Michael Acquaviva

Electrical & Computer Engineer | New Graduate

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Summary

Electrical and Computer Engineering graduate with experience in analog/mixed-signal IC design, electromagnetic simulation, and AI acceleration. Co-founder of a funded defense-tech startup.

Education

University of Toronto | BASc in Engineering Science (Electrical & Computer Major)
2020-2025

- cGPA 3.92 (EngSci Excellence Award)
- Minor in artificial intelligence (AI), and a certificate in engineering business
- Thesis: *Implementing and Testing the Interpolated Factored Green Function Method for the Accelerated Evaluation of Potentials in Electromagnetic Simulators*, supervised by Prof. Piero Triverio

Skills Summary

- Analog & Digital IC Design
- Verilog, System Verilog, Verilog-A
- Cadence Virtuoso, Spectre, EMX
- PCB design, Altium, Keysight ADS
- Python, C++, PyTorch, CUDA
- Technical Writing & Presentations
- Entrepreneurship and Management

Awards & Honours

EngSci Award of Excellence for top GPA | *University of Toronto* — 2025

C-UAS Sandbox Diamond in the Rough Prize ($375k) | *Department of National Defence, Canada* — 2024

Undergrad Student Research Award ($7500) | *NSERC* — 2022

Shaw Design Scholarship ($3500) *University of Toronto* — 2022

Governor General's Bronze Medal *Governor General of Canada* — 2020

Scholars' Admission Award ($7500) | *University of Toronto* — 2020

Experience

Chief Technology Officer | **Prandtl Dynamics Inc.** — Feb 2023 – Present
Toronto, ON, Canada

- Co-founded a startup developing counter-drone systems using focused ultrasonic wave technology
- Designed systems for minimal collateral damage and safe deployment in dense urban environments
- Placed second at the 2024 Counter-UAS Sandbox Challenge, organized by the Canadian DnD, outperforming companies like Boeing and Teledyne
- Led the technical efforts to raise 375,000 CAD in grant funding from the Canadian DnD and 175,000 CAD in pre-seed rounds
- Oversaw patent filings and developed the IP protection strategy in collaboration with legal counsel
- Featured in the Wall Street Journal, the Economist, and CBC

IC Design Engineer | **Analog Devices Inc.** — May 2023 – Aug 2024
Toronto, ON, Canada

- I Worked with the Advanced Cores Group to design analog-to-digital converters (ADCs) using the continuous-time pipeline (CTP) and ΔΣ architectures
- Built an automated tool to draw inductor layouts, optimizing the geometry and parasitics for Q-factor and self-resonance
- Designed an active differential polyphase filter for up to 8GHz quadrature clock generation (circuit & layout)
- Designed an analog-digital data interface using multi-phase clocking (circuit & layout)
- I regularly presented my work in design reviews to ensure the performance, robustness, and efficiency of designs
- Tools included: Cadence Virtuoso, Quantus, EMX, Spectre
- Built testbenches using Verilog to perform digital simulations and analog/digital co-simulations
- Taped-out my first chip (a CT-pipelined ADC)

Research Assistant | **University of Toronto** — May 2022 – Sept 2022
Toronto, ON, Canada

- I worked in the Computational Electromagnetics Lab under the supervision of Prof. Costas Sarris
- Developed AI-accelerated ray-tracing algorithms to model indoor wireless RF propagation, reducing runtime by up to 85%
- Created a physics-informed generative adversarial network (GAN) employing the Friis path-loss model
- Presented at the UnERD conference, winning the award for best presentation in electrical and computer systems
- Wrote an abstract for the University of Toronto Undergraduate Conference: "Generative Adversarial Networks for Accelerated Ray-Tracing in Wireless Channels"
- Developed and trained models in PyTorch with CUDA