Alex Qin

Personal Website | a27qin@uwaterloo.ca | 236 867 4827 | Alex Qin | korok-leaf

Education

University of Waterloo
Bachelor of Honours Computer Science, GPA: 4.00

- **Relevant Coursework:** Designing Functional Programs (Advanced), Linear Algebra, Data Structures & Algorithms (Advanced)

Experience

Software Developer *Waterloo, ON*
University of Waterloo CSC *Sept 4 - Present*

- Designed and developed a club rating platform for Waterloo students, integrating APIs using **Django** REST Framework and implementing JWT-based user authentication using **React**, **Node.js** and **SQLite** database
- Designed and implemented a spelling-tolerant search engine utilizing n-grams for fuzzy search and **TF-IDF** for ranking and relevance, resulting in a search query response time in **under 1 second**
- Implemented a custom content-based Deep Q-Network RL model as a dynamic personalized recommendation system, with **TensorFlow.js** for client-side inference.
- Streamlined CI/CD workflows for deploying the platform's predictive model as a microservice using Docker, GitHub Actions, Google Cloud Run, and Django

Full Stack Develper *Waterloo, ON*
Electrium Moblity *Sept 4 - Present*

- Designed and implemented a shopping system to streamline the purchasing process and enhance user experience using **React**, **Tailwind CSS** and **Next.js**
- Implemented product browsing, cart management, and secure checkout by integrating **Supabase**'s real-time capabilities to enhance responsiveness and provide dynamic updates to users.

Competitive Programming *Vancouver, BC*
Olympiad School *Sept 2020 - June 2024*

- Ranked **top 500** in the Canadian Computing Competition 2024 with over 10,000 participants achieving a status of distinction
- ranked **top 10%** in both LeetCode and Codeforces by solving complex problems using advanced Algorithm and Data Structures across multiple languages such as **C++, python, JavaScript and Java**
- Ranked **top 50** in more than 10 online competitions on DMOJ with more than 500 participants

Projects

User Graphics Processor

- Designed and implemented a program to enhance and optimize user-submitted images, improving their quality and overall visual appeal using python and its libraries including **Pillow, Image, ImageDraw**
- Implemented the Complex Fourier Transform to successfully improve image qualities by approximating images using the smoothness of complex mathematics functions with a success rate of over **90%**
- Developed a custom Python module using **Object-Oriented Programming** principles to implement Euler's Complex Form, enabling efficient representation and manipulation of complex numbers

Technologies

Languages: C, C++, Java, Python, Javascript, TypeScript, HTML, CSS, Racket

Library/Framwork/Tools: GitHub, Django, Tailwind CSS, React, Node.js, Next.js, SQLite, OpenCV, NumPy, Docker, Supabase, Jupyter Notebook

Awards

- Ranked top 5% AMC 12 Mathematics Competition with over 50,000 participants, qualifying for AIME
- Ranked top 100 in the Fermat Math Competition with over 13,000 participants achieving Honour Roll