Mahrokh Namazi

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Skills

Electronic Circuit Design

Analog circuit design - PCB schematics and layout - MCU and Low-power embedded system design - Biomedical instrumentation

Simulation, CAD, Coding

LTSpice - PSpice - Multisim - Cadence Virtuoso - Altium Designer - MATLAB, C, R.

Hands-on Skills

Electronics test equipment - PCB soldering and rework - Prototyping, testing and troubleshooting

Research and Development Skills

Technical writing - Root cause analysis - Data analysis - Working in multidisciplinary teams

Education

2020–present **M.Sc. Electrical Engineering**, *University of Calgary*, GPA: 3.92/4.00.

- Relevant Courses: Analog Integrated Circuit Design, Embedded Sensor and Communication Design

2015–2020 **B.Sc. Electrical Engineering (Electronics)**, *Sharif University of Technology, Iran*, GPA: 16.29/20.

- Relevant Courses: Filter Design, Analog Electronics, Logic Circuits

Design Experience

2020–present **MSc Research**, *Integrated Circuits and Optical Imaging Laboratory*, University of Calgary.

Project 1: Miniaturized wireless electrochemical impedance spectroscopy system for cortisol detection.

Project 2: Ultra low-light fiber photometry system for measuring neural activity in mice.

- Developed 2 miniaturized embedded systems with microcontrollers, analog filters and amplifiers interfacing with optical devices and screen-printed electrodes.
- Adapted EIS circuit design 7 times to evolving sensor specifications, ensuring seamless integration with cross-functional teams and project objectives.
- Designed 5 PCBs in Altium Designer, soldered PCBs, assembled optoelectronic systems.
- Collaborated with Electrochemistry, Mechanical Engineering, and Biomedical Engineering researchers to determine design criteria and conduct experiments.
- Built a fiber photometry system using 10 times less optical power than conventional systems.

2018–2020 **BSc Research**, *Superconductive Electronics Research Lab (SERL) and Royan Institute*.

Project: Wearable low-power neurostimulator.

- Designed and implemented a highly controllable 2-channel biphasic pulse generator for epidural electrical stimulation of rodents with spinal cord injury, leading to 2 publications.
- Collaborated with electrophysiology researchers in a project with high ambiguity, from determining design criteria to implementation, documentation and testing the final product on rodents.

2016-2019 **Relevant Course Projects**, *Sharif University of Technology, Iran*.

- Design of a differential tuned amplifier in Cadence Virtuoso TSMC 180 nm (2019).
- Design of 2 op-amps (BJT and CMOS), verified in HSPICE (2018).
- Circuit and PCB design and implementation for an AM receiver and audio amplifier (2017).
- Xilinx FPGA-based LCD display (2016).

Publications

- "Silicon Photomultiplier-based Low-light in *vivo* Fiber Photometry." in IEEE BioCAS 2023.
- "Stimulation of spinal cord according to recorded theta hippocampal rhythm during rat move on treadmill." in Biomedical Engineering / Biomedizinische Technik, 2023. (co-author)
- "A Novel Low Cost and Versatile Fabrication Method of Flexible Multi-Electrode Array for Spinal Cord Stimulation." in International Iranian Conference on Biomedical Engineering, 2020. (co-author)

Honors and Awards

2023 The University of Calgary's GSA's Professional development grant.

2021–2022 Hotchkiss Brain Institute International Graduate Recruitment Scholarship for two years.

2015–2016 Annual Prize for distinguished academic talents by the National Elites Foundation for two years.

2015 Ranked within the top 0.05% in the Iranian University Entrance Exam (86th among 181,846 participants).

Teaching Experience

2020–present **Teaching Assistant**, *University of Calgary*.

Courses: Digital Electronic Circuits, Analog Electronic Circuits, Electronic Devices and Materials, Signals and Transforms, Biomedical Signal, Systems and Instrumentation

- Coordinated teaching assistants for Analog Electronic Circuits.
- Facilitated students' comprehension of diverse subjects in Electrical Engineering.
- Troubleshooted circuits, Multisim simulations, and MATLAB codes in labs.
- Evaluated student work and managed attendance and performance records.

2023–present **English and Humanities Tutor**, *Paper*.

- Evaluated essays and delivered targeted feedback to K-12 students.
- Delivered chat-based live assistance to students to address individual needs and learning styles.

2018–2020 **Teaching Assistant**, *Sharif University of Technology*.

Courses: Principles of Electronics, Principles of Electrical Engineering, Circuit Theory, Logic Circuits

- Guided and evaluated students in electronics labs and troubleshooted electronic circuits.
- Guided students on electronic lab equipment (including oscilloscopes, power supplies) to implement and verify bjt amplifiers, current mirrors, and AM receivers.

Volunteer Experience

2022–2023 **Volunteer**, *GSA Events Subcommittee*, University of Calgary.

- Collaborated on the organization of eight social and recreational events for graduate students.

2021–2022 **Vice-President External**, *Electrical and Software Engineering GSA*, University of Calgary.

- Coordinated 7 events for ESE students, fostering connections and networking within the community.
- Advocated for ESEG interests in the Graduate Representatives Council and department meetings.

Winter 2022 **Peer Mentor**, *ISS*, University of Calgary.

- Offered peer-guidance to University of Calgary first-year international students for a smooth transition to life and academics abroad.