Neelesh Ramachandran

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EDUCATION

University of California, Berkeley: College of Engineering **Expected Graduation: May 2022**
B.S. Electrical Engineering & Computer Sciences (EECS), Regents' Scholarship Finalist GPA: 3.96

Relevant Coursework: Digital Design and IC (IP), Analog IC (IP), Optimization (IP), OS and Systems Programming, Microelectronic Circuits, IC Device Physics, Computer Architecture, Signals and Systems, Optical Engineering, Devices and Systems I/II, Data Structures and Algorithms, Discrete Math and Probability, Teaching/Pedagogy

WORK EXPERIENCE

4-time TA/uGSI for Devices and Systems I and II (EECS 16A/B) / *Content, Discussion, Software* **August 2019 – Present**

- Independently authored a ~130 page textbook containing condensed notes and detailed practice problem solutions. Adding content weekly. Deployed in mid-summer 2020, over 500 visits so far.
- Part of team writing algorithms to form study-groups for students based on survey responses, to facilitate remote learning.
- Developed 7 engaging Jupyter (iPython) Notebooks (16 A+B) for students to visualize linear algebra and circuits concepts.
- Coordinate all 16A software (Website, Piazza, Gradescope (assignment submission), etc.) and 16B content/software.

MuMec Inc. / *Electrical Engineering Intern (Project Lead) (11 weeks)* **May - August, 2020**

- Built, programmed, and tested a hearing aid with custom firmware and DSP algorithms. Fine-tuned DSP parameters to ensure optimal performance for various operating conditions, validated the core chipset extensively using test equipment.
- Incorporated Bluetooth Speech-To-Text functionality into hearing aid using CMU Pocketsphinx open-source firmware.
- Performed precision hand-soldering (0402 components) and learned reflow soldering for 0201 components.

ATX Networks / *Engineering Intern (14 weeks)* **May - September, 2017**

- Optimized an optical network performance model to create client-specific designs. Dramatically improved efficiency by reducing design time from several days to just minutes.
- Streamlined communication between Operations and Sales, decreasing lead times by up to 3 weeks..

CLUB/PROJECT EXPERIENCE

Berkeley Formula Racing (FSAE) / *Electrical Subsystem Co-Lead* **August 2018 - May 2020**

- Designed custom PCBs (brake thermocouple board, combined accelerometer/gyroscope board, and others).
- Optimized routing and manufacturing of 3 primary modular wire harnesses (ECU (engine), ADL (sensors), Power).
- Oversaw live telemetry development, shifting-lights PCB, ECU/ADL Validity Checker, automated wire-routing, and others.

UC Berkeley IEEE Student Branch / *Director of Professional Development* **August 2018 – December 2019**

- Organized events such as Resume Workshops, Graduate Research Mixers, Interview Workshops, and more.
- Worked closely in the Engineering community to help students present their best self to industry professionals.

Signify: A Voice-to-ASL (American Sign Language) Translation App **November 2019**

- Built an iOS app (in 36 hours) that converts a professor's speech during live-lecture to ASL videos in real-time.
- Worked with a team and won a Sponsor Prize at Cal Hacks 6.0, the largest global collegiate hackathon.

RESEARCH EXPERIENCE

SWARM Lab / *Undergraduate Student Researcher* **January 2019 – December 2019**

- MRI/EEG integration project: Conceptualized hardware design for ongoing MRI/EEG project. Collecting and performance data to establish ideal layout of electrodes and Bluetooth chips.
- Investigated merits of a functional, portable "earth's field" MRI machine concept by constructing and analyzing analog-filtering circuit simulations and performing test scans to tune performance.

HONORS/AWARDS

Cal Hacks 6.0 Sponsor Prize: Best Hackathon-wide Project Using a Model Optimization / Visualization API
USA Physics Olympiad, Biology Olympiad: National Semifinalist 2017 and 2018 with Honorable Mention
USIYPT (USA International Youth Physics Tournament): 2nd in 2018, 3rd in 2016 and 2017, 1st in 2015.

SKILLS

Hardware: Analog Circuit Design, Schematic Capture, Device Design, Prototype, PCB Design & Manufacturing, Chip/Board Testing, Validation, Precision Hand-Soldering, Reflow Soldering, Hardware QA, Digital Signal Processing (basics), FPGA (IP)
Software: Python, Java, C, Data Structures, Algorithms, Operating Systems, Model Optimization, Data Analysis, Debugging (GDB)