Arsh Tripathi

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Experience

Software Developer Intern Sep. 2025 - Dec 2025
Ford *Waterloo*
- Executed a major version upgrade for an internal graphics library, from 1.9.x → 1.23.x, and consolidated code and build changes
- Implemented dependency injection pattern to improve code quality and to enable ease of testing
- Created CI pipelines to prematurely detect clang-tidy errors and thread safety issues

Assitant Engineer, Intern Jan. 2025 - Apr. 2025
Huawei *Markham*
- Worked in creating GLSL like shader language that can be compiled with clang
- Worked in the frontend to get syntactical recognition for language features
- Wrote LLVM IR passes using the new LLVM Pass Manager to enable transformation
- Targeted SPIR-V to enable cross-platform support

Research Assistant - ArGan's Lab May 2024 - Aug. 2024
University of Waterloo - School of Pharmacy *Waterloo*
- Developed and designed a molecular visualization application capable of high speed rendering of molecules and molecular trajectories from common formats like PDB using frameworks like Qt and OpenGL
- Designed and developed a modern, intuitive UI for the application using Qt, improving user experience
- Created a modular platform architecture along with a refined build system to facilitate the easy integration of additional tools and features

Junior AI Developer (WE Accelerate) May 2023 – Aug. 2023
Microsoft (in partnership with University of Waterloo) *Remote*
- Learned about AI systems and common machine learning algorithms, along with Azure web services, to attain AZ-900 and AI-900 certifications
- Coordinated with group to complete a medical research assistant proposition project utilising AI tools and Azure services

Projects

CourseQuest | *Kotlin, Gradle, Compose*
- Created a course planning app using SOLID principles in Kotlin for Windows, to address degree planning needs for Waterloo students
- Enabled course information fetching utilizing University REST API
- Added features for prerequisite verification to help user ensure their needs
- Added feature to sign up and store data on the cloud, complete with password recovery

Chess Game with AI | *C++*
- Collaborated with two other people to make a Chess Game in C++
- Used Object Oriented Programming(OOP) principles and utilized X11 library for graphics
- Implemented different AI levels, each progressively using a better algorithm, and making use of MinMax and MaxMin algorithms, with alpha beta pruning to improve performance

Education

University of Waterloo Waterloo, ON
Bachelors in Computer Science (Artificial Intelligence Specialization) *Sep. 2022 – May 2027*
- Fourth Year Student, Dean's Honor List, Term distinction for 6 consecutive terms
- Recieved International Scholarship of Excellence and President's Scholarship of Distinction

Technical Skills

Languages: Python, C/C++, SQL, JavaScript, TypeScript, HTML/CSS, R, Rust, Go, Shell, Java, Kotlin
Developer Tools: Git, Jira, Jenkins, GithubActions, Docker, Azure Cloud, Azure AI Services
Frameworks/Libraries: Qt, OpenBabel, GLFW, PyTorch, NumPy, Matplotlib, TensorFlow, React, Node.js