JACOB SAYONO

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EDUCATION

University of California, Los Angeles (UCLA) — GPA: 3.530/4.000
B.S. in Mechanical Engineering, Minor in Data Science Engineering.

Saddleback College | Irvine Valley College — GPA: 3.852/4.000
A.S. in Engineering, A.S. in Physics, A.A in Mathematics.

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, Milling.

EXPERIENCE

Verifiable & Control-Theoretic Robotics Laboratory (VECTR Lab at UCLA)   *Jun 2022 – Jun 2024*
Undergraduate Researcher | **Advisor: Brett Lopez** (@ucla.edu) | Mentor: David Thorne
- Refactored conditional task-swapping algorithms for a simulated multi-robot system, implemented test scripts to validate optimization solutions, and provided ROS support for PhD students.

Human-Centered Computing & Intelligent Sensing Laboratory (HiLab at UCLA)   *Jan 2022 – Jun 2024*
Undergraduate Researcher | **Advisor: Yang Zhang** (@ucla.edu) | Mentor: Xiaoying Yang
- Published 3 research papers (Google Scholar) on interaction-based energy to power self-sustaining smart devices for sensing and actuation.
- Designed and 3D-printed models iteratively, analyzed electrical energy data for visualization, and conducted clear user studies.

ROBOTIS, Inc.   *Jan 2019 – Aug 2019*
Mechatronics Intern | **Supervisor: Brandon Antillon** (Deceased)
- Saved $10,000 in hardware material testing costs machines by creating a robust stress analysis machine for under $300 budget, utilizing company's ROBOTIS-servo (Dynamixel) encoders.
- Expedited company workflows by producing an array of 3D print outcomes with various settings, including dual-nozzle configurations, serving as a practical reference tool for employees.

Unison Consulting, Inc.   *Jun 2018 – Dec 2018*
Data Analyst Intern | **Supervisor: Donald Arthur** (@unison-ucg.com)
- Integrated formulas into automated scripts to streamline massive numerical data calculations, making results more accessible for clients to cross-reference.
- Created budgets and cost-volume-profit analyses for car rentals across multiple airports using monthly enplanements data, presenting documented analyses in team meetings to project revenues.

PROJECTS

DevX: Autonomous Rover (Capstone Project)   *Dec 2021 – Jun 2024*
Autonomy Engineer
- Designed and implemented a ROS 2-based 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
- 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 encoder.

The Society of Automotive Engineers (SAE) — Supermileage Vehicle   *Sep 2021 – Apr 2022*
Electrical Engineer
- Improved vehicle's energy efficiency by 3% by redesigning a Hall-effect sensor-based encoder for real-time RPM detection on an embedded system (C++), and implemented PID throttle control using interrupts to minimize latency in duty cycle adjustments.