JACOB SAYONO

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EDUCATION

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

- Cumulative GPA: 3.89
- 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
- In progress: Robotics Software Engineer Nanodegree Program

Saddleback College | Irvine Valley College — **Mission Viejo, CA**
Associate of Science (A.S.), Engineering, Physics, and Mathematics — *Graduated 2019*

- Cumulative GPA: 3.92
- Honors College Board Spokesman, Honors Program Completed, Phi Theta Kappa Honors Society, UC IGETC Full Transfer
- Calculus, Differential Equations, Linear Algebra, Physics, Chemistry, Biology, English Composition, Economics, Humanities, Music

PUBLICATIONS

MiniKers: Interaction-Powered Smart Environment Automation — *September 2022*

Xiaoying Yang, **Jacob Sayono**, Jess Xu, Jiahao Nick Li, Josiah Hester, Yang Zhang
Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)
Publication: https://doi.org/10.1145/3550287

RESEARCH

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

- Published full paper as 2nd author to IMWUT with proven understanding of integrated circuit and deployment for user study
- Created a new source of clean power from human interaction, which was featured in the news and funded by the NSF ($550,000)
- Designed 12 unique mechanisms to transform objects into self-powering automation with smart-sensing and app-enabling features

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
- Optimized C++ code to improve runtime, tested robotic algorithms in simulator, and verified controls on a customizable drone

AWARDS

2022 UCLA Chih-Ming Ho Quasi-Endowed Scholarship Fund

- Established in 2014 to support an undergraduate student in Mechanical and Aerospace Engineering who has exemplified both academic and research excellence on an interdisciplinary level

2018 Saddleback College Honors Program

- Awarded upon completing the Saddleback College Honors curriculum, which required fulfilling research-based honors classes, maintaining a high GPA, and volunteering every semester for 2 years

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 | Assistive Robot Project *Oct 2019 – June 2020*

- Proven intermediate programming skills in C++/Python and familiarity in Linux OS environment via Raspberry Pi and Arduino IDE
- Built 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 | Gas and Electrical Vehicles Project *Sep 2021 – Apr 2022*

- Developed Hall effect encoder sensor for RPM detection and PID throttle control system on embedded system with C++
- Taught new members about gas vehicle's engine system and electrical components required for vehicle startup via ignition

INDUSTRY

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
- 3D Printing | SolidWorks (Certified License) | Mechanism | Product Design | SolidCam | CAD, Fusion 360 | Manufacturing | CNC

Electrical
- Arduino | Raspberry Pi | Embedded Systems | Microcontrollers | Sensors | Servo | Motor Control | Soldering | Altium | EAGLE

Software
- Python | C++ | Linux | MATLAB | Computer Vision | Machine Learning | ROS/ROS2 | Perception | Motion Planning | Algorithms

REFERENCES

Dr. Yang Zhang yangzhang@ucla.edu **Ph.D., Human-Computer Interaction**
- Assistant Professor of Electrical and Computer Engineering at UCLA *Carnegie Mellon University (CMU)*
- Human-Centered Computing and Intelligent Sensing Laboratory (HiLab)

Dr. Brett Lopez btlopez@ucla.edu **Ph.D., Aerospace Engineering**
- Assistant Professor of Mechanical and Aerospace Engineering at UCLA *Massachusetts Institute of Technology (MIT)*
- Verifiable & Control-Theoretic Robotics Laboratory (VECTR)

PATENTS

Systems and Methods for Interaction-Powered Smart Environment Automation *Filed September 2022*
- *U.S. Patent and Trademark Office | UCLA Technology Development Group*

COMMUNITY

Phi Theta Kappa Honor Society **Mission Viejo, CA**
Saddleback College | Administrator Coordinator *Jan 2017 – May 2019*

- Organized school-related council meetings, volunteered at community blood drives, cooperated with other society members to plan recreational on-campus events, and served in college orientation weeks
- Participated in monthly local food drives, outreached students to increase attendance at candidate forums, helped feed orphaned pets at animal shelters, and publicized various issues during on-campus awareness months

Associated Student Government **Mission Viejo, CA**
Saddleback College | Honors Board Spokesman, Mentor, and Tutor *Jan 2018 – Jan 2019*

- Represented all honors students to voice suggestions for strong improvements on academic experience; tutored math and physics