Parsa Abbasian

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EDUCATION

York University — Toronto, ON

Bachelor of Engineering (B.Eng.) in Computer Engineering — *Sep. 2025 – Apr. 2029*

- **Academic Standing:** GPA: A (Top-tier academic performance)
- Expected specialization in Artificial Intelligence & Machine Learning.
- Relevant Coursework: Applied Calculus I & II, Discrete Mathematics, Linear Algebra, Programming for Engineers.

EXPERIENCE

Undergraduate Researcher — Space Geodesy Lab — Jan. 2026 – Present

York University — Research Fellowship — *Toronto, ON*

- Conducting data-driven research on extreme weather events (Hurricanes) using satellite observations and climate model datasets.
- Engineering scientific programming workflows in Python for automated data acquisition and multi-dimensional analysis.
- Developing AI-driven machine learning models to characterize hurricane evolution and predict infrastructure impacts.
- Working under the supervision of Dr. Spiros Pagiatakis on environmental risk modeling and storm prediction reliability.

Vice President — MBH&Co. — Jan. 2026 – Present

B2B Subscription-Based Digital Business Directory Platform — *Toronto, ON*

- Co-founded and architected a B2B subscription-based digital directory platform enabling businesses to register, manage profiles, and access other verified member businesses through gated access control.
- Engineered dynamic member dashboards using Wix Velo (JavaScript) to manage subscription tiers, listing visibility, and role-based permissions via REST APIs.
- Designed and implemented a scalable data ingestion pipeline integrating automated CSV workflows with structured CMS collections to streamline business onboarding.
- Developed subscription-gated access and validation systems with integrated analytics tracking to monitor engagement, subscription activity, and vendor interactions.

Class Representative & Peer Note-Sharing Volunteer — Sep. 2025 – Present

Student Accessibility Services (SAS), York University — *Toronto, ON*

- Represented students in MATH 1013, MATH 1028, and PHYS 1801, acting as a liaison between students and instructors.
- Organized calculus review sessions supporting academic performance and accessibility standards.

Event Coordinator — Sep. 2025 – Dec. 2025

Iranian Students Association at York University (ISAYU) — *Toronto, ON*

- Planned and coordinated cultural events, managing logistics, university policy compliance, and safety protocols.

PROJECTS

UniSpot | *Go, React, PostgreSQL, Supabase, Mapbox, WebSockets* — 2026

- Architected and deployed a real-time campus intelligence platform for York University students using **React** and **Go (Gin)**.
- Engineered a ¡1s synchronization pipeline using **Gorilla WebSockets** and **PostgreSQL LISTEN/NOTIFY** to propagate INSERT, UPDATE, and DELETE events across all connected clients.
- Implemented advanced geospatial querying with **PostGIS** (ST_DWithin, ST_GeogFromText) and interactive mapping via **Mapbox GL**.
- Designed an IP-based verification system using **Supabase** with composite unique constraints to prevent vote manipulation.
- Optimized frontend state updates using WebSocket-driven in-place patching to eliminate full re-renders and ensure high-performance UI responsiveness.

Undercut | *Go, FastAPI, Next.js, PostgreSQL, Docker*   Jan. 2026 – Feb. 2026

- Developed a live full-stack platform aggregating thousands of GTA car listings, utilizing a concurrent **Go** scraper to identify underpriced vehicles in real-time.
- Engineered a data-driven **Market Analysis** engine providing a 5-year projected Total Cost of Ownership (TCO) comparison, factoring in depreciation and fuel efficiency.
- Implemented an automated **Deal Grading** system (S-Tier to F-Tier) using quantitative pricing models to benchmark listings against Fair Market Value (FMV).
- Leveraged **Google Gemini 1.5 Flash** for multi-modal analysis of seller descriptions, providing automated red-flag detection and personalized negotiation scripts.
- Designed a responsive frontend with **Next.js 14** and **Tailwind CSS**, featuring interactive market visualizations and a persistent "Garage" for user-saved deals.

HawkEye | *Python, Flask, Google Gemini API, Docker, Tailwind CSS*   Jan. 2026

- Built an AI-powered multi-modal analysis tool that converts raw inventory videos into structured data listings with automated summarization.
- Integrated **Google Gemini 2.5 Flash** to perform advanced visual classification and natural language extraction from video frames.
- Engineered a custom **FFmpeg** pipeline for high-efficiency frame extraction and timestamp analysis to optimize AI processing time.
- Containerized the entire application using **Docker** to ensure environment parity and scalable deployment on Render.

AlgoDrift | *Next.js, TypeScript, Tailwind CSS, Framer Motion*   Dec. 2025

- Developed an interactive web-based platform for visualizing fundamental data structures and algorithms using **Framer Motion** for fluid state transitions.
- Implemented dynamic, real-time simulations for Linear Search, Binary Search, and Bubble Sort, allowing users to control execution speed and data input.
- Designed a responsive UI with step-by-step execution highlighting to improve pedagogical clarity and user engagement.

TECHNICAL SKILLS

Languages: JavaScript (ES6+), Python, Go (Golang), C++, HTML5, CSS3, MATLAB
Frontend: React, Next.js, Tailwind CSS, Mapbox GL, Vite, Framer Motion, Supabase Auth
Backend & Databases: Node.js, Express, WebSocket, Supabase, PostgreSQL, Firebase
Tools & AI: Git, GitHub, Docker, Linux, Vercel, Render, OpenCV