Ethan Jan

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EDUCATION

University of Toronto September 2023 – May 2028

Bachelor of Applied Science in Industrial Engineering

Relevant Courses: Programming in Java, Data Structures and Algorithms, Data Science, Statistics, Programming in C, Operations Research, Discrete Math, Calculus 1 and 2, Human Factors System Design, Electrical Fundamentals

SKILLS AND TECHNOLOGIES

- Python, Java, C, HTML, JavaScript, Git, Github, AMPL, Excel, Gurobi, Linux, R, NumPy, MATLAB

PROJECTS

StaySafe Natural Disaster Application | Github

- Developed a **full-stack** web application to provide real-time disaster information about natural disasters to users.
- Used **React** to develop a responsive **front-end** interface to display and update disaster information pins on a map.
- Created a **back-end** server and database using **Flask** and **MySQL** to process user and location data.
- Integrated Google Maps and Geocoding APIs to integrate precise location tracking and visualization.
- Used **Git** to manage version control and collaboration across frontend and backend development.

AI PDF Merger with Voice Commands | Github

- Developed a **Python** program to merge PDF files into a single custom-named PDF based on content similarity.
- Designed and implemented an **algorithm** that achieved **90% accuracy** in grouping related PDF files using **cosine similarity** and **keyword extraction** techniques.
- Utilized natural language processing (**NLP**) AI to generate support for voice-enabled input for hands-free access.

Self-driving Car Simulation Using Neural Networks | Github

- Developed and implemented an autonomous driving system leveraging the NeuroEvolution of Augmenting Topologies (NEAT) algorithm in **Python**.
- Developed and integrated a virtual environment using **Pygame** to test and refine the self-driving neural networks.
- Evaluated algorithm performance by analyzing generation count to track the evolutionary growth and complexity of the neural networks over iterations and integrated game interface for users to compete against generations.

EXPERIENCE

Undergraduate Research Assistant May 2024 – August 2024

Lab for Extreme Mechanics & Additive Manufacturing led By Prof. Yu Zou *Toronto, ON*

- Led development of backend **Python** script to integrate a webcam into Pathpilot CNC software to increase visibility by 50% during additive printing.
- Employed **Git** to maintain a structured development workflow to track and document iterative improvements.
- Designed and implemented Pathpilot CNC software using **Python and Glade-gtk2** to improve user experience and accessibility resulting in a **100%** satisfaction rate among researchers.
- Responsible for **machining** over **50** solid alloy samples contributing to studies published in peer-reviewed papers.

LEADERSHIP AND EXTRACURRICULARS

Lead Sports Instructor, Lifeguard & Fitness Specialist August 2022 – August 2023

Ontario Racquet Club *Mississauga, ON*

- Led and managed groups of **15+** volleyball players, tennis players and private lessons for swimmers.
- Designed and implemented department-wide training plans and schedules for volleyball coaches and players.
- Responsible for providing first aid and CPR to swimmers in life-threatening situations.
- Engaged with members and assisted them in using the facility's equipment and programs.