

KAREEM ALZAHAL

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Summary

With a distinctive background in both mathematics and computer science, I am a budding software developer with a keen interest in simulations and machine learning. Seeking opportunities in dynamic, growth-oriented organizations to collaborate with other software development professionals.

Education

University of Waterloo

Expected Graduation: May 2025

4th Year in Computational Mathematics, Computer Science

- Background in linear algebra, calculus, statistics, combinatorics, optimization, algorithms
- Strong ability to write code in programming languages like C/C++, Python, JavaScript, MATLAB, R.

Projects

Simple Fast Particle Simulator

Since June 2024

- Designed to simulate fluid dynamics, this project focuses on creating realistic particle behaviors, including density, pressure, and viscosity, to mimic the properties of water. This cross-platform app also uses parallelization and separate drawing threads for peak performance. [Read More](#)

AI Car Navigation Sim

Aug 2023 - Sep 2023

- Designed a custom artificial neural network model and car game environment. Implemented an evolutionary algorithm to increase checkpoints crossed in every passing generation, resulting in an AI that can circuit a variety of novel racetracks without colliding with the sides. [Read More](#)

Chess Openings Tutor App

May 2023 - June 2023

- Created an interactive visual tool employing arrow-guided instructions to assist novice chess players in mastering various opening strategies. It explores 7000+ openings, aided by engine advice, to ensure players feel prepared to play moves in game. [Read More](#)

Planet Game Engine

Apr 2023 - May 2023

- Designed and implemented a 3D camera system that adjusts to players movement as the player traverses across a globe-shaped planetary environment. [Read More](#)

Experience

Regional Manager

Feb 2024 - Aug 2024

College Pro

Waterloo, ON, Canada

- Managed and led a team of 3 window cleaning technicians, overseeing daily operations and ensuring project completion within deadlines and budget.
- My team and I produced \$30K in revenue over the summer and generated over \$12K in revenue by acquiring new clients and upselling additional services.
- Implemented safety protocols and quality control measures, reducing workplace incidents and improving service standards.

Assistant Analyst

Oct 2021 - May 2022

Alzahal Innovation and Nutrition Inc.

Kitchener, ON, Canada

- Created Microsoft Excel Macro-driven tools for computing feed cost reductions for new potential clients.
- Sales reps used client's info to demonstrate up to 7x ROI from switching, compared to similar products.