

# Mark Seufert

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## WORK EXPERIENCE

### AMAZON – AWS | C++ DEVELOPER

Sep 2020 – Dec 2020

Created a logging library in C++ for a large opensource project called OpenTelemetry.

- Contains a flexible, thread-safe API that allows users to log various datatypes, such as strings, numbers, and key/values.
- Implemented log exporters for several targets, such as SQL, Elasticsearch, JSON, and the console.
- Followed AWS's software design principles, which consisted of writing design documents, making unit tests using Google Test, giving technical demos to other teams, and using CMake for cross-platform support.

### NPX INNOVATION | FULL-STACK DEVELOPER

Sep 2019 – Dec 2019

Developed a mobile app called X-TRACK to monitor the location and status of a nuclear power plant's employees.

- Used Java / Android Studio to create the mobile app which contained a sign-up/sign-in page, a map page, and a profile page. Used Flask for the web server, Firebase for data storage, and Postman for testing REST endpoints.

Created a Christmas game to promote the company that attracted 100s of kids to the office.

- Developed with C# / Unity for game design, where Santa jumps over procedurally generated obstacles. Used Arduino rigged with an IR sensor for real-world jump detection. Connected the game to Firebase to store the global high score.

### NICOYA | C# APPLICATION DEVELOPER

Jan 2019 – Apr 2019

Created a tool that automatically captured and analyzed data, which reduced the QA team's testing time by 50%.

- Used C# / .NET with WPF to create a graphical application, where equipment data is loaded in and parsed to remove outliers. The standard deviation is calculated against previously accepted data to determine if data is acceptable.
- Wrote multithreaded C++ code to automatically capture equipment data through USB by continuous polling.

### LENS IMMERSIVE | C++ AND MATLAB DEVELOPER

Jan 2017 – Dec 2017

Worked on virtual-reality video compression software called TORII.

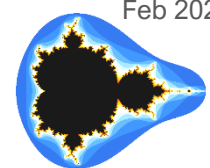
- Converted the codebase from MATLAB to C++, which resulted in an executable file and a speed increase of 100x.
- Created an arithmetic bitstream compressor which compressed TORII video files an additional 5%. Used MATLAB for prototyping, C++ for implementation, and performance profiling through the Visual Studio Profiler for optimizations.

## PROJECTS

### FRACTAL RENDERING ENGINE | DEVELOPER

Created an interactive fractal viewer in C++ that infinitely explores mathematical shapes.

- Uses OpenGL for rendering and multi-threaded programming for an 8x performance increase.
- Opensource on GitHub, and the project uses CMake so that it can be built on any platform.
- Has an easy-to-use API which allows users to write their own features.



Feb 2021

### WATERLOO ENGINEERING COMPETITION | FIRST PLACE

Jan 2020

Worked in a 4-person team to design, build, and pitch a Bluetooth controlled robot that retrieved metal objects beneath cups.

- Used C / Arduino to program the robot, Java to create a simple UI, and breadboard logic for motor control.

### TRIBREAK | DEVELOPER

Apr 2019

Developed a puzzle game for Android where the player strategically breaks triangles to beat levels.

- Used C# / Unity for the implementation and the Visual Studio Profiler for optimizations
- Programmed the gameplay using graph theory, position interpolation, and trigonometry
- Available on Google Play: <https://play.google.com/store/apps/details?id=com.MWAS.TribreakV2>



## SKILLS

### LANGUAGES

C • C++ • C# • Java • JavaScript • MATLAB •  
Python • SQL • HTML/CSS • Shell • Assembly

### TOOLS

GitHub • Git • Visual Studio • Android Studio • CMake •  
OpenGL • Arduino • SQL • Postman • Unity • Ukulele