SAMUEL RYOO

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EDUCATION

University of California Irvine *Irvine, CA*
Bachelor of Science, Computer Science and Engineering *June 2027*

- GPA: 3.725; Deans Honor List (5x)
- *Relevant Coursework: Embedded Software, Circuit Analysis, Data Structures, Digital Systems, Systems Engineering*

SKILLS

Software: *C++, Python, R, Verilog, Arduino IDE, RNA-Seq analysis, ML Model development*
Hardware*: Embedded Systems, Circuit Design, KiCad, I2C, UART, Soldering, Cadence Virtuoso*

PROJECTS

Bioinformatics Research Assistant, Thompson Laboratory *Irvine, CA*
Department of Neurobiology & Behavior, UCI *April 2025 – Present*

- Performed **R-based statistical analysis** on large-scale biological datasets related to **Huntington's disease**, supporting identification of disease-associated patterns and candidate biomarkers.
- Built reproducible **data analysis pipelines in R**, including data preprocessing, visualization, and summary statistics for research reporting.
- Collaborated with researchers to interpret analytical results and prioritize follow-up studies related to neurodegenerative disease progression.

Multirotor UAV Avionics & Embedded Systems Project *Irvine, CA*
Embedded Systems / Controls Project (Team of 4) *September 2025 – December 2025*

- Built and integrated a **multirotor UAV avionics stack**, configuring flight controllers, ESCs, radios, GPS, telemetry, and power systems to achieve stable manual and assisted flight.
- Configured **embedded flight control firmware**, working with PWM motor control, UART-based peripherals, radio protocols, failsafe behavior, and multiple flight modes.
- Conducted **flight testing and system debugging**, including maiden flights, telemetry analysis, log review, and tuning to ensure reliable operation and safe flight behavior.

ZotBotics at UCI *Irvine, CA*
Electrical Systems Lead *January 2025 – May 2025*

- Led **electrical design** for a 6-person team building a **3D printed robot arm**; owned motor drivers (**TB6560**), power distribution, and embedded control on an **Arduino Mega 2560/RAMPS** stack.
- Programmed **Arduino (C/C++)** control loops, integrating **GPIO/PWM**, limit inputs, and sensor feedback for stable motion.
- **Designed** the control/power circuitry and completed all **wiring & soldering**; added an **EMI-filtered IEC inlet** and **isolated 5 V logic** from **motor power** for safer, noise-resistant operation.

LEADERSHIP AND WORK EXPERIENCE

Private Academic Tutoring *Fullerton, CA*
Private Academic Tutor *June 2021 – Present*

- Tutored 15 students though a curated, individualistic approach to learning and studying to build self-confidence.
- Encouraged student interest with a focus in Science, Computer Science, Engineering, and Mathematics.

Making an Impact *Los Angeles, CA*
Founder and President *September 2020 – August 2025*

- Earned recognition as a certified non-profit organization aiming to build communities through homeless outreach, community clean ups, fundraising, and peer tutoring initiatives.
- Grew membership to over 200 members across 10 schools and 4 school districts.

INTERESTS

Ad Hoc Cooking, Golf (Varsity D1 Champion), Dodgers Baseball, Acoustic Guitar, Backpacking the San Gabriel Mountains