

# SEBASTIAN NEGULESCU

4A Computer Science, Honours Co-op

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## SKILLS

- Technologies: C++, C, Python, PyTorch, OpenGL, JavaScript, Git
- Experience working in an agile environment with stand-ups and sprints
- Tenacious work ethic, ramps up easily in new projects and technologies
- Team player with excellent communication, written and verbal skills
- Hardware enthusiast with experience in building computers, keyboards

## EDUCATION

### UNIVERSITY OF WATERLOO

- Candidate for Bachelor of Mathematics, Computer Science 2024
- René Descartes National Scholarship
- President's Entrance Scholarship

## EXPERIENCE

### NUVATION

Sept - Dec 2023,

Jan - Apr 2023,

Jan - Apr 2022

Embedded Software Developer

- Integrated the littlefs filesystem in an embedded application, allowing for smaller file footprints
- Fixed thread join behaviour of a proprietary threading library in C using Microsoft's ThreadX
- Developed software to cycle battery charge using an inverter and battery management system
- Empirically determined an inverter's DC to AC power efficiency with Python's SciPy
- Used Python coroutines to develop a state machine for controlling inverter behaviour
- Created a procedure to use spectrophotometers for reading pH and dissolved oxygen

### UNIVERSITY OF WATERLOO

May - Aug 2023

Undergraduate Research Apprenticeship

- Conducted research for the Libfibre user-level M:N threading runtime project
- Investigated the use of locks between user threads and system threads
- Build a mutex data structure in C++ to manage critical sections between user and system threads

### ACCEDO

Jan - Apr 2021,

May - Aug 2020

Software Developer

- Developed the Equinox Fitness Android TV application using React and GraphQL
- Implemented design changes on a custom skew of Dish Networks' streaming app
- Ported a major Showtime Networks' video streaming application to Comcast X1
- Added SmoothStream support and reworked analytics on SportsNet's PS4 application
- Solved live video deep linking issues on SportsNet's Comcast X1 (Ignite TV) application

## PROJECTS

### VOLUMETRIC RAYMARCHER

Aug 2023

- Used the technique of raymarching to render volumetric effects such as clouds
- Employed single scattering with a scattering function to trace the path of light through the volume
- Generated randomized cloud volumes using the Perlin noise technique

### RAYTRACER

Dec 2022

- Created a raytracer to produce an image of a 3D scene defined in Lua
- Supports constructive solid geometry (CSG) and multiple primitives including triangle meshes
- Designed a scene involving a LEGO person as well as small houses placed upon a table

### CHIP-8 EMULATOR

Aug 2022

- Used C++ and the SDL2 library to create a working emulator of the Chip-8 instruction set
- The emulator can load Chip-8 ROMs and play them using the keyboard as input

### LUDUM DARE

KAGGLE COMPETITION

Dec 2021

- Analyzed Ludum Dare 38-45 results in a decision tree to predict winners for Ludum Dare 46
- Used the XGBoost library in Python to construct an accurate tree based on the training data
- Ranked in the top 20% of students in the competition