Arnav Patil

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Education

University of Toronto Sept 2023 – Apr 2028
BASc. in Electrical and Computer Engineering with PEY Co-op *Toronto, ON*

- **GPA: 3.58/4.00** with recognition on Dean's Honours List
- **Minor in Engineering Business/Economics**

Coursework

Languages & Tools: C/C++, (System)Verilog, Python, RISC-V Assembly, Quartus Prime, Vivado, Cadence Virtuoso
Hardware Courses: Computer Architecture, Analog & Digital Electronics, Computer Hardware, Signal Processing
Software Courses: Operating Systems, Machine Learning, Embedded Programming, Object-Oriented Languages
Math Courses: Multivariable Calculus, Linear Algebra, Complex Analysis, Probability, Finance & Microeconomics

Experience

Digital IC Design Intern Incoming May 2026
Marvell Technology *Toronto, ON*

- Will be responsible for block- and chip-level RTL design and verification for Marvell's $10 - 224$ Gbps SerDes IP.

Teaching Assistant Sept 2025 – Dec 2025
University of Toronto *Toronto, ON*

- Facilitating 40-student tutorials for **APS100 Orientation to Engineering**, expanding on lecture content.
- Leading discussions on engineering and ethics, becoming a well-rounded engineer, and CEAB accreditation.
- Providing mentorship on the transition to engineering studies, academic skills & strategies, and career pathways.

FPGA Engineer Intern May 2025 – Aug 2025
Department of Electrical & Computer Engineering *Toronto, ON*

- Researching with Prof. Roman Genov's **ISML** group on novel CMOS-based time-of-flight imaging technologies.
- Achieved 800 Mbps sensor throughput by optimizing timing and implemented the SPI & I2C protocols in Verilog.
- Verification of sensor schematics on Cadence Virtuoso, ensuring that functional and timing requirements are met.

Systems Design Engineer Oct 2024 – Apr 2025
University of Toronto Machine Intelligence Student Team *Toronto, ON*

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

Selected Projects

Nios-V Sonar System | **Source Code**

- 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 Arcade Game | **Presentation**

- 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 version compatibility issues in provided IP by writing a **Python script** to re-format memory files (`.mif`).

Activities & Societies

Policies & 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/action on environmental matters.