Sebastian Negulescu

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Skills

- Technologies: C++, C, Python, JavaScript, OpenGL, OpenCL, Git, Linux
- Areas of Interest: Computer Graphics, Embedded Devices, Operating Systems
- 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 tinkerer with experience in building computers, keyboards

Education

University of Waterloo

- Bachelor of Computer Science, with Distinction
- René Descartes National Scholarship
- President's Entrance Scholarship

Experience

Nuvation
Jan 2025 - Present,
Sept - Dec 2023,
Jan - Apr 2023,
Jan - Apr 2022
Software Developer

- Integrated the littlefs filesystem in an embedded application, allowing for smaller file footprints
- Resolved thread join behaviour of 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 procedures to use spectrophotometers for reading pH and dissolved oxygen

University of Waterloo
May - Aug 2024
Undergraduate Research Fellowship

- Supervised by Tim Brecht, in a joint project with the NHL and Rogers SportsNet
- Used Puck and Player Tracking (PPT) data for advanced hockey metrics and insight
- Used PPT data to construct models that identify rebound speed and direction
- Developed metrics for shot difficulty using the solid angle of the net to the puck
- Investigated the relationship between individual player possession and their offensive success

University of Waterloo
May - Aug 2023
Undergraduate Research Apprenticeship

- Supervised by Martin Karsten, researched for Libfibre: a user-level threading runtime
- Investigated the use of shared locks between user threads and system threads
- Built 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 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

Real-Time Microkernel for Train Control
Apr 2024

- Created microkernel from scratch using C++ for the Raspberry Pi 4 in CS 452
- The kernel has support for 32 tasks with 10 priority levels, scheduled in round-robin fashion
- Programmed tasks on top of kernel to locate, calibrate, and route two model trains around a track

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

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