Maya Warrier

maya.warrierm@gmail.com| (647) 928 7960 | github.com/mayawarrier| 304, 391 Berkeley St, Toronto, ON M5A 2X8

Education/Skills

University of Toronto, St. George Campus **Expected Graduation May 2024**

BASc. Computer Engineering

Standardized Test Scores: SAT: 2130/2400 (eq. to 1510 on new SAT), SAT Math Level II: 800/800

Relevant coursework: Operating Systems, Computer Graphics, Computer Hardware, Programming Languages, Data Structures and Algorithms, Artificial Intelligence Fundamentals, Probability and Applications, Probabilistic Reasoning, Computer Security

Technologies: C++, C#, C, Verilog, SystemVerilog, Python, Java, GLSL/HLSL, HTML/CSS, Javascript, PyTorch, TensorFlow, .NET, WPF, XAML, JSON, XML, Unity3D, Boost, POSIX Threads, GTK, OpenGL, Azure DevOps, Linux, Agile, OOP, Git,

Environments: Desktop App Development, Machine Learning, Game Development, Web Development, Embedded Devices

Relevant Work Experience

Software Developer Co-Op at Rocscience Inc (Toronto, ON) May 2020 – Sep 2021

- Helped create the core library for Rocscience's then upcoming line of 2D geotechnical software with a team of 3
  - Ported the object snap, snap to grid features from the legacy **C** codebase into **C#**
  - Developed a reflection-based **JSON** library to automatically generate fast serialization code
  - Developed the new state-based Undo/Redo, leveraging the JSON library to quickly serialize large objects
  - Leveraged **C#**, **.NET Core** and **WPF** to create intuitive user interfaces used to make CAD drawings

Software Engineer Intern at Rocscience Inc (Toronto, ON) May 2019 – Aug 2019

- Developed 3D contouring and visualization tools in **C#** and **.NET WPF** for Rocscience's Examine3 product
- Migrated the legacy graphing system to Examine3 and refactored it for easier porting to future products
- Designed the foundation of Examine3's field point contouring, visualization, and graphing tools

Research Assistant at Dept. of Civil Engineering, UofT (Toronto, ON) Dec 2017 – Jan 2019

- Co-developed "city-builder" in **Unity3D**, a cross-platform tool to help civil engineers and urban planners design cities
- Developed a **JSON**-based file format to describe cities, roads, and lanes
- Created an API and **UI tool** to create lanes and roads and customize their sizes, types, signage, etc.
- Worked with PhD candidates with regular meetings under the direction of Dr. Tamer Diraby

Leadership Experiences

Competition Director at UofT Engineering Kompetition (UTEK) (Toronto, ON) Sep 2019 – Mar 2020

- Conceptualized and created the programming challenge and hosted the programming event, conducting a promotional bootcamp during its leadup and coordinating with industry judges to aid with scoring
- Worked with other UTEK directors under the supervision of Ontario Engineering Competition (OEC) and FECC
- Achieved the largest turnout for the programming event in over five years

Co-Founder, Team Pulse at Entrepreneurship Hatchery Startup Incubator (Toronto, ON) May 2018 – Aug 2018

- Co-founded Pulse, a networking-focused events platform with a team of 5
- Took lead of presenting and pitching product at biweekly investor meetings comprised of prominent VCs
- Collaborated with industry mentors and on-campus groups, gaining endorsement from 3 large campus groups

Projects and Open-Source Contributions

fast_float github.com/fastfloat/fast_float

- Made significant contributions to fast_float, a high-performance floating-point parsing library in **C++** that is part of GCC 12+, LLVM (clang, Rust), and WebKit.
  - **Improved performance by 10%** for **Unicode** (**UTF-16**) strings using **x86 SIMD**
  - Implemented the **fast integer parser,** and added support for the **JSON** number format

raytracing-denoising

- Worked on project to replicate Nvidia's Optix AI denoising model on a consumer machine. Up-samples noisy rendered images into higher quality in seconds that could otherwise take an hour to render
  - Researched and implemented the first version of the model on **PyTorch** by simplifying Optix's model
  - Designed and implemented a system to generate 1000s of rendered training images for the model

si-json github.com/mayawarrier/si-json

- Header-only templated JSON library for **C++**, with support for custom allocators and fancy pointers
- Aims to have a simpler API than other libraries like rapidjson, but still remain performant
- Features a custom string type that is **up to 15% faster than the standard library on Windows**

Miscellaneous

Dean's Honour List in Fall 2017, Fall 2022. Member of UTRA Robotics club, invited to be director. Wrote article for Cannon newspaper on the intern experience. Led a team of 9 developers to create demo for a potential sci-fi game "905"