Jeremy Yun

Palo Alto, CA | (650) 448-9925 | jeremy.yun@outlook.com | https://jermyeworm.github.io/

Links: LinkedIn | GitHub | Google Scholar
Clearance: Secret
Languages: C, C++, Python, Verilog, Shell, MATLAB
Tool Suites: SkyWater 130nm PDK, OpenCV, SciPy, PyQt, NumPy
Platforms: Cadence Virtuoso, Unix/Linux, Siemens EDA, Altium, Vivado, SPICE, Git, KiCad, Fusion 360
Skills: Wearable devices, mixed-signal IC, analog & digital design, embedded systems, firmware (e.g. I2C/SPI/BLE), FPGA, lab equipment, PCBs, GUIs, signal/image processing, object oriented programming

EDUCATION

University of Maryland, College Park **GPA: 3.93**
B.S. Electrical Engineering (ECE Honors Program) *Expected May 2026*

WORK EXPERIENCE

Johns Hopkins University Applied Physics Lab **June 2024 - August 2024**
Spacecraft Power Engineering Co-op Laurel, MD

- Supported critical bus power electronics on NASA's Dragonfly rotorcraft mission to Titan
- Designed a wideband EMI injection box with custom magnetics for battery stack simulation
- Underwent rigorous design reviews; performed ground-up design, SPICE sims, parasitic analysis
- Performed frequency response and RLC impedance analysis on custom analog designs
- Supported radiation hardened FET analysis on NASA's Europa Clipper mission
- Performed Monte Carlo simulations for worst case analysis of spacecraft systems

US Naval Research Lab **May 2023 - August 2023**
Spacecraft Systems Software Intern Washington D.C.

- Worked an early-stage program involving a spacecraft with a camera under a Secret clearance
- Packaged full stack camera control desktop GUI in Python with a backend camera interface in C
- Developed novel computer vision packages for scene sim, signal detection, and tracking

RESEARCH EXPERIENCE

University of Maryland - Shah Lab | Paper | GitHub | **February 2023 - Present**
Wearable Device Researcher College Park, MD

- Led development and published on a wireless, noninvasive, multimodal, blood monitoring wearable device
- Orally presented at an international flagship conference as first author; selected as a top contribution
- Invited to a Special Issue in the IEEE Open Journal of Circuits and Systems
- Gave a spotlight pitch at the 2024 National SBIR/STTR Innovation Summit in Austin, TX
- Designed custom HW/SW stack based around an nRF52840 SoC for onboard ML processing, including analog front ends, power management, and embedded algorithms.

UC Irvine - BioMiNT Lab | Paper | **May 2021 - August 2021**
Bio-MEMS Researcher Irvine, CA

- Co-authored journal paper in *Advanced Science* journal
- Worked on a novel intracellular delivery microfluidic platform under Prof. Abraham Lee
- Fixed electrode air pocket instability and modeled piezoelectric transducer heating trends

PROJECTS

Low-Power Wide Linear Output Range CMOS Biopotential Amplifier | Report | 2024

- Designed & simulated a two-stage 1.8V CMOS biopotential amplifier for a wearable biomedical instrumentation frontend with internal gain enhancement switch feedback
- Verified 85dB CMRR, 0.15V to 1.7V output range with stable gain, 10µW power, and 100kHz bandwidth
- Used the Skywater 130nm Process and Cadence Design Suite

Verilog Sequential Multiplier | GitHub | 2024

- Built a sequential multiplier using Verilog in the Vivado environment
- Used a data path and controller partition designed with finite state machine principles
- Simulated with testbench and implemented on a Basys 3 Artix-7 FPGA board

Parallel eFuse Development Board | GitHub | 2023

- Developed a custom 30A paralleled eFuse protection board to protect against current transients

HONORS & AWARDS

SBIR Spotlight Pitch Awardee | Pitch Deck | 2024

- Pitched towards a review panel at the 2024 National SBIR Innovation Summit in Austin, TX as part of the Defense TechConnect Innovation Spotlight on a hemorrhagic shock prediction device

President's Scholarship Recipient 2022

- Awarded $50,000 from the University of Maryland based on academics, extracurricular activities, awards, honors, and an essay

LEADERSHIP

Teaching Assistant & Substitute Lecturer **August 2023 - January 2024**

ENEE140: Intro to Programming Concepts for Engineers Univ. of Maryland, College Park

- Gave substitute lectures to 75 student class
- Leading bi-weekly recitations and office hours to teach undergraduates C programming
- Personally developed teaching content, demos, HW + project rubrics, and exams

UMD Juggling Club President **August 2024 - Present**

- Leading exec meetings, working with sponsors, organizing an annual juggling convention for 200+ people

PUBLICATIONS

J. Yun, S. Nzama and S. Shah, "Towards a Broadly Configurable Wearable Device for Continuous Hemodynamic Monitoring," *2024 IEEE 67th International Midwest Symposium on Circuits and Systems (MWSCAS)*, Springfield, MA, USA, 2024. **(Awarded Top Contribution)**

M. Aghaamoo, Y.-H. Chen, X. Li, N. Garg, R. Jiang, **J. Yun**, A. P. Lee, "High-Throughput and Dosage-Controlled Intracellular Delivery of Large Cargos by an Acoustic-Electric Micro-Vortices Platform," *Advanced Science*. 2022.

RELEVANT COURSEWORK

- ENEE411: CMOS Circuit Design, ENEE324: Engineering Probability, ENEE382: Electromagnetics, ENEE304: Device Physics, ENEE322: Signals and Systems Theory, ENEE205: Analog Circuits, ENEE245: Digital Circuits Lab, MATH240: Linear Algebra, MATH246: Differential Equations, MATH241: Calculus III