

# Alexander David Lukens

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## SUMMARY

4th Year Undergraduate Electrical Engineering Student pursuing specialization in VLSI Design and Computer Architecture  
Familiar with FPGA prototyping tools, analysis and design of logic circuits, and coding in object-oriented languages  
Seeking Graduate degree with emphasis on emerging Computer Architecture and Integrated Circuit Design

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## EDUCATION

ILLINOIS INSTITUTE OF TECHNOLOGY, CHICAGO, IL

2018 - Present

### **B.S. Electrical Engineering, Expected July 2021**

Camras Scholarship Recipient, Executive Board Member of Triangle Fraternity

- ECE 429 - Introduction to VLSI Design
- ECE 497 - ECE Independent Research/Special Projects
- ECE 441 - Microprocessors and Embedded Computing
- CS 450 - Operating Systems

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## SKILLS

- Proficient with Chisel HDL and Scala circuit design workflow
- Experienced with Assembly Language and understanding processor architectures by reviewing datasheets
- Utilized C programming to implement a basic bootloader for x86 emulator, entered kernel to execute compiled code
- Applied Verilog HDL to create digital logic circuits in Xilinx Vivado, verified functionality on FPGA board
- Competent with Git version control

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## PROJECTS

*Undergraduate Student, Illinois Institute of Technology*

2020 - Present

### **CHIPYARD SOC DESIGN FRAMEWORK**

Chicago, IL

- Utilized Chipyard framework to produce working RISC-V processor on Xilinx FPGA board
- Generated configurable interfaces for peripheral devices including SPI, UART, and GPIO using Chisel HDL
- Compiled thorough documentation using LaTeX to assist future students in proper setup and utilization of framework

*Undergraduate Student, Illinois Institute of Technology*

2021 - Present

### **Full Stack Web Development**

Chicago, IL

- Leveraged HTML, CSS, and Javascript to implement dynamic content for a web application
- Generated database queries using SQLAlchemy to serve user-specific content and track user progress
- Applied the HTTP RESTful API to connect IoT devices to a web application and send/receive data from a database

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## EXPERIENCE

*Lab Mentor*

2019 - Present

### **Idea Shop Prototyping Lab**

Chicago, IL

- Leveraged Flask Web Development suite to extend functionality of existing web application
- Wrote scripts using Bash and Python to automate installation tasks, migrate database tables
- Prepared and operated CNC Mill, Laser Cutter, 3D printers, electronic equipment

*Teaching Assistant*

2021 - Present

### **Illinois Institute of Technology, ECE Department**

Chicago, IL

- Supervised ECE students in a technical laboratory setting
- Translated Laboratory documents into LaTeX format to provide consistent styling and professional appearance
- Diagnosed issues with students' code in C and C++ coding languages
- Graded laboratory reports for students and gave feedback to help students improve

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## PERSONAL

- Good at Communicating, Interacting in Team-based, Goal-driven environments
- Served as Executive Board Member at Triangle Fraternity to maintain and upkeep Chapter house
- Active Member of IEEE Eta Kappa Nu & Tau Beta Pi Honor Societies
- Passionate about Public Transportation and Developing Technologies, Long-Distance Runner