Travis Pan

Computer Science and Finance
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Education

University of Waterloo — Waterloo, Ontario
Bachelor of Computer Science and Finance (Double Major) — *September 2023 – June 2028 (Expected)*

Experience

Software Engineer — January 2025 – April 2025
Government of Canada - PSPC — *Toronto, Ontario*

- Built a production-ready **ML pipeline** with **Azure ML** to automate training, deployment, and forecasting
- Built a full-stack **AI dashboard** with **Next.js** and **OpenAI APIs** that uses **Recharts** to generate real-time data visualizations and perform inference using deployed ML models
- Built a hybrid **SARIMA-XGBoost** model for predictable costs (e.g. salaries, utilities) and a **PyTorch-based LSTM** to capture nonlinear trends in volatile spending like vendor contracts
- Used **Docker** for containerization to ensure consistency and scalability

IT Analyst — May 2024 – August 2024
Financial Services Regulatory Authority of Ontario — *Toronto, Ontario*

- Contributed to full-stack development of internal web apps (CETS, MBS) using **React** and **.NET**, with automated regression testing via **Selenium**
- Implemented **RESTful APIs** to support dynamic front-end features, with a focus on reliability, scalability, and clean integration with existing backend systems
- Designed and optimized complex **SQL** queries to retrieve, analyze, and manipulate large datasets, improving data processing runtime by **30%**
- Became proficient in **Jira** for workload organization and used **Git** for streamlined version control

Junior Software Engineer — August 2022 – April 2023
University of Toronto URECS — *Toronto, Ontario*

- Developed a **slime mould algorithm** for the agent-based COBWEB simulation software
- Facilitated a code migration, translating legacy Java code in the COBWEB2 repository to Python
- Helped develop reliable test harnesses for **blackbox testing** of simulations using **Bayesian optimization**

Projects

PokéMetrics | *JavaScript, React, Node.js, Express.js, MongoDB* — April 2024 – August 2024

- Developed a full-stack **MERN** application with 100+ peak users to automatically scrape, analyze, and visualize Pokémon Showdown data using **RESTful APIs**
- Implemented server-side processes with **Express.js** and **MongoDB** queries using **Mongoose**
- Built a dynamic, optimized, and modular frontend with **React**

Memory Melody | *React, Node.js, Express.js, OpenAI API, Auth0* — January 2024 – January 2024

- Created a nostalgic imagery/soundtrack generator for UofTHacks XI
- Designed frontend using **React** and **Typescript** and backend using **Node.js** and **Express.js**
- Used **Auth0** and **Spotify API** to extract playlist data and user information
- Used **OpenAI API** and web scraping tools to generate nostalgic imagery

Citadel Terminal One Summer Invitational Tournament | *Python, Sphinx* — June 2024 – August 2024

- Developed a **Python** algorithm that advanced to the quarter-finals in the Terminal One tower defense competition
- Used dynamic programming, **Kruskal's algorithm**, and graph theory to optimize resource use and defenses
- Leveraged **Sphinx** to document the Python codebase, generating readable documentation for team members

Technical Skills

Languages: JavaScript, TypeScript, Python, Java, C++, C#, C, SQL, Bash, PHP
Libraries & Frameworks: React, Next.js, .NET, Tailwind, PyTorch, scikit-learn, pandas, NumPy
Tools: Git, Docker, Linux, Selenium, Jira, Power BI, MongoDB, Excel, Microsoft Office
Certifications: AWS Cloud Practitioner