Alireza Mohaghegh Dolatabadi

☐ +1 (647) 967-7328 | @ a3mohagh@uwaterloo.ca | 🔲 alireza-mohaghegh-dolat | 🌐 armd04.github.io/Alireza-Portfolio

EDUCATION

University of Waterloo   Waterloo, Ontario
Honours Computer Science with Combinatorics & Optimization Minor; **GPA: 4.00/4.00**
Relevant Courses: *Advanced versions of Object-Oriented Software Development, Data Structure, Sequential Programs, Combinatorics, Algorithm Design and Data Abstraction, Statistics and Probability*
Clubs: *Blockchain Club, Poker Club*

SKILLS

Languages: Python, C/C++, Rust, Java, Mojo, GoLang
Libraries & Frameworks: Pandas, DBT, NumPy, Dask, Flask, Django, Node.js, Next.js
Tools & Technologies: GBQ, Snowflake, Docker, PyTest, Codecov, Nginx, PostgreSQL, CMake

EXPERIENCE

Quantitative Developer   Toronto, Ontario
Oracle Alpha   *January 2025 – Present*
- Migrated feature generation from **Dask** to **Snowflake**'s UDTF, reducing runtime by **90%** and costs by **98%**
- Identified and resolved a bug in DBT model generation by designing a template and integrating it into the pipeline
- Reviewed, validated, and unit tested PRS to ensure correct currency exchange application on financial features

Senior Data Quality Specialist   Remote
Cohere – Contract part-time   *October 2024 – Present*
- Evaluated AI models' problem-solving skills, solving and correcting advanced math and programming questions

Mathematics Olympiad instructor   Remote
Top Olympiad High schools   *July 2022 – July 2023*
- Taught **65+** students advanced **Combinatorics** and **Graph Theory**, preparing them for Olympiad competitions
- Mentored students to achieve **gold** medals in both **National and International Mathematics Olympiads**

Undergraduate Vice President   Waterloo, Ontario
ISAW (A University of Waterloo Student Club)   *December 2023 – December 2024*
- Raised **$30,000+** and secured future sponsorships by building long-term relationships and exceeding expectations

PROJECTS

UW Course Planner | ⚙ | 🔗
- Developed a course schedule tool using **Django/Next.js**, reducing planning time by **60%** for **500+** students
- Deployed with **Docker**/**Nginx** for scalability and implemented **JWT authentication** with **PostgreSQL**

PQTree library | ⚙
- Optimized SageMath's PQTree using **Rust** with multi-threading, increasing performance by **200%** in benchmarks
- Added new functionalities based on this paper's algorithms, enabling support for **planar graphs** in the library

UW Course Compass | ⚙
- Built a course recommendation engine in **GoLang**, improving course selection speed and efficiency for students
- Modeled course requirements as a **graph**, enabling efficient searches and reducing student planning time by **80%**

Vim-inspired Code Editor | ⚙
- Designed and developed an editor inspired by **Vim** using the **C** programming language and the **Ncurses** library

AWARDS & ACHIEVEMENTS

Silver Medalist - National Mathematics Olympiad: Ranked **12th** out of **20,000+** participants in the National Olympiad contest that served as a qualifier for the International Mathematics Olympiad, **IMO** (September 2021).

Ranked 56th - National Entrance Exam: Achieved the rank of **56th** out of **145,000+** participants in the highly competitive National Entrance Exam, demonstrating exceptional academic prowess and dedication (September 2022).

Silver Medalist - Combinatorics Olympiad (ICO): Competed with talented participants and esteemed mathematics olympiadists from around the world, securing a prestigious **silver medal** (June 2022).