Ian Samuel Jackson

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Interests

- **Hardware Design:** Computer architecture, CPU/GPU design, FPGAs, VLSI, Circuit design
- **Software:** Backend development, Data engineering, iOS development

Experience

ManTech   Clarksburg, WV

Application Developer Intern   Feb. 2022 - Present

- o Programmed automated test on FBI's Crime Data Explorer (CDE), Uniform Crime Reporting (UCR), and Use-of-Force (UOF) while maintaining an active TS/SCI.
- o Test utilized CodeceptJS with JavaScript, HTML, and CSS.

Projects

W65C02S Computer

- o Constructed an 8-bit computer running at 1 MHz using the W65C02S microprocessor, 32 KB EEPROM, 32 KB SRAM, a versatile interface adapter, and a dot matrix LCD screen on a breadboard.
- o Programmed in x86 Assembly to display information on the LCD.

Design of a Simple CPU

- o Designed an 8-bit CPU equipped with 32 bytes of RAM and 3 different op codes.
- o Implemented on the Intel DE-10 Lite FPGA device and programmed in VHDL.

Graphics Card using ICs

- o Assembled a graphics card using ICs and a 32 KB EEPROM to display an 100x75 pixel image running at 1 MHz via a VGA cable
- o Integrated with the W65C02S computer to fetch image data from the SRAM.

Ping Pong Scoreboard

- o Created a scoreboard for a ping pong table using an Arduino Uno R3 and an LED matrix.
- o Coded in C++ using the Arduino IDE.

CMOS Logic Optimization

- o Calculated the optimal MOSFET width and length for a given CMOS logic network.
- o CMOS logic network was designed and simulated in LTSpice.

Skills

- **Hardware**: Intel DE-10 Lite (FPGA), Arduino, Raspberry Pi, Various ICs
- **Languages**: Java, Swift, HTML, CSS, x86 Assembly, JavaScript, VHDL, MATLAB, C/C++
- **Software**: LTSpice, VSCode, XCode, Quartus Prime, Eclipse, KiCad, JMP

Education

West Virginia University   Morgantown, WV

B.S. in Computer Engineering – CGPA: 4.0   Aug. 2020 – May 2024 (exptd.)

- o Area of Emphasis in Cybersecurity, Minors in Mathematics and Statistics
- o IEEE HKN member
- o Chief Information Officer for Student Government Association
- o WVU Math Club Secretary