JAGVIR DEHAL

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EDUCATION ▸

University of Waterloo
BCS Computer Science
April 2025

Relevant courses
- Computational vision
- Operating systems
- Object-oriented software development
- Computer organization and design
- Data structures and data management

SKILLS ▸

LANGUAGES: C, C++, JavaScript, TypeScript, Kotlin, Python, Bash
TOOLS: Linux, Git, Docker, Kubernetes, WinDBG, gdb, JIRA
WEB DEVELOPMENT: JavaScript, TypeScript, React.js, Node.js, Three.js, jQuery, Socket.io, @Sun Life, @NCR
LOW-LEVEL PROGRAMMING: C, C++, Linux, Bluetooth, USB4, TCP/IP Sockets, Arduino, @Ford, @AMD
MACHINE LEARNING: Python, numpy, pandas, PyTorch, Tensorflow, sklearn
OBJECT-ORIENTED PROGRAMMING: C++, Kotlin, TypeScript, @Ford, @AMD
SCRIPTING: Bash, Python, Linux, grep/sed/awk, @uWaterloo, @Sun Life, @NCR

EMPLOYMENT ▸

Ford Motor Company — May 2023 - Aug. 2023
Software Developer Co-op
- Developed a program to tunnel UART from an Android device over a TCP/IP socket to a Linux workstation using C
- Contributed 25+ pull requests in C & C++ to Ford's Bluetooth drivers for their Android Infotainment System
- Achieved proficiency of Google's Make/SOONG build system in Android/AOSP

AMD — May 2022 - Aug. 2022
Software Developer Co-op
- Revised the Windows driver code to enable DisplayPort over USB 4 to an FPGA using C
- Worked on AMD's Graphics drivers for their mobile CPUs (rembrandt) using C and C++
- Refined my ability to quickly understand a massive C/C++ codebase using debugging tools such as gdb and WinDBG

University of Waterloo — Sept. 2021 - Dec. 2021
Instructional Support Assistant Co-op
- Developed a Benchmarking Suite to measure the performance of the students' max-clique algorithms using Python, Bash and Racket
- Created Linux scripts to automate creation of rubrics and mark deductions for 1000+ students using Bash and Python
- Operated entirely in an Ubuntu server environment to gain proficiency with Linux tools and scripting

Sun Life Financial — Jan. 2021 - Apr. 2021
Network Engineering Co-op
- Created a hardware inventory management system from scratch to save time and reduce errors for engineers using Python and JavaScript
- Maintained remote network switches using PuTTY and Linux expertise
- Developed scripts to parse error logs and assist coworkers using Python and Bash

NCR Corporation — May 2020 - Aug. 2020
Systems Software Engineering Co-op
- Developed a firewall automation portal from the ground up to enhance NCR's new security policies using JavaScript, Node.js and React
- Maintained the scripts used to generate the company's performance analytics using Python, Pandas and Numpy
- Wrote a professional report to successfully persuade NCR's security team to adopt my firewall portal

PROJECTS ▸

CNN Image Classifier
- Developed a case-study focused on improving CNN accuracy for image classification from unlabeled data
- Utilized Principal Component Analysis (PCA) and K-means clustering to normalize and cluster unknown images using PyTorch, Tensorflow, and sklearn

Flight Simulator
- Created a flight simulator that is controlled by the gyroscope in a smartphone using Socket.io and Docker
- Implemented the 3D motion from scratch using vectors and quaternions in React and Three.js

Chess Endgame Solver
- Created a program that solves arbitrary endgame chess positions using graph theory in Python
- Optimized functions to work with over 4.5 million graph connections using data structures and algorithms knowledge

VR Vectors
- Developed an educational 3D vectors sandbox to introduce high school students to vectors and planes in 3D
- Created using Typescript, Three.js, React.js and various libraries

Braille Box - Hack the North
- Designed a device in 24 hours which translates text into tactile Braille characters for visually impaired people
- Programmed in C++ and created using an Arduino with servos and ultrasonic sensors