# Arnav Patil

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## EDUCATION

**University of Toronto** — Ongoing – Apr 2027
*BASc. in Electrical and Computer Engineering* — *Toronto, ON*
- **CGPA: 3.53/4.00** with recognition on Dean's Honours List
- **Double Minor in Artificial Intelligence and Engineering Business**
- **Extracurriculars:** IEEE University of Toronto Student Branch, University of Toronto Engineering Society
- **Competitions:** MLH MakeUofT 2024, ISTEP Clarke Environmental Design Challenge 2024

## TECHNICAL SKILLS

**Languages & Tools:** C/C++, Python (NumPy & pandas), Verilog, MATLAB, Git, LaTeX
**Software Courses:** Computer Fundamentals, Programming, Object-Oriented Programming, Software Design
**Hardware Courses:** Electronics, Digital Systems Design, AC/DC Circuit Analysis, Electric and Magnetic Fields
**Math Courses:** Multivariable Calculus, Complex Analysis, Applied Linear Algebra, Differential Equations

## SELECTED PROJECTS

**Static Personal Website with Hugo** | Personal Portfolio Website — Jun 2024 – Ongoing
- Customized a Hugo template to **create a static portfolio website**, showcasing coursework and achievements, implemented custom themes, and optimized site structure for user-friendly navigation, enhancing accessibility.
- 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.

**Deep Learning Framework with NumPy** | Neural Network from Scratch — May 2024 – Jun 2024
- Created a modular deep learning neural net framework from scratch using NumPy, and documented mathematical derivations of **forward pass**, **gradient descent**, and other relevant mathematical components.
- Solved the XOR using a network with two linear layers with **ReLU activation & MSE backprop** functions.

**Python Implementation of the Shortest Path Problem** | Dijkstra's Algorithm — Jun 2024
- Documented my understanding of **Dijkstra's algorithm** and provided an example for the user to follow along.
- Implemented the algorithm in **modular Python code**, and added user-friendly functionality, resulting in a user-friendly process to create a graph with weighted paths and returns results in a procedural manner.

## EXPERIENCE

**Sustainability Director** — Apr 2024 – Ongoing
*University of Toronto Engineering Society* — *Toronto, ON*
- **Oversaw 7+ projects** to achieve directorship goals, from launching a student body-wide **Sustainability Policy** to divesting design teams from fossil fuel sponsors, and reducing the Engineering Society's footprint.
- **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.
- Negotiated with EngSoc and the Faculty to place a greater emphasis on sustainability in engineering curricula.

**Strategy Director** — May 2024 – Ongoing
*IEEE University of Toronto Student Branch* — *Toronto, ON*
- Expanded our outreach and connections to **Faculty members and partners in industry** to build a hardware and equipment inventory for use in our hardware-themed hackathons, workshops, and seasonal projects.
- Defined marketing strategy and guidelines for our flagship events with attendance **upwards of 300 participants per event**, using insights and analytics to identify areas of strength and growth to reach target audience.
- Encouraged and embraced a new club philosophy to appeal to students in **all STEM and engineering disciplines**, and emphasized this perspective in our in-person and social media advertising campaign.

**First Year Engineering Class Representative** — Sept 2023 – Sept 2024
*University of Toronto Engineering Society* — *Toronto, ON*
- Represented the concerns and interests of **70+ students** as a liaison between students, the Engineering Society, the Engineering Discipline Club, and the Faculty of Applied Science and Engineering.
- 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.