JACOB SAYONO

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EDUCATION

University of California, Los Angeles (UCLA) **Los Angeles, CA**
Bachelor of Science (B.S.), Mechanical Engineering *Expected Jun 2024*

- Cumulative GPA: 3.9
- Statics, Materials, Kinematics, Dynamics, Control Theory, Circuits, Mechanisms, Fluid Mechanics, Thermodynamics, Heat Transfer

Udacity: School of Autonomous Systems **Private Online**
Self-Driving Car Nanodegree Program *Present*

- Bayesian Inference, Kalman Filtering for Localization, C++ Performance Optimization, Data Structures and Algorithms, Trajectory Visualization in Python, Image Classification for Computer Vision, Model Training for Machine Learning

RESEARCH

Human-Centered Computing & Intelligent Sensing Research Laboratory (HiLab at UCLA) **Los Angeles, CA**
Human-Computer Interaction Undergraduate Researcher | Internship *Jan 2022 – Present*

- Published research paper as 2nd author to IMWUT with proven understanding of integrated circuit and deployment for user study
- Designed 12 unique mechanisms to transform objects into self-powering automation by harvesting energy from daily user input

Verifiable & Control-Theoretic Robotics Research Laboratory (VECTR at UCLA) **Los Angeles, CA**
Autonomous Aerial and Multi-Robot Systems Undergraduate Researcher | Internship *Jun 2022 – Present*

- Performed environment scan using LiDAR and odometry to localize and build 3D model dense point clouds of UCLA campus
- Implemented ROS2 for multi-agent robot communication to utilize autonomous ground and air units for cave/mine exploration

EXPERIENCE

DevX Moonshot (Autonomous Rover) **Los Angeles, CA**
Product Manager and Autonomy Engineering Manager | Part-time *Dec 2021 – Present*

- Rallied 5 cross-functional teams to plan each timeline & iteration for all aspects of BruinBot: mobile app, server, rover hardware
- Trained software team to specialize in localization, path planning, and vision algorithms in simulated configuration workspace

The American Society of Mechanical Engineers (ASME) **Los Angeles, CA**
Computer Vision and Robotics Software Engineer | Underwater Autonomous Vehicle Project *Sep 2021 – May 2022*

- Established image processing and object detection using MATLAB to identify lattice points and boundaries of underwater path
- Built robotic controls architecture and motion planning using simulations in ROS for tasks determined by RoboSub competition

Control Systems Engineer | Robotics Project *Oct 2019 – June 2020*

- Proven intermediate programming skills in C++/Python and familiarity in Linux OS environment via Raspberry Pi and Arduino IDE
- Created DIY high-power H-Bridge solution to avoid expenses in buying additional controllers for drivetrain and arm motors

Bruin Racing (SAE Supermileage) at UCLA **Los Angeles, CA**
Powertrain Engineer | Electrical Vehicle Project *Sep 2021 – Apr 2022*

- Developed Hall effect encoder sensor for RPM detection and PID throttle control system on embedded system with C++

ROBOTIS (Robot is …) **Lake Forest, CA**
Mechatronics Engineer | Internship *May 2019 – Aug 2019*

- Demonstrated control in servos with microcontrollers, programming sets of movements (dancing, waving, bowing) on RoboPlus
- Assisted beginner customers to control servos without complex code by creating compatible software (EZ-Builder) in application

Technical Skills Practitioner | Training *Jan 2019 – Apr 2019*

- Created stress analysis machine for company's office under a $300 budget, avoiding unnecessary big expenses on testing
- Abstracted different final print outcomes based on various settings for future interns to reference to in their own 3D printing

SKILLS

Mechanical • Electrical • Software

- 3D Printing • SolidWorks (Certified Associate) • Mechanism • Product Design • SolidCam • CAD • Fusion 360 • Manufacturing
- Arduino • Raspberry Pi • Circuits • Embedded Systems • Microcontrollers • Sensors • Servo • Motor Control • Soldering • Altium
- Python • C++ • Linux • MATLAB • Computer Vision • Machine Learning • ROS/ROS2 • Perception • Motion Planning • Algorithms