Matthew Wong

925-482-5886 | matthew-wong@berkeley.edu | linkedin.com/in/1matthewwong | github.com/w-matthew

Education

University of California, Berkeley — Berkeley, CA
Bachelor of Science in Electrical Engineering and Computer Sciences — *Expected December 2024*
Relevant Courses: Digital Integrated Circuits, Analog Linear Circuits, Computer Architecture, Microelectronics, Integrated Circuit Devices, Microfabrication Technology, Data Structures & Algorithms

Experience

Undergraduate Research Assistant — August 2024 – Present
Chien Group, Berkeley Sensor and Actuator Center — *Berkeley, CA*

- Developed a system to automate electrochemical measurements of aptamers
- Worked one-on-one with students with disabilities in creating study plans including lecture notes, mini quizzes, and review sessions

Data Engineering Intern — May 2024 – August 2024
Citylitics — *Toronto, ON*

- Fixed over 20% of the demographic database by calculating the Levenshtein distance for duplicates and updating parameters (county, zip-code, etc.) using Python and SQL
- Created a snippet labeling app to assist in training an AutoML classifier
- Developed a data-visualization dashboard to document Django admin permissions using BigQuery and Looker Studio

Projects

ASIC RISC-V CPU | *Verilog, Innovous, Hammer* — March 2024 – May 2024

- Created a 3-stage CPU running at 71.42 MHz
- Implemented a 4KB direct-mapped cache with SRAMs
- Verified edge-cases through testbenches and DVE
- Efficiently placed and routed design blocks to minimize wire delay

NMOSFET Design | *Sentaurus* — April 2024 – May 2024

- Developed an 20nm process n-type MOSFET using Si and SiO2
- Analyzed effects of biasing, and material thickness through band diagrams and I-V characteristics
- 60% decrease leakage current from original design by modifying work function and bulk doping concentration

Keyboard PCB | *KiCad* — December 2023

- Built an Atmega32u4 micro controller based PCB for a MX-style keyboard
- Added decoupling capacitors to reduce noise and pull up resistors to define states
- Implemented a micro-USB port for power connection through a MCU
- Exported Gerber file for fabrication and attained knowledge to set PCB materials, layers, thickness, and surface finish specifications

Technical Skills

Languages: Verilog, Python, C, Java, Assembly x64, and SQL
Tools: LT Spice, KiCad, Logisim, Innovous, Hammer, Sentaurus