

# Matthew Wei

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## EDUCATION

- University of Illinois at Urbana-Champaign** Champaign, Illinois
  - Bachelor of Science - Electrical Engineering, minor in Computer Science* *Aug 2020 - May 2024*
  - GPA: 3.67/4.00*
  - Courses: Computer Systems Engineering, Electronic Circuits, IC Device Theory and Fabrication, Logic Synthesis, Analog Signal Processing, Semiconductor Materials, Fields and Waves*

## SKILLS SUMMARY

- Languages:** C/C++, Python, HTML/CSS, Java, x86 Assembly, JavaScript, Perl
- Tools:** Git, Excel, Altera Quartus, LTSpice, MathLab
- Platforms:** Linux, Windows, Labview, macOS
- Soft Skills:** Critical Thinking, Communication, Team Player, Diligent, Time Management

## EXPERIENCE

- Texas Instruments** Dallas, Texas
  - Validation Engineer Intern* *May 2022 - Aug 2022*
    - Developed multiple scripts to optimize testing time and data collection for RF and Bluetooth device validation for embedded processing chips including separation of test sequences based on bench equipment, automatic generation of compiled data files, and instant test creation for new device implementation
    - Created a user-friendly Labview application GUI to work in parallel with Texas Instrument's testing UI
    - Authored design and script documentation, wrote and conducted unit tests, and integrated into Texas Instrument's pre-existing testing platform
    - Analyzed, organized, and compiled data from device's benchmark tests to be uploaded to data management server
- Construction Engineering Research Laboratory** Champaign, Illinois
  - Research Intern* *June 2021 - Aug 2021*
    - Accelerated development of water-treatment project by incorporating electrical devices such as methane sensors, solenoids, and pH detectors onto system's infrastructure
    - Designed and implemented plumbing routes on system to work with a PLC controls unit coded in RS Logic, increasing runtime efficiency up to 12%
    - Team player and worked with 12-member team on lab demonstration, leading subsections tasks, and reporting project progress weekly
- Diteq** Lenexa, Kansas
  - CAPS Student Worker* *Aug 2019 - Dec 2019*
    - Pioneered and integrated new product management method through cycle counting to warehouses for improved inventory accuracy
    - Analyzed and evaluated statistics of multiple companies over both benefits and drawbacks of cycle counting

## PROJECTS

- Linux-Based Operating System (Operating Systems, Low-Level Programming):** (Work in progress) As a team of 4, developed an x86 operating system modeled after the Linux kernel which includes support for synchronization, interrupt handling, file and memory management, and device drivers. Tech: Linux, C++, x86 Assembly
- Silicon Wafer (Silicon Fabrication, IC Integration):** (Work in progress) Fabrication of various IC devices onto a 4 inch silicon wafer using industry equipment and IC fabrication processes such as oxidation, diffusion, photolithography, and chemical etching. Tech: IC-CAP, Furnace, Evaporator, Probe
- Postfix Calculator (Computer Systems, Low-Level Programming):** Built a postfix expression calculator in 16-bit assembly utilizing the stack data structure. Calculator can perform basic operations such as addition, subtraction, multiplication, division, and exponential expressions. Tech: Linux, LC-3 assembly
- AM Radio Receiver (Analog Signal Processing, Communications, Electronics):** Constructed analog superheterodyne receiver with circuit schematics utilizing op-amps, envelope detectors, and bandpass filters. Tech: Signal Generators, Oscilloscopes, Spectrum Analyzer
- Vending Machine Coin Sensor (Digital Design, Digital Simulation):** Designed, simulated, and assembled digital circuit through backend VLSI hardware design that distinguishes USD coin types and calculates appropriate change. Tech: Altera Quartus

## INVOLVEMENT

- Baja SAE** Jan 2022 - April 2022
  - Electronics Team*
- Triangle Fraternity** May 2021 - Dec 2021
  - Technical Chair*