CEDAR ROSE D. LEACH

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EDUCATION

University of Southern California — Class of 2027
B.S. in Electrical and Computer Engineering | GPA: 3.96 — Los Angeles, CA
Palos Verdes Peninsula High School — June 2023
Valedictorian — Rolling Hills Estates, CA

EXPERIENCE & INVOLVEMENT

USC Sigma Eta Pi, *Member* — September 2024-Current
- Involved in a startup accelerator, traversing a product through customer & problem discovery, product development/ideation, market/growth strategies, and a final showcase
- Co-founder of Memoir, an audio-based photo library aiding visually impaired in interacting with their memories and recollection

Center for Undergraduate Research in Viterbi Engineering (CURVE) Fellowship, *Research Fellow*
Biomedical Microsystems Lab — June 2024-Current
- Designing, fabricating, and characterizing a hybrid silicon-polymer neural recording probe aimed at integrating the flexibility of polymer-based neural interfaces and the high electrode density of silicon-based neural interfaces
- Utilizing femtosecond laser ablation to pattern coil structure and depositing parylene as neural probe shaft and coil insulation
- Embedding integrated circuit neural recording chips to enable high spatial resolution, chronic neural recording through inductive coupling.

The Khan Lab — January 2024-May 2024
- Developed firmware, tested, and designed printed circuit board for the analog front end of an extended-gate transistor-based electrochemical sensing system
- Acquired electroencephalography signals with Arduino IDE interfaced with ADS1299 analog front ends & processed physiochemical and physiological signals gathered via experimental data
- Modeled components of wearable sensors through computer-aided design

USC Makers, *Member* — September 2023-Current
- Designing and testing an EEG-controlled drone through a self-engineered brain-controlled interface
- Created SmartTender, an autonomous assembly line robot that dispenses and prepares drinks depending on user input with movement mechanisms modeled after 3D printer linear rails

California Dreams DOD Microelectronics Commons Scholars, *Intern* — June 2024-July 2024
- Trained in semiconductor nanofabrication processes and safe chemical handling in a cleanroom
- Practiced machine operation and fabrication techniques (photolithography, etching, deposition, wafer cleaning & handling

FIRST Robotics Team 2637, *Team Member* — October 2019-June 2023
- Designed robot features through Autodesk Inventor; programmed robot's turret in Java
- Established an inaugural all-girls robotics competition team for elementary school students
- Mentored in strategizing, designing, building, and programming an original, autonomous robot
- Earned the Core Values Award recognizing FIRST philosophies of Gracious Professionalism and Coopertition

Boeing Company, *Intern* — June 2022-August 2022
- Configured the field-programmable gate array (FPGA), Versal VCK 190
- Studied GPS satellites, flight mission, mission control center, space environment
- Awarded winner of the LINC Innovation Challenge; developed concept for Boeing's campus navigation to optimize collaboration efficiency; recognized by President and Executive Director of Human Resources for Boeing Commercial Satellite Systems

PUBLICATIONS

Printed wearable sweat rate sensor for continuous in-situ perspiration measurement, accepted for publication in 2024 in *Device*, a Cell Press journal
- Mohammad Shafiqul Islam, Sangwon Cha, Md Farhad Hassan, Wenxin Cai, Tahsin Sejat Saniat, Cedar Rose Leach, Yasser Khan

SKILLS

Technical: Verilog, Java, C++, React Native, CAD, Arduino, Soldering, Laser cutting, Cleanroom skills, PCB design, Front-end dev.
Software: MATLAB, Fusion 360, EAGLE, Vitis, Vivado, QuestaSim, Procreate, ImageJ, Figma
Certifications: IEEE Introduction to Metrology, IEEE Introduction to Etching, IEEE Fundamentals of Cleanroom Safety, IEEE Fundamentals of Cleanroom Protocols, CPR, First Aid, Open-Water Rescue
Creative: Graphic design, Woodworking, Resin pouring, Sewing, Ceramics, Product Design & Development