

# Dev Agarwal

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## EDUCATION

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### University of Toronto

April 2026

*Computer Engineering with AI and Business Minor (cGPA: 3.44 / 4.00), Dean's List*

*Toronto, Ontario*

- **Relevant Coursework:** Linear Algebra (**MATLAB**), Computer Fundamentals (**C & C++**), **Verilog**, Assembly (**NIOS II**), Operating Systems, Data Structures and Algorithms, Deep Learning, Probability

## EXPERIENCE

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### ACS Powersports

May 2024 – August 2024

*Documentation and Industrial Engineering Intern*

*Toronto, Ontario*

- Developed a full-stack application using **React**, **Spring Boot**, and **MYSQL**, hosting it on **AWS EC2** and **AWS RDS**, to automate the customization of master instruction manual for each purchase order of snowmobile runners for the snow team members involved in the manufacturing process.
- The application processes the master instruction manual and the purchase order uploaded in **Excel** format, generating a customized manual specific to the purchase order in **Excel**, and updates the inventory in a **MySQL database**.
- The application reduced the manual process from 7-8 hours to less than 10 seconds by streamlining customization and inventory tracking based on order specifications, significantly improving productivity and leading to faster order processing and confirmation.
- Created 45 detailed 3D models of snowmobile spare parts using **Blender** for the company's website which accounted for 50% of sales, improving product visualization.
- Rendered the 3d models on the web utilizing **React** and **Three.js**.
- Improved customer experience and increased user engagement by providing better product representation online driving more traffic on the website.

### Tutor Doctor

October 2023 – Present

*Private Tutor*

*Toronto, Ontario*

- Mentored a student to achieve a 20% improvement in his Advanced Functions grade by targeting core concepts and encouraging independent problem solving enhancing their abilities to apply complex concepts effectively.

## TECHNICAL EXTRA-CURRICULAR CLUBS

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### St. George Capital

September 2024 - Present

*Quantitative Trader*

- Researched Algorithmic Trading strategies to optimize the team's portfolio.

### University of Toronto Aerospace Team

September 2022 – May 2024

*Member*

- Designed an autonomous drone for an AEAC competition using complex data structure algorithms.
- Worked on transport route optimization, focusing on finding the shortest path between 26 waypoints with each path between the waypoints containing various payloads (profit) which needed to be transported.
- Tailored Dijkstra in **Python** to meet our requirements, producing the shortest path between the two waypoints which maximized profit.
- The autonomous aircraft demonstrated a high level of proficiency allowing it to move through the correct waypoints with precision.

### University of Toronto Formula Racing Team

January 2023 – April 2023

*Member*

- Collaborated in a team of two to program an autonomous Formula 1 vehicle for the SAE competition.
- Engineered the vehicle's navigation system using sensor signals in **C++** to ensure optimal performance.
- Successfully achieved accurate traversal of the race track, demonstrating effective control and decision-making algorithm.

### Geographic Information System - BOLT | *C++*, *GTK*

- Developed mapping software to locate EV chargers across the city, leveraging the OpenStreetMap API.
- Implemented a location search feature and an **A\* algorithm** to determine the fastest route between two points, displaying step-by-step directions and distances using vector cross product for precise navigation.
- Designed a solution for the **Travelling Salesman Problem** using simulated annealing for a courier service, securing **2<sup>nd</sup> place** out of 92 student teams, leading to a 3% boost in the overall course grade.

### Reversi Game AI | *C*, *Linear Algebra*

- Produced an AI Algorithm in **C** to play Reversi as part of my Computer Fundamentals Course.
- Applied Linear Algebra concepts treating the board as an 8X8 matrix, using the four corners as different coordinate systems.
- Among 434 other students, secured **18th position** on the leader board and received bonus marks.

### Algorithmic Trading Strategies | *Python*, *Jupyter Notebook*, *Pandas*, *Numpy*, *Machine Learning*

- Unsupervised learning trading strategy resulting over **100% return over S&P 500 in last 8 years**.
- Twitter Engagement Ratio Trading Strategy resulting over **40% over Nasdaq QQQ in 2 years**.
- Quantitative value based Trading Strategy which build the user's portfolio shortlisting undervalued stocks.
- Quantitative Momentum Based Trading Strategy which builds the user's portfolio based on the percentile return of a recent time windows.

### Low Level Programming | *Verilog*, *NIOS II*

- Built Simon Says Game in Verilog utilizing FPGAs and VGA display.
- Built Curcuits (Flow Free) in embedded C utilizing FPGA and VGA display.

### Front End Development | *React*, *JavaScript*, *HTML*, *CSS*

- Portfolio Website
- Tenzies Game
- Rock Paper Scissors
- Currency Converter
- Tic Tac Toe