David S. McDermott

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HIGHLIGHTS Dual major student at Penn State with concentrations in computer architecture and solid state engineering with research experience in semiconductor fabrication process and design for test methodologies. Previously worked at Penn State ARL developing intelligence applications for data ingest and visualization resulting in an active US Secret clearance and at IBM developing Logic Built in Self Test (LBIST) routines for Z series processors on a new test platform with a flexible object oriented interface.

SKILLS

Programming Languages: Java, C, C++, C#, x86 Assembly, MIPS Assembly
Scripting Languages: Python, MATLAB, Shell (Bash), Perl, PHP, Batch
Design Tools: Cadence Virtuoso, Autodesk EAGLE, KiCAD, NI Multisim

EDUCATION

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: 3.53/4.00

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 based on Kintex Ultrascale
- Developed CP Logic Built in Self Test 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, SQL, Neo4j, Cypher Query, VLSI, VHDL, BIST

Visualization Intern — May 2017 - May 2018
The Pennsylvania State University ARL, SEALab, University Park, PA

- Supported development for existing visualization applications in an Agile team
- Parallelized physics simulation and rendering engines on existing application
- Resolved race conditions in scene graph of rendering engine for CAVEs
- 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

Projects

4KB SRAM Cache — Fall 2018
The Pennsylvania State University, CMPEN/EE 416

- Worked with partner to develop 4KB SRAM Cache using 200nm TSMC process
- Developed Python tools to optimize path length & transistor sizing
- Completed schematic, layout, and simulation using HSPICE

Relevant Skills: VLSI, Cadence Virtuoso, Computer Architecture, Python

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
- Developing PCB design with multiple micro-controllers and planar antennae

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