DIVIT SHARMA

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Education

University of Waterloo — *Waterloo, ON*
CANDIDATE FOR BACHELOR OF COMPUTER SCIENCE | TERM 4A | GPA 3.7 — *Sep. 2016—Apr. 2021*

- Relevant courses: Computer Graphics, Networks, Operating Systems, Object Orientated Programming, Algorithms & Data Structures, User Interfaces, Intro to Database Management

Skills Summary

Languages	C++, Python, C#, Java, HTML / CSS / JavaScript
Tools	Buildkite, Unreal Engine 4, Unity3D (C#), Qt, ROS (C++), Git & Perforce
Expertise	Proficient in C++ & OOP, experienced with Qt, Robot OS (ROS) and game development

Experience

AV Simulation Engineer — *Waterloo, ON*
WATERLOO INTELLIGENT SYSTEMS ENGINEERING (WISE) LAB — *Jan.—Aug. 2020*

- Developed a traffic simulation client in **Unreal Engine** for WISE Lab's **automated vehicle** (AV) stack
- Built **python modules** to perform **path planning** for AVs, including obstacle avoidance and behaviour planning

Software Infrastructure Engineer — *San Francisco, CA*
IKE ROBOTICS — *Sep.—Dec. 2019*

- Created and managed **ETL pipelines** using **Buildkite** to ingest and store sensor logs from automated trucks
- Automated triage and optimization of **~300GB** of data daily for simulation and continuous development of Ike's autonomy stack, using bash and **python scripts**
- Migrated data processing pipelines to the cloud using **Google Kubernetes Engine**, cutting runtimes by **500%**
- Scaled the number of parallel simulations by **10 times** by moving them to **GCP**

Game Developer — *Montréal, QC*
BEHAVIOUR INTERACTIVE - DEAD BY DAYLIGHT — *Jan.—Apr. 2019*

- Designed and presented **software architecture** for an upcoming playable character in a large multiplayer game, focusing on modularity, scalability, performance and network synchronization
- Prototyped and implemented the new mechanics and abilities in **Unreal Engine 4** (C++), working closely with game designers, VFX and sound artists, other programmers and tech leads
- Optimized performance-heavy gameplay elements by refactoring tick-based mechanics to event-based

Product Developer — *Waterloo, ON*
FORD MOTOR COMPANY — *May.—Aug. 2018*

- Developed a lightweight **frontend** for SYNC (Ford's infotainment system) using **Qt (C++)**, for the purpose of quick iteration and testing for developers
- Performed unit testing on multi-threaded code using GTest and GMock, refactored code to increase testability

Undergrad Research Assistant — *Waterloo, ON*
WATERLOO INTELLIGENT SYSTEMS ENGINEERING LAB — *May 2017—Apr. 2018*

- Researched and proposed a **high-detail context map** format for self-driving vehicles
- Oversaw the cross-functional process of data collection and automated map creation through python scripts
- Wrote **Robot OS** (ROS) modules to query the HD context map while driving, enabling basic localization and routing
- Refactored **thousands of lines of code** to better adhere to OOP principles and cut compile time **by a half**

Projects

McGill Game Jam - Online Multiplayer Shooter — *Mar. 2019*

- A class-based 3 vs. 1 online shooter, made in 48hrs in a team of 3 using UNet and Unit3D's relay server
- Game features **procedurally generated levels**, custom **network lobby**, and online **P2P** gameplay

Java Vector Drawing Software — *Sep. 2018*

- A vector drawing program built with Java's Swing toolkit as a project for a third-year User Interfaces course
- Built to demonstrate **OOP patterns** (like MVC), modular design, and **responsive UI**. Earned a mark of 96%