Ian Samuel Jackson

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Interests

Hardware Design: Physical design, Computer architecture, CPU/GPU design, FPGAs

Experience

Apple   Cupertino, CA
SoC Physical Design Intern   May 2023 – Aug. 2023
- Engineered and built an internal power debugging/analysis tool using TCL and Python to optimize chip designs
- Implement the physical design block using PnR EDA tools

ManTech   Clarksburg, WV
Application Developer Intern   Feb. 2022 – Apr. 2023
- 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 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

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++, Python, TCL, x86 and ARM Assembly, VHDL, MATLAB, Swift, HTML, CSS, JavaScript
- **Software**: Innovus, LTSpice, VSCode, Xcode, Quartus Prime, KiCad

Education

West Virginia University   Morgantown, WV
M.S. in Electrical Engineering   Aug. 2024 – May 2025 (exptd.)

West Virginia University   Morgantown, WV
B.S. in Computer Engineering – CGPA: 4.0   Aug. 2020 – May 2024 (exptd.)
- Minor in Mathematics
- IEEE HKN member