Ammar A. Ibrahim

Hadayek El Ahram, Giza, Egypt

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Education

Queen's University	Kingston, Ontario, Canada
Engineering Physics MASc GPA: TBD	2024-2026

Supervisor: Dr. Bhavin J. Shastri
Concentration: Neuromorphic Photonics

Nile University	Sheikh Zayed, Giza, Egypt
Electronics and Communications Engineering BSc 3.85 GPA with Honors	2019-2024

Graduation Thesis: Metasurface Lens for Microwave Applications

Work Experience

Graduate Research Assistant	Neuromorhpic Photonics Lab - Queen's University
Shastri's Neuromorphic Photonics Lab	September 2024 - TBD

– Graduate Research Assistantship as part of my Master's degree at Queen's University. Research mainly focused on Silicon Photonics.

Research Intern	Lab for Laser and Optical Communication at Ain Shams University
Silicon Photonics	September 2023 - September 2024

– Research internship in Silicon Photonics. Project: Spot-Size Converter for PICs.

Research Assistant	NISC Research Center, Nile University
NISC (Nano Integrated Systems Center)	March 2023 - March 2024

– Researching in the following topics: Control Theory, Analog Fractional-Order Circuits, and chaotic systems. The research focuses analog implementations (On FPAAs) of the circuits and systems previously mentioned.

Intern R&D Engineer	Innovation and Design Technology
i-d.tech	July 2022 - March 2023

– I was part of a Research and Development team that focused on reverse engineering and designing industrial products. We, as a team, took products from just an idea to analysis, to designing+manufacturing the hardware, to developing the embedded software of the product. I received an enormous experience in project planning, teamwork, analysis, creating products from scratch, and reverse engineering. I grew a lot of technical experience in embedded hardware engineering.

Internships & Trainings

RF/mm-wave IC Design Summer Intern	Analog Devices
Analog Devices RF Summer Internship	July 2023 - August 2023

– The internship covered RF and Microwave Basics, Layout Design, Analog IC Design, Low-Noise Amplifiers, Mixers, Power-Amplifiers, PLLs. The softwares covered in the training were Cadence Virtuoso, ADS, and Sonnet EM.

Microstrip Antenna Design on CST Training	Electronics Research Institute
ERI Winter Training program	January 2023 - February 2023

– The training held at the Electronics Research Institute covered baiscs of Antenna theory and focused on design and optimization of Microstrip Antennas. The training involved practical excercises on CST software and the final project was designing a microstrip antenna for WLAN.

Analog IC Design	ITI
ITI Summer Training Program	August 2023 - September 2023

– The Analog IC Design course instructed by Dr. Hesham Omran at ITI. The course covered basic and advanced topics in Analog IC Design. The topics covered included (but not limited to): MOSFET sizing chart using g_m/I_D design methodology, amplifier topologies, differential amplifiers, OTA design, amplifier frequency response, current mirrors, feedbacks. Cadence Virtuoso was used for the labs.

Skills

Programming: Python, MATLAB, C/C++, - Expert

Silicon Photonics: Basic knowledge of Silicon Photonics. Software used is Ansys Lumerical.

MEMS: COMSOL Multiphysics

Metamaterials

Microstrip Antenna Design: Novice in Antenna Design. Currently building up experience through graduation project. I worked with Ansys HFSS and CST for Antenna Simulations. Good knowledge in designing Microstrip Microwave Filters.

FPGA: I have worked on many of my projects on an FPGA. My work was mostly focused on DSP, Chaotic Systems, and Image Processing

Analog IC Design: Good knowledge in Analog IC Design and of different amplifier topologies and basic. I passed the ITI training supervised by Dr. Hesham Omran. I use Cadence Virtuoso for Analog IC simulations. I also have a noticeable experience in Analog Circuits (OpAmp level), specially in Fractional-Order Analog Circuits.

Digital IC Design: Basic knowledge of digital CMOS design. I practiced the topic by implementing different ALU and microprocessor architectures with the use different CMOS technologies and comparing delay and power consumption. Basic knowledge on CMOS layout design using Cadence Virtuoso's LayoutXL. I can make layouts for simple logic units.

Embedded Systems and Robotics: Intermediate in AVR and ARM. Worked with ATMega32 and STM32. I partiicpated in a lot of robotics competitions since high school, and I also worked in an RD team (i-d.tech).

Hardware and PCB Design: Intermediate in PCB Design and Manufacturing. I worked in an RD team (i-d.tech).

LATEX and Research Writing: As a research assistant, I am proficient with Latex. **This CV was made using Latex**.

Extracurriculars: Competitions, Awards, and Volunteering

President's Honors for Academic Excellence	Fall 2022
Dean's Honors for Academic Excellence	Spring 2022
Dean's Honors (Second time) for Academic Excellence	Fall 2023
Dean's Honors (Third time) for Academic Excellence	Spring 2023

Publications

A. A. Ibrahim, A. J. Hamed, and A. M. Mahmoud, Polarization Independent Microwave Metasurface for Lensing and Beamsteering, 2024. *Expected to be Published at IEEE Antennas and Wireless Propagation Letters*

References

Dr. Bhavin Shastri (shastri@ieee.org)

Dr. Ahmed Mahmoud (amwmahmoud@nu.edu.eg)

Dr. Mohamed Darweesh (mdarweesh@nu.edu.eg)