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, ON*

- **GPA: 3.54/4.00 with recognition on Dean's Honours List**
- **Extracurriculars:** UofT Engineering Society, IEEE UofT Student Branch, UofT Machine Intelligence Team

Technical Skills

Languages & Tools: **C/C++**, **RISC-V Assembly**, **Verilog**, **Python** (NumPy & pandas), MATLAB, Git, LaTeX
Hardware Courses: **Digital Systems**, **Computer Organization**, **Electronics**, Circuit Analysis
Software Courses: **Object-Oriented Programming**, Software Design, Computer Fundamentals

Experience

FPGA Engineering Research Intern Feb 2025 – Ongoing
Department of Electrial and Computer Engineering, University of Toronto *Toronto, ON*

- Researching at Prof. Roman Genov's Intelligent Sensory Microsystems Lab with the CMOS Imaging Team.
- Developing firmware and RTL designs on a Xilinx Artix 7 FPGA for a novel active pixel sensor CMOS camera.

ML Compute Platform Developer Sept 2024 – Ongoing
University of Toronto Machine Intelligence Student Team *Toronto, ON*

- Developing a compute platform for UTMIST to optimize ML jobs using **GPU accelerated cloud computing**.
- Working with a team of developers to **deploy the platform** and establish **monthly feature release cycles**.

Selected Projects

Blackjack Implementation on an FPGA | Winner Winner Chicken Dinner!

- Developed a digital blackjack game using finite state machines (FSMs) on a DE1-SoC FPGA, handling **complex game states** such as dealing, betting, and scoring in real-time to **simulate card-counting experience**.
- Integrated PS/2 keyboard and VGA monitor as **input/output interfaces**, and off-chip SDRAM memory. Designed an **intuitive and responsive interface** directly on the FPGA.
- Wrote a Python script to reformat memory initialization files, **fixing compatibility issues between provided legacy tools and modern IP cores**.

Personal Website | Personal Portfolio Website

- Customized a Hugo theme to **create a static portfolio website**, showcasing coursework and achievements.
- Deployed the site on GitHub Pages using a **continuous development pipeline** integrated into the repository through **GitHub Actions**, which automatically rebuilds and redeploys the site after each push.
- Integrated **Google Analytics 4** into the site to track insights and analyze which course pages are most popular.

Extracurricular Activities

Sustainability Director Apr 2024 – Ongoing
University of Toronto Engineering Society *Toronto, ON*

- **Oversaw 7+ projects**, from launching a **Sustainability Policy** to divesting clubs from fossil fuel sponsors.
- **Organized** a research team to conduct a study of the Engineering Society's and Faculty's historical and present carbon footprint and practices, and collecting student voices for sustainability in the curriculum.

First Year Engineering Class Representative Sept 2023 – Sept 2024
University of Toronto Engineering Society *Toronto, ON*

- Represented **70+ students** as a liaison between students, the Engineering Society, and the Faculty.
- Collaborating with EngSoc & Faculty members such as the Vice-President Academic, Vice-Dean First Year, and groups of professors to develop solutions enhancing **more than 1400 first-year students'** academic experience.