

Arnav Patil

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EDUCATION

University of Toronto

Sept 2023 – Apr 2027

BASc. in Electrical and Computer Engineering with PEY Co-op

Toronto, Canada

- **GPA: 3.60/4.00** with recognition on Dean's Honours List
- **Minor in Engineering Business / Economics**
- **Awards:** UofT National Book Award, Alexander Rutherford Award, Royal Canadian Legion Medal of Excellence

COURSEWORK

Languages: C/C++, Verilog/SystemVerilog, RISC-V Assembly, Python, Tcl, MATLAB, Simulink

Hardware Courses: Computer Architecture, Analog & Digital Electronics, Signals & Systems, Digital Logic

Software Courses: Operating Systems, Embedded Programming, Data Structures & Algorithms, Computer Networks

Math Courses: Multivariable Calculus, Linear Algebra, Complex Analysis, Probability, Microeconomics

EXPERIENCE

Teaching Assistant

Sept 2025 – Present

Faculty of Applied Science & Engineering

Toronto, Canada

- Facilitating 40-student tutorials for a first-year [engineering orientation](#) course, leading discussions on transitions to engineering studies and university life, time-management strategies, effective academic skills, and career pathways.

FPGA Research Intern

Feb 2025 – Present

Department of Electrical & Computer Engineering

Toronto, Canada

- Researching at Prof. Roman Genov's [Intelligent Sensory Microsystems Lab](#) with the CMOS Imaging Team.
- Achieved 800 Mbps throughput by optimizing sensor IC timing, ideal for time-of-flight imaging applications.
- Implemented the SPI and I2C protocols in Verilog to interface with the integrated circuit and board peripherals.
- Verification of 3 sensor designs on Cadence Virtuoso, ensuring that functionality and timing requirements are met.

Systems Design Engineer

Sept 2024 – Apr 2025

University of Toronto Machine Intelligence Student Team

Toronto, Canada

- Developed a compute platform for UTMIST to optimize AI/ML jobs using GPU accelerated cloud computing.
- Wrote an API to create teams and users, and to access various cloud platforms and check GPU availability.
- Worked with a team of developers to deploy the platform and established monthly feature release cycles.

SELECTED PROJECTS

Nios-V Sonar System | [GitHub Repository](#)

- Integrated an ultrasonic sensor and servo motor into the FPGA-based Nios-V soft processor via GPIO ports.
- Designed & implemented BJT pull-up/pull-down networks for safe voltage conversion between FPGA and sensor.
- Implemented polling using machine timer, calculating distance between 20 cm to 2 m within 1 cm of precision.

DE1-SoC Blackjack Arcade Game | [Presentation Slides](#)

- Developed a blackjack game on an FPGA, handling complex game states such as dealing, betting, and scoring.
- Simplified hardware peripheral control from top-level modules by writing API-like wrapper RTL over Altera IP.
- Fixed compatibility issues in provided IP by writing a [Python script](#) to format memory initialization files (.mif).

EXTRACURRICULAR ACTIVITIES

Policies and Structures Committee Member

Jun 2025 – Present

University of Toronto Engineering Society

- Supporting EngSoc's legislative foundation and deliberating on policies impacting a 5000-strong student body.

Sustainability Director

Apr 2024 – May 2025

University of Toronto Engineering Society

- Oversaw 5 initiatives and wrote a [Sustainability Policy](#) to support discourse and action on environmental matters.

First Year Engineering Representative

Sept 2023 – Apr 2024

University of Toronto Engineering Society

- Represented the concerns of 1400+ first-year students as a liaison between the Engineering Society and the Faculty.