Om Patel

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Education

University of Toronto Toronto, ON
Bachelor of Science with Specialist (Major) in Computer Science, GPA: 3.7, Dean's List Scholar *Sept 2021 - May 2025*
Courses: Algorithms and Data Structures, Software Design, Theory of Computation, Operating Systems, Web Programming, Machine Learning, Multivariable Calculus, Linear Algebra, Probability and Statistics

Work Experience

Groupe Canam Toronto, ON
Software Consultant | *May 2023 - Aug 2023*

- Designed and implemented a **full-stack enterprise resource planning (ERP) system** for Groupe Canam to track steel joist production, current/upcoming orders and their positions within the yard using **Python** and **SQL**.
- Decreased monthly expenditure by **$46,000** through the use of **ERP system** by reducing need for an external yard rental.
- Improved insight into steel joist positions within the yard by developing a dynamic **Unity-based visualizer** using **C#** that simulates real-time yard, effectively minimizing bottlenecks.

Alpha Edge Capital Toronto, ON
Lead Engineer *Jan 2023 - Present*

- Co-founded a **startup** that utilizes **PyTorch**, **Python**, and **C++** to develop **recurrent neural networks** that **predict equity/commodity prices** and the corresponding option metrics such as **delta, gamma, and IV**.
- Delivered a P&L of **11%** on **S&P 500 ETF ($SPY) options** by leveraging custom **machine learning** models along with complex statistical modeling.
- Collaborated within a small team, employing **Scrum** methodology and **agile** practices to iteratively refine and enhance the predictive models, ensuring seamless integration of new features and swift adaptation to evolving market conditions.

Technical Projects

Computer Vision based Virtual Steering Wheel
Windows/Mac Application |

- Designed software that allows users to control a vehicle in a video game using hand gestures at a rate of **60 FPS** with **Python**, **Google's MediaPipe framework**, **PyGame API**, and the **CV2 library**.
- Enhanced performance on **less powerful hardware** by **34%** through the effective utilization of **threading** and **thread synchronization techniques**, showcasing proficiency in optimizing resource usage.
- Implemented a **visualizer** that enables users to upload a video for the AI model's interpretation of their hand placement on the screen, allowing for rapid generation of shareable content on high quality/FPS (2160p60) videos.

AI Trainer and Macro Tracker
iOS Application |

- Developed an **iOS app** using **Swift** that empowers users to track nutritional intake (protein, calorie, fat, carbs) for improved health awareness.
- Leveraged **Core Data's** model layer to optimize data storage, retrieval, and modification processes, ensuring efficient data management.
- Incorporated the **Charts library** to transform data into visually insightful charts, enhancing progress tracking and enabling users to make informed decisions based on data-driven insights.
- Implemented an **AI Trainer feature** using **Swift** and the **PoseNet AI model** to enhance user exercise form by an average of **26%** (measured from ideal form baseline).

Skills Summary

Languages: Java, Python, C, C++, C#, Swift, JavaScript, HTML/CSS, MySQL, Bash, LaTeX, Assembly (RISC-V)
Developer Tools: Git/GitHub, Amazon AWS, Microsoft Azure, Linux, VS Code, Unity
Libraries/Frameworks: Node.js, React.js, Django, TensorFlow, Pytorch, MediaPipe, JavaFX, Firebase