

# David Yin

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## EDUCATION

**University of Illinois at Urbana-Champaign, Urbana, IL**  
*Bachelor of Science in Computer Engineering*

Aug 2021 – Dec 2024

## SKILLS

**Programming Languages:** Python, C/C++, HTML/CSS, JavaScript, GLSL, SystemVerilog, x86 Assembly

**Platforms & Frameworks:** Django, Tailwind, Linux, GDB, Synopsys verification toolchain, WebGL2

**Tools:** Git, Docker, Visual Studio Code, Eclipse, Quartus, DBeaver, Jenkins, Microsoft Office

## PROJECTS

**Out of Order Microprocessor**, Computer Organization and Design

Fall 2024

- Designed an explicit register renaming out-of-order microprocessor supporting RISC-V instruction set
- Implemented the core architecture in SystemVerilog and automated instruction functionality with Python scripts
- Debugged with verification tools (Synopsys Verdi, Design Compiler, Spyglass, RISC-V Spike, Verilator)
- Tested multiple function implementations on different branches with GitHub before finalizing design

**Linux-like Operating System**, Computer Systems and Programming

Spring 2024

- Developed a Linux-like operating system on an emulated 32-bit x86 processor with C and x86 assembly
- Constructed a keyboard input buffer to activate commands and navigate a read-only filesystem
- Enabled interrupt/exception handling, system calls, and multiple terminal compatibility with round robin scheduling
- Created extensive test cases for testing functionality within a Linux kernel and debugged using GDB

**FPGA Arcade Game**, Digital Systems Laboratory

Spring 2023

- Configured an arcade game (Bomberman) for a MAX10 FPGA using SystemVerilog to handle game logic
- Integrated color video output through VGA by utilizing a pixel/scan buffer and synchronizing pixel timing
- Broadcasted keyboard keycode to character logic through USB interface on FPGA to manipulate game state

**Detailed Graphics Modeling**, Interactive Computer Graphics

Fall 2024

- Programmed 8 different models with varying shapes, textures, and motion to experiment with the WebGL2 API
- Coded in JavaScript to create functions that interact with WebGL2 and added fragment shaders with GLSL
- Implemented a simplified version of WebGL2 in Python to draw colored triangles utilizing DDU scanline algorithm

## WORK EXPERIENCE

*Software Development Intern*, **Cox Automotive**, Atlanta, GA

May 2024 – Aug 2024

- Created a website aimed to support the QA team in locating useable test cases
- Connected existing test case database with 10,000+ entries to website with Python framework Django
- Improved search performance by 40% with keyword-based search filtering and result ordering
- Designed the website frontend using HTML, Java, Tailwind, daisyUI components, and htmx to handle user requests

*Software Engineering Intern*, **YOKE Gaming**, Atlanta, GA

Sep 2020 – Apr 2021

- Developed an in-app game for a football name/image/likeness fan engagement app
- Modeled 3 characters and added movement based character animation within Blender
- Imported character models and created basic C# scripts within Unity to support gameplay logic

*Sports Technology Intern*, **Fighting Illini Sports Tech**, Champaign, IL

Nov 2022 – May 2024

- Set up and distributed laptops, tablets, and scoreboards to coaching staff during sports games
- Monitored device performance mid-game and performed general IT services for 20+ stadium workers

*Hardware Engineer Intern*, **E-Gigus Data Group**, Atlanta, GA

Jul 2019 – Aug 2019

- Led a group of 4 interns in building a new PearsonVue testing center for students wanting to obtain IT certification
- Ordered components to build 4 PCs and improved wireless coverage by installing additional routers