

Education

University of Illinois Urbana-Champaign | *Expected May 2019*

GPA: 3.87/4.0

BS in Computer Science — Minor in Electrical and Computer Engineering, and Music

Work and Leadership Experience

Argonne National Laboratory | *Research Aide*

Jun 2017 - Aug 2018

- › Designed a scalable algorithm for using a remote RAM pool to enable in situ processing.
- › Performed timing studies of a C++/MPI implementation that achieved 67 GB/s of bandwidth.
- › Wrote paper that was published as part of the RAW 2018 workshop.

Genesis Automation | *Software Developer*

Jun 2015 - Jan 2018

- › Programmed drivers and state machines to control the operation of the automation equipment.
- › Designed and implemented various applications to improve efficiency such as easier computer installation, an improved label printer, and a machine IO code formatter.
- › Migrated the most commonly used paper forms to accessible web applications.
- › Designed a method for the machine's code to compile and execute DLL scripts.

Robotics Clubs (FRC Robotics & iRobotics) | *Programming Lead*

December 2013 - Present

- › Hosted programming sub-team meetings and developed training material for new members.
- › Wrote the software architecture to section the code into individually assignable segments.

Skills

Compiled Languages: C++, C, Java, C#, Fortran, GLSL, OCaml, Haskell

Interpreted Languages: Python, R, Matlab, SQL, PHP, JavaScript, Batch, Bash, Lua, Visual Basic

Assembled Languages: x86 Assembly, Z80 Assembly, MIPS Assembly, 6502 Assembly

Markup and Hardware Description Languages: Latex, HTML, Markdown, Verilog

APIs: MPI, OpenMP, Charm++, OpenGL, SDL, SFML, OpenCV

Environments: Linux, Git, Unity, Arduino, Make, CMake, Android, Visual Studio, Pure Data

Software Tools: Eagle, SolidWorks, Autodesk Inventor, Audacity, MuseScore

Independent Projects

Vector Wireframe Renderer

C++, OpenGL, SDL

- › Designed an SDL/OpenGL application to render silhouetted wireframes in the style of a vector monitor.
- Optimized the program to render in real-time with a movable camera.

1D

Java

- › Constructed a graphical engine that rasters a 2D world to a 1D viewport featuring z-buffering and shaders.

Swerve Drive Demonstration Game

C++, Java

- › Developed a Java game to demonstrate the functionality of a drive system constructed for FRC robotics.
- Presented playable demonstration at a competition to passersby and released it on the FRC forums.

Glory

Unity, C#

- › Worked with a team of 3 to make a 3D wave based survival game in Unity for a 12-hour gamebuild-a-thon with the theme of Glory. Created player progression system, audience animation, and enemy design and AI.

Various Puzzle Solvers

C++, Java

- › Designed and wrote several complex algorithms to solve puzzles such as a Rubik's Cube, a minesweeper variant, and a game of Tetris.

Z80 Assembly Math Program

Z80 Assembly, TI-BASIC

- › Created a math program for the TI-83+ to complete math homework faster. Ported to Z80 assembly to improve operational speed and add features not previously possible.