

# Talha Yildirim

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## Education

**University of Waterloo**, Waterloo, ON

**September 2022–Present**

- Candidate for Bachelor of Mathematics: Double Major in Statistics and Computational Mathematics (BMATH), Minor in Computing, Honours, Co-operative Program
- Activities: Wrestling Club Vice President, Chess Club, [Computer Science Club](#), [Pure Math Club](#), [Rock Climbing Club](#)

## Experience

**Devops Engineer**, *Sun Life*

**January 2025–Present**

- Deployed a Kafka cluster to a production environment through Harness, using Kubernetes, Helm, and Makefiles
- Developing CI/CD pipelines using Jenkins, including automating the building and publishing of Docker images
- Setup the infrastructure and IAM roles for ECR lifecycle policies, using Terraform, saving \$1000/month in server costs

**AI/Machine Learning Developer** 🐡, *WAT.ai*

**September 2023–Present**

- Created a pipeline to refine raw data, filtering necessary parameters and aggregating features, to be used in vectors
- Implemented XGBoost Regressor algorithm to capture non-linear relationship between climate and burn data, using PyTorch

**Infrastructure and Cloud Engineer**, *Questrade*

**January 2024–April 2024**

- Wrote a Bash script that scraped SCCM to send weekly emails with vital server information, reducing task time by 90%
- Spearheaded the development of a project to parse CSV files and generate reports, using Python and GCP
- Developed a RBAC system with Django REST API endpoints and a CLI application, increasing security

**Software Engineering**, *Royal Bank of Canada*

**May 2023–August 2023**

- Contributed to internal tools using the Ansible API to assist in creating a dashboard for non-technical employees to submit automated requests, saving 1-3 business days on average
- Developed a Lambda that consumes Inspector findings to update commit statuses with vulnerability information, using Python

**Software Engineering**, *Royal Bank of Canada*

**July 2022–August 2022**

- Designed and improved UI components using React and Figma for inner-source task board, improving responsiveness by 50%
- Increased automated test coverage to over 70%, and improved their accuracy by 25% through accounting for edge cases, which were used to check for discrepancies between the SAP and Workday databases

**Student Researcher**, *IBM*

**September 2021–June 2022**

- Developed and implemented quantum circuits and algorithms, deploying them on IBM cloud-based quantum computers
- Acquired a strong foundation in quantum physics and computing, with a high proficiency in Qiskit

## Projects

**Chess Engine** 🐡

- Developed a fully functional C++ chess engine from scratch with a UML design sketch and MVC design pattern
- Coded several levels of AI using advanced decision-making algorithms to evaluate the optimal moves in given positions
- Applied OOP principles and design patterns to build a structured, maintainable codebase with high cohesion and low coupling

**Traffic Network Optimization** 🐡

- Represented traffic networks in a graph theoretic framework using Dijkstra's algorithm and Braess' paradox
- Treated the system topologically with Brouwer's fixed point theorem, and used Pytorch to find the Nash equilibria

**Social Media Interface** 🐡

- Created RESTful API endpoints capable of interacting with posts within the platform, using FastAPI and SQLAlchemy
- Implemented OAuth 2.0 authorization protocol, and authentication methods for sign-up
- Containerized app using Docker and deployed to Heroku

**Financial Portfolio Optimization** 🐡

- Imported market data to perform optimization analysis and find ideal stock option combinations, using Python
- Analyzed portfolios in a mean-variance framework, quantifying investment risk by looking at the return variance.

**Self-Hosted Storage**

- Created a cloud storage platform on a Raspberry Pi, using Apache, PHP, SQLite, WireGuard, and the ownCloud API
- Implemented port-forwarding and a dynamic DNS using Cloudflare to be able to access drive outside of local network

## Skills

**Languages** C, C++, Golang, Python, Java

**Backend** MySQL, FastAPI, PostgreSQL, Heroku, NGINX

**Tools** Git, GNU/Linux, Bash, Postman, L<sup>A</sup>T<sub>E</sub>X, Jira, Kubernetes, Docker, GCP, Cisco Packet Tracer, Terraform