Layne Gustafson

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Education

Binghamton University, Binghamton, NY   **Expected 2020**
   GPA: 4.0/4.0 | Computer Science (B.S.) and Mathematics (B.A.) Double Major
   President's Circle of Excellence Spring 2018 – Present | Dean's List Fall 2016 – Spring 2018
   Scholarship of Excellence | IBM/Watson Fellows Scholarship | University Scholar

Professional Experience

IEEE Mars Rover for University Rover Challenge, Software Team Co-Lead   **Fall 2017 – Present**
- Design and implement major components of software for a prototype mars rover
- Design a reliable communication protocol over UDP and oversee its implementation in C++
- Assist with long-term planning and design of the rover software systems
- Implement real-time C++ software to handle rover networking, sensor data, and camera feeds

School Netbook Reimaging   **January – June 2016**
- Re-imaged slow and unusable school-wide netbooks to run Linux, authenticate users via Active Directory, and use Samba to sync user files
- Created a custom Ubuntu distribution with installation scripts to quickly deploy to all school netbooks

Project Experience

Procedural Terrain Generator
- Used OpenGL to render 3D procedurally-generated low-poly terrain
- Designed a DSL for describing the noise graph used to generate the heightmap

RowsOfB: Matrix Calculator Web Application
- Created an online matrix calculator using HTML, CSS, and Dart (rowsofb.com)

TrackGen: Procedural Racetrack Generator
- Developed a simple method for procedurally generating curved, looping 2D racetracks and built a simple web-based demo (layneson.github.io/trackgen)

LED Matrix Weather Indicator
- Created an animated weather indicator using a Raspberry Pi and an LED matrix, written in C and Go
- Used the CGo extension and Adafruit's ws2811 LED library to bind Go to Pi's PWM and GPIO ports

Research Experience

Freshman Research Immersion Program   **Fall 2016 – Spring 2017**
- Researched the user of convolutional neural networks to recognize images of occluded faces
- Designed a novel neural network structure based upon that of state-of-the-art deep learning literature
- Implemented our method, evaluated its performance, and composed a paper detailing our process
- Presented our work to faculty, staff, and students at Binghamton University poster conference

Technical Skills

Languages: C, C++, Go, Java, Python
Software and Operating Systems: Git, Make, Bash shell, Visual Studio, Intellij IDEA, Windows, Linux
Notable Libraries: OpenGL, OpenCV, Keras, Video4Linux

Other Interests

Binghamton University Wind Symphony, Percussionist   **Fall 2016 – Present**
Binghamton University Percussion Ensemble   **Fall 2016 – Spring 2018**