Tahseen Rayhan

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EDUCATION

University of Waterloo, Wilfrid Laurier University — Waterloo, ON
Bachelor of Computer Science (BCS), Bachelor of Business Administration (BBA) — *Sep 2024 – Present*

TECHNICAL SKILLS

- **Languages**: Python, C/C++, JavaScript, TypeScript, HTML/CSS
- **Frameworks**: Next.js, React.js, Express.js, Node.js, ROS2
- **Developer Tools**: Git, Firebase, MongoDB, HuggingFace, Docker, VSCode, Excel, PowerBI
- **Libraries**: NumPy, SciPy, OpenCV, TensorFlow, Mediapipe, Pandas, Mongoose, Selenium

EXPERIENCE

Machine Learning Engineer — May 2025 - Present
Wat Street

- Trained a Random Forest classification algorithm to predict stock market trends and determine whether to buy, sell, or hold assets, using historical stock data for a series of energy industry-specific equities from Yahoo Finance
- Implemented technical indicators like Volume-Weighted Average Price (VWAP), Average True Range (ATR) using Python/Pandas, optimizing price and volatility predictions, and buy, sell, hold decisions taken by our algorithm
- Researched a hierarchical Deep Reinforcement Learning model for optimizing stock trading, leveraging PPO and DDPG-based controllers to improve portfolio value, diversification, and mitigate the curse of dimensionality

Software Developer — Nov 2023 – Jul 2024
Tapi Co

- Spearheaded the development of a student-run digital-marketing agency targeting bubble tea businesses with low digital footprint, alongside a team of **7** Engineers, Designers, Associates and Analysts at CIBC
- Orchestrated the production of core features for a web application using JavaScript, React.js, Node.js, and Firebase, enabling a significant reduction in server costs through optimizing lambda function utilization
- Implemented user-authentication, point-tracking, live-location, and map features, onboarding over **100+** active users and partnerships with **3** businesses within **1** month of deployment and 2 weeks of marketing and sales

PROJECTS & COMPETITIONS

Real-Time Paper-Trading Platform | *MERN, JavaScript, Alpha Vantage*

- Developed a stock-trading simulator allowing users to simulate real-market trading, executing up to **100+** buy/sell orders per second, and introducing data-driven "bad trade" safeguards to help users improve financial literacy
- Integrated Alpha Vantage API with MongoDB, Express.js, React.js and Node.js for live stock data and a competitive leagues system, tracking portfolios across **5+** private groups

Autonomous Robot Simulation with A* Path-finding | *C++, ROS2, Docker, Foxglove*

- Simulated an autonomous path-finding robot in a team of 3 developers, as on-boarding to WATonomous, a Autonomous Robotics and AI team, calculating the optimal path for travel between points based on map data
- Collaborated in developing a cost-map modeling probability of obstacles in an environment with a **85%** success rate, a planner node for map data processing, and relaying received data between our nodes and the terminal
- Implemented a custom Docker infrastructure to develop and deploy ROS2's Node structures to relay data between **4** statistical, data, and navigation-driven nodes to control the Foxglove-simulated robot

BDO ESG Strategy Case Competition | **Top 6 / 287**

- Designed a loyalty-based, ESG program for mid-sized Food and Beverage Retailers to reduce food waste and food insecurity through donation bags and a point-based rewards system, costing less than 1% of annual revenue
- Proposed an integrated solution that improved Scope 3 emissions, decreased food insecurity, reducing surplus stock, while increasing customer engagement and loyalty rates through incentivization of our care packages
- Delivered a pitch to **700+** attendees, placing **1st** out of 48 teams within our industry, food and beverage retailers