

Ian Samuel Jackson

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Interests

- **Hardware Design:** Computer architecture, CPU/GPU design, FPGAs, VLSI, PCBs

Experience

ManTech

Clarksburg, WV

Application Developer Intern

Feb. 2022 - Present

- 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
- Test utilized CodeceptJS with JavaScript, HTML, and CSS

Projects

W65C02S Computer

- 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
- Programmed in x86 Assembly to display information on the LCD

Design of a Simple CPU

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

Graphics Card using ICs

- 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
- Integrated with the W65C02S computer to fetch image data from the SRAM

Printed Circuit Boards

- Designed and fabricated a custom PCB for a simple clock module using the IC555.
- All design and place and route work done in KiCad

CMOS Logic Optimization

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

Skills

- **Hardware:** Intel DE-10 Lite (FPGA), Cortex-M4, Arduino, Raspberry Pi, Various ICs
- **Languages:** Java, C/C++, x86 and ARM Assembly, VHDL, MATLAB, Swift, HTML, CSS, JavaScript
- **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.)

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