David S. McDermott

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EDUCATION	*Bachelor of Science* Computer Engineering, Electrical Engineering

Bachelor of Science Computer Engineering, Electrical Engineering
The Pennsylvania State University, University Park, PA   May 2019
College of Engineering & Schreyer Honors College
Majors: Computer Engineering, Electrical Engineering   GPA: 3.51/4.00

EXPERIENCE

Design for Test and Characterization Intern   May 2018 - Present
IBM, z/Systems, Poughkeepsie, NY
- Assisted in migration from single use Perl scripts to object oriented Python
- Assisted in development of new chip test platform
- Developed CP characterization routines that ran 40% faster than before
- Developed interactive testing and visualization platform for characterization
- Identified potential 10% reduction in dynamic power of latches for z/CP

Relevant Skills: Python, Jupyter Notebooks, SQL, Neo4j, Cypher Query, VLSI

Visualization Intern   May 2017 - May 2018
The Pennsylvania State University Applied Research Laboratories, Synthetic Environments and Applications Laboratory, University Park, PA
- Supported development for existing visualization applications in an Agile team
- Parallelized physics simulation and rendering engines on existing application
- Resolved rendering issues in CAVE environments
- Developed new portable file format built on top of SQL
- Developed several new data pipelines for databases, blockchains and Excel

Relevant Skills: Java, OpenGL, C, SQL, SQLite, Apache Tomcat, Unity 3D, C#
Other Information: Active US Secret Clearance

STEM Tutor   August 2016 - December 2016
The Pennsylvania State University, Brandywine STEM Lab, Media, PA
- Tutored Computer Science & Engineering students in C++
- Tutored Electrical & Mechanical Engineering students in MATLAB
- Tutored IST students in Java

Relevant Skills: C++, MATLAB, JAVA

Lion Ambassador   October 2015 - May 2017
The Pennsylvania State University, Brandywine Office of Admission, Media, PA
- Gave tours to prospective students and their families
- Gave presentations on engineering at Penn State
- Assisted in organizing and running admissions events for prospective and accepted students

Relevant Skills: Teamwork, Communication, Public Speaking

PROJECTS

Robot Arm Control with OpenCV   Spring 2017

The Pennsylvania State University, CMPEN 270

- Worked with a team of two other students to develop robot arm control
- Developed rudimentary object location code in C++ with OpenCV
- Developed interface for Rhino robot arm for Windows 10 over RS232

Relevant Skills: C++, WinAPI, OpenCV

Wristband Scanner   Spring 2018 - Present

The Pennsylvania State University, HackPSU

- Worked with a team of several other students to develop an IOT scanner
- Developed C++ abstractions for Arduino to interface with RFID scanner chips
- Developed PCB design using with multiple micro-controllers and planar antennae

Relevant Skills: C++, Arduino, PCB Design, Antenna Design

Demolition Simulator   Fall 2016

The Pennsylvania State University, GAME 220

- Developed a simple game using the Unity physics engine to knock around blocks.
- Developed custom mesh deformation script, moving triangles on individual blocks

Relevant Skills: Unity, C#, Game Design, Computer Graphics

Demolition Simulator   Fall 2016

The Pennsylvania State University, GAME 220

- Developed a simple game using the Unity physics engine to knock around blocks.
- Developed custom mesh deformation script, moving triangles on individual blocks

Relevant Skills: Unity, C#, Game Design, Computer Graphics

Partial MIPS32 CPu   Fall 2017

The Pennsylvania State University, CMPEN 331

- Developed a functional ALU, load/store unit, and branch control logic
- Developed a five-stage pipeline with on the fly hazard detection
- Developed an L1 cache with LRU replacement policy

Relevant Skills: Verilog, Computer Architecture, MIPS Assembly

Millimeter Scale Fabrication Process   Spring 2018

The Pennsylvania State University, EE 340

- Developed "at home" methods for device fabrication for use in large classroom
- Researched alloy junctions for creating PN junctions for diodes and BJTs
- Researched oxide growth for creating MOS devices including capacitors and FETs
- Used HP parameter analyzer and MATLAB to characterize device performance

Relevant Skills: Device Physics, Semiconductors, Parameter Analyzers, MATLAB

Report Automation   Spring 2018

The Pennsylvania State University, Tau Beta Pi

- Developed an automated process to parse academic records into a reduced format for on-line ingest
- Served as corresponding secretary for Tau Beta Pi PA Beta honors society

Relevant Skills: Technical writing, Python

SKILLS

Programming Languages: Java, C, C++, x86 Assembly, MIPS Assembly
Scripting Languages: Python, MATLAB, Shell (Bash), Perl, PHP
Hardware Languages Verilog HDL, VHDL
Development Tools: GCC, GDB, Make, Visual Studio, Vim, MPLAB, Virtuoso
Design Tools: Cadence Virtuoso, Autodesk EAGLE
Databases: SQL Server, MySQL, MariaDB, SQLite, Neo4j