ROS 2 framework support, **debugging** system integrations for PhD **research experiments**.

ROBOTIS Jan 2019 – Aug 2019
Mechatronics Intern *Lake Forest, CA*

- Designed a robust stress analysis machine for under **$300** budget by utilizing company's ROBOTIS-servo (Dynamixel) encoders, **saving $10,000+** in hardware material testing costs.
- Produced an array of 3D print outcomes with various settings, including dual-nozzle configurations, serving as a practical **reference tool** for employees to expedite prototyping **workflows by 53%**.

Unison Consulting Jun 2018 – Dec 2018
Data Analyst Intern *Mission Viejo, CA*

- Integrated formulas into automated scripts to reduce **manual analysis time by 90%**, delivering documented analyses to team meetings and ensuring accessible projections for clients to cross-reference.

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+** by 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

Software Programming: C++, Python, Shell, Git, Linux, ROS/ROS 2, MATLAB, Jupyter, LaTeX, VS Code Extensions, Vim, Tmux, SSH.
Electrical Hardware: Arduino, ESP32, Raspberry Pi, Nvidia Jetson, Sensors, Motors, Soldering, Multimeter, Oscilloscope.
Mechanical Design: SolidWorks (CSWP), Finite Element Analysis (FEA), 3D Printing, CNC Manufacturing, Milling Drill Press.
Industrial Automation: Programmable Logic Controller (PLC), Robotic Process Automation (RPA), Computer Networking (TCP/IP).