

# Arnav Patil

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## EDUCATION

### University of Toronto

Ongoing – Apr 2027

*BASc. in Electrical and Computer Engineering*

*Toronto, ON*

- **Double Minor in Artificial Intelligence and Engineering Business**
- **GPA: 3.9/4.0 with Dean's Honours List**
- **Extracurriculars:** IEEE UofT Student Branch, University of Toronto Engineering Society
- **Competitions:** MakeUofT 2024, Clarke Environmental Design Challenge 2024

## TECHNICAL SKILLS

**Languages & Tools:** C/C++, Python (NumPy & pandas), Verilog, Assembly, MATLAB, Git, LaTeX

**Software Courses:** Computer Fundamentals, Object-Oriented Programming, Software Design and Communication

**Hardware Courses:** Circuit Analysis, Electronics, Digital Systems, Computer Organization, Signals and Systems

## EXPERIENCE

### Sustainability Director

Apr 2024 – Ongoing

*University of Toronto Engineering Society*

*Toronto, ON*

- **Conceptualized and oversaw 6 projects** to achieve directorship goals, from policies on a waste-free orientation, to fossil fuel divestment for design teams, and reducing the carbon footprint of the Engineering Society.
- Negotiated with stakeholders within EngSoc and the Faculty to place a greater **emphasis on sustainability in engineering curricula**, impacting more than 1400 first-year students and thousands more upper-year students.
- Drafted a new club constitution, including a proper **organizational structure**, a continuity plan, and **accountability measures** (internal and external reports) to ensure long-term growth of the Directorship.

### Marketing Strategies Director

May 2024 – Ongoing

*IEEE University of Toronto Student Branch*

*Toronto, ON*

- 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.
- Defined marketing strategy and guidelines for **4 flagship events** with attendance **upwards of 300 participants**, using media insights and analytics to identify areas of strength and growth to reach target audience.

### First Year Industrial Engineering Representative

Sept 2023 – Sept 2024

*University of Toronto Engineering Society*

*Toronto, ON*

- Represented the concerns and interests of **70+ Indy students** as a liaison between students, the Engineering Society, the Industrial Engineering 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.

## SELECTED PROJECTS

### Static Personal Website with Hugo | [Personal Portfolio Website](#)

Jun 2024 – Jul 2024

- Customized a Hugo template to create a static portfolio website, showcasing coursework and achievements, and implemented custom themes and optimized structure for user-friendly navigation, enhancing accessibility.
- Utilized Git for version control and deployed the site on Github Pages using a continuous integration pipeline
- Converted hand-written course notes into LaTeX using Overleaf to publish on my website.

### Deep Learning Framework with NumPy | [Neural Network from Scratch](#)

May 2024 – Jun 2024

- Created a modular deep neural net framework from scratch using NumPy.
- Documented mathematical derivations of forward pass, gradient descent, and other relevant components.
- Solved the XOR using a network with two linear layers with ReLU activation & MSE backpropagation 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.
- User-friendly process creates graph with weightings and returns algorithm results in a procedural manner.
- Provided basis for a new project to implement the Bellman-Ford algorithm to account for negative path weights.