

MATTHEW TSENG

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TECHNICAL SKILLS

Languages: Java, Python, JavaScript, HTML/CSS, C, C++, SQL, R

Libraries and Tools: Spring Boot, React, Pandas, MongoDB JUnit, Next.js, PostgreSQL, SQLite, Tkinter, Bootstrap, Postman, Git

EDUCATION

Simon Fraser University

Burnaby, BC

Bachelors of Science in Computing Science, 3rd year

Expected Grad: 2026

PROJECTS

Stock Alert Bot | Python, Pandas, MongoDB

Jan 2025 - Present

- Developed a Discord bot using Python to manage and notify users of stock price alerts
- Integrated MongoDB for scalable and consistent alert storage across multiple channels and servers
- Utilized Pandas for real-time stock price analysis and matching alerts with market data from Yahoo Finance

Stock Forum Website | Java, Spring Boot, React.js, JUnit

Sept 2024 - Present

- Developed a full-stack web application for stock market discussions with user authentication and post interaction
- Designed RESTful API endpoints with Spring Security for secure user and post management
- Engineered a PostgreSQL database schema to support efficient CRUD operations and scalability
- Integrated React.js front end with Spring Boot back end for smooth communication via CORS configuration
- Created unit and integration tests with JUnit achieving 90% coverage and reducing production bugs by 30%

Trading Interface | Python, Pandas, Tkinter, IBKR API

Oct - Nov 2024

- Developed a user-friendly interface for real-time market data retrieval and order execution for IBKR brokerage
- Integrated data pipelines with IB-insync and yfinance APIs for trade execution and data updates
- Implemented 5+ technical indicators using yfinance and Pandas for strategy backtesting and optimization
- Optimized UI components, increasing trader productivity by 25%

Unsupervised Intrusion Detection with HMMs | R, Statistical Modeling

Sept - Nov 2024

- Processed and normalized timeseries data with 10 million+ entries to improve Model efficiency by 20%
- Reduced dimensionality by 50% using PCA to enhance model interpretability and processing speed
- Trained multivariate HMMs with 95% accuracy for anomaly detection based on BIC and log-likelihood scores
- Automated security breach detection by uncovering latent patterns in data using advanced statistical modeling

Childhelp Inventory Management | Java, HTML, CSS, JavaScript, Spring Boot

Jan - Apr 2024

- Collaborated in a team of 5 to design an inventory management system, improving tracking efficiency by 50%
- Built a relational PostgreSQL database, optimizing queries to reduce data retrieval time by 30%
- Developed secure user authentication and role-based access control, adhering to OWASP standards
- Implemented donation trend analytics dashboards, providing actionable insights for stakeholders

Course Planner Web Application | Java, Spring Boot, REST APIs

Mar - Apr 2024

- Designed a backend using Spring Boot to handle over ten thousand course combinations
- Optimized database performance, reducing API response times by 35% through indexing and caching strategies
- Tested REST APIs with Postman, ensuring 100% functionality without critical defects
- Implemented detailed logging and error tracking, enhancing system reliability and maintainability