Riley Gavigan

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Education

University of Waterloo May 2024 – December 2025
Master of Mathematics, Computer Science *Waterloo, ON*

- **Research Field**: Computational Finance

Western University September 2020 – April 2024
Honours Bachelor of Science, Computer Science *London, ON*

- **GPA**: 3.90/4.00 (90%)
- **Awards**: Bennie and Shirley Bradshaw Award in Science, Western Scholars, Western Scholarship of Distinction
- **Relevant Coursework**: Analysis of Algorithms, Artificial Intelligence, Computer Organization & Architecture, Discrete Math, Image Compression, Machine Learning, Operating Systems, Statistics, Unstructured Data

Experience

Amazon May 2023 – July 2023
Software Engineer Intern *Toronto, ON*

- Designed and developed a full-stack application using React, TypeScript, and Java; optimizing auditing processes and minimizing on-call software engineer efforts for a critical production service
- Enhanced service capabilities with meticulously secured APIs, integral to daily operations across several teams
- Implemented vital features (i.e. permalinks, pagination) and cached search results for superior performance
- Ensured CI/CD compliance through robust front/back-end integration testing, reducing deployment errors
- Made impactful code reviews, driving a 90% performance boost by implementing caching in a key service
- Leveraged AWS CDK for automated, scalable deployment of AWS services across multiple regions

Ramsey Lake Partners October 2021 – April 2022
Private Equity Analyst *Toronto, ON*

- Performed comprehensive analysis of financial statements and revenue sources to evaluate potential SaaS investments, generating over 200 high-quality investment opportunities for the firm
- Developed Excel VBA macros to automate the collection and analysis of financial data, reducing sourcing time

Projects and Research

***E*-Score Analysis** | *Machine Learning, Python, PyTorch, Transformers*

- Proposed research to gain insight into cosine similarity results and protein embedding vector performance
- Derived insight from research to fine-tune T5 with LoRA and improve performance for E-score alignment
- Analyzed differences between embeddings produced by various transformer models (i.e. T5, BERT)

Chess | *C++, SQL, Nginx, EC2, VPC*

- Developed full-stack chess application with a Wt front-end, C++ chess logic back-end, and an SQLite database
- Automated deployment of an Nginx server running on a CDK-managed EC2 instance with TLS encrption

Campus Maps | *Java*

- Created a full-stack desktop Swing application for navigating any provided set of maps and building floor plans
- Developed POI favouriting, searching, editing, and toggling; user management; and Weather API integration

Pinterest Shop | *JavaScript, React, Node.js, Redux, MongoDB*

- Built a full-stack e-commerce clone application with React and Node.js, allowing users to shop for Pinterest pins
- Integrated Express.js REST APIs with MongoDB to store and manage products, user logins, and orders
- Ensured seamless application flow by effectively managing HTTP requests and updates with Redux

Technical Skills

Languages: Java, TypeScript, JavaScript, C, C++, Python, R, Scheme, Bash
Libraries/Frameworks: React, Node.js, Express, PyTorch, TensorFlow, Transformers, NumPy, Caffeine
Testing: Jest, React Testing Library, Mockito, Google Guice, Nightwatch.js, JUnit, TestNG, Pytest
Tools: Amazon Web Services, Microsoft Azure, MongoDB, SQLite, Docker, Git, Jupyter