Mark Seufert

4th year Computer Engineering
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EXPERIENCE

NPX INNOVATION | FULL-STACK DEVELOPER — Sep 2019 – Dec 2019

- Created a tracking service called X-TRACK to monitor the location and status of all employees. Used Android Studio for the mobile interface, Flask for web APIs, Firebase for data storage, and Postman for testing REST endpoints
- Replaced paper forms with web forms for a client by creating an ASP.NET website connected to a SQL database
- Created a physics-based Christmas game to attract 100s of kids to the office. Used C# / Unity and C / Arduino.

NICOYA | C# APPLICATION DEVELOPER — Jan 2019 – Apr 2019

- Created an analytics calculator to calculate and graph metrics from an experiment. Used WPF / .NET in Visual Studio for the front end, C# for the backend, and OpenGL for graphing functionality
- Wrote light sensor pairing software to measure the light absorption rating of numerous sensors and pair them according to similarity. Used multithreaded C++, and hardware interfacing through FTDI USB

IGNIS INNOVATION | C# BACKEND DEVELOPER — May 2018 – Aug 2018

- Created a curve fitting library (DLL) for the use in LED burn in reversal. Used OpenCL for matrix-based GPU calculations, C++ for the CPU logic, and Google Test as the unit testing framework
- Added features and optimizations to the customer facing application. Used WinForms / .NET in Visual Studio for the front end, C# and Lua for the backend, and JIRA for agile software management

LENS IMMERSIVE | C++ AND MATLAB DEVELOPER — Jan 2017 – Apr 2017, Sep 2017 – Dec 2017

- Worked on VR video compression software called TORII. I was responsible for converting the codebase from MATLAB to C++, resulting in a runnable .exe file and a speed increase of 100x.
- Created a 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

INDEPENDENT PROJECTS

WATERLOO ENGINEERING COMPETION | WINNER — Jul 2019

- Worked in a 4-person team to designed and build a Bluetooth controlled robot with the ability to retrieve objects beneath cups. Used C / Arduino for the robot control and an AGILE workflow for fast prototyping
- Awarded $1000 and advanced to the Ontario Engineering Competition, where we competed for nationals

TRIBREAK | DEVELOPER — Apr 2019

- Developed a puzzle game for Android that requires the player to strategically navigate around triangles. Used C# / Unity for rendering, and used math concepts such as trigonometry and position interpolation for game logic
- Available on Google Play (https://play.google.com/store/apps/details?id=com.MWAS.TribreakV2&hl=en_CA)

MANDELBROT RENDERER | DEVELOPER — Feb 2019

- Created an interactive fractal viewer that allows the user to navigate an infinitely detailed shape. Used C++ for the backend, and GLFW / OpenGL for rendering.
- Wrote a research paper on the investigation of algorithm optimizations: https://markseufert.com/Mandelbrot.pdf

SKILLS

LANGUAGES

Over 5000 lines:

C • C++ • C# • Java • JavaScript • MATLAB

Over 1000 lines:

Python • SQL • HTML/CSS • Shell • Assembly

TOOLS

Visual Studio • Android Studio • Unity • Arduino • OpenGL / WebGL • Flask • Postman • MySQL • Git • Blue Prism • Linux • PowerApps