Samith Varamballi

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EDUCATION

University of California, Irvine **June 2027**
Bachelor of Science, Mechanical Engineering **GPA: 3.95**

SKILLS

- **Design and Analysis:** SolidWorks (**CSWP)**, FEA, COMSOL Multiphysics, Ansys Fluent, Fusion 360, GD&T
- **Programming and Data**: Python, Excel, C++,
- **Manufacturing:** 3D Printing, Laser Cutting, Milling

WORK EXPERIENCE

Engineering Intern **Jun 2025 - Sep 2025**
Aerendir Mobile Inc. *Mountain View, California*

- Designed and 3D printed a PCB mount for an IMU to sit within a car's steering wheel, which reduced vibrational noise by 33% and improved the alignment with the wheel's rotational axis for cleaner data.
- Developed and executed a multi-condition test plan on specialized biometric earbuds, analyzing performance under speech, motion, and resting conditions on a variety of participants.
- Created Python scripts to automate processing earbud data, while creating visuals on raw sensor outputs, helping identify critical biometric indicators like heartbeat and respiratory rate from accelerometer data.

PROJECTS

Hardware Lead **Oct 2024 – Present**
Zotbins *Irvine, California*

- Leading a team of 8 hardware engineers in the end-to-end design and construction of an autonomous smart trash bin, projected to save the university $1,257 per bin annually.
- Designed and prototyped the flagship bin presented at research symposiums, featuring a servo-actuated tray that catches trash thrown away, to take a picture for data analysis, utilizing 3D printing, laser cutting, and OTS parts.
- Integrated electrical components, including servo motors and sensors, into the mechanical design by developing custom enclosures and ensuring seamless sensor functionality with the embedded team.
- Created Engineering drawings utilizing proper drafting techniques and GD&T to get custom-milled parts

Structures Engineer **July 2025 - Present**
UCI SAE AERO DESIGN *Irvine, California*

- Designing and constructing a 10-ft wingspan aircraft to carry a large payload for the SAE Aero Design competition
- Utilizing SOLIDWORKS to design the wing structures and performing Finite Element Analysis (FEA) to optimize the strength-to-weight ratio, ensuring structural integrity under heavy payload.
- Reduced the weight of the wing ribs by over 20% compared to our previous iteration of the Eppler 423 airfoil, while still maintaining a max load of 3 g's of force.

Undergraduate Research Assistant **Oct 2025 - Present**
HIER Lab UCI School of Engineering *Irvine, California*

- Simulating GPU heat transfer in COMSOL and applying topology optimization algorithms to design 3D heat spreaders that improve dissipation and reduce thermal crosstalk compared to ordinary heat spreaders.
- Conducting a literature review on cold plate topology optimization to analyze prior algorithms and underlying mathematical methods for application to current work on topology optimization.