

# Ian Samuel Jackson

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## Interests

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

## Experience

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### 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

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### • 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 Assembly to display information on the LCD.

### • Design of a Simple CPU

- Designed an 8-bit CPU equipped with 32 bytes of RAM and 4 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 800x600 image running at 1 MHz via a VGA cable
- Integrated with the W65C02S computer to fetch image data from the SRAM.

### • Ping Pong Scoreboard

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

### • 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.

### • ScoreKeep App

- Programmed an iOS app to track scores of frisbee golf and darts games.
- Coded in Swift using XCode with a Firebase backend.

## Skills

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

## Education

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### 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