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Bennett Bernardoni

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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

Complied 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: OpenGL, SDL, SFML, CUDA, MPI, OpenMP, Charm++, OpenCV
Environments: Unity, Git, Linux, Visual Studio, Make, Arduino, Android

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.

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.

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

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.