

Xue Ru Zhou

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EDUCATION

The Cooper Union for the Advancement of Science and Art Sep. 2023 – Present
MEng in Electrical Engineering (GPA: 4.0/4.0) New York, NY
Thesis: Low-power and wideband quadrature phase generator for wireless communication

BEng in Electrical Engineering (GPA: 3.7/4.0) Sep. 2019 – May 2023
Minor in Computer Science

RESEARCH EXPERIENCE

Graduate Student Researcher: Master's Thesis Sep. 2023 – Present
The Cooper Union, Advised by Professor Jabeom Koo New York, NY

- Designing an inductorless wideband quadrature phase generator with an emphasis on low power consumption

Undergraduate Researcher: Senior Thesis Sep. 2022 – Present
The Cooper Union, Advised by Professor Jabeom Koo and Professor Neveen Shlayan New York, NY

- Taped-out Wi-Fi 6 RF receiver front-end team design consisting of a low-noise amplifier, mixer, and oscillator
- Utilized the 130 nm SKY130 PDK in partnership with Efabless, NYDesign's I.C. program
- Emphasized linearity optimization, with simulations of individual blocks indicating comparable or better linearity performance to existing designs although further improvements could have enhanced the overall performance
- Awaiting chips to be fabricated for further testing

Research Intern: Project Lumen Feb. 2022 – May 2022
The Cooper Union/Mt Sinai, Advised by Professor Neveen Shlayan and Mt Sinai BioDesign New York, NY

- Collaborated in a team to develop prototypes for brain-implanted light-emitting devices that decelerate the progression of Alzheimer's disease through neural recovery
- Focused on exploring fiber optics for light transmission and regulators to maintain illumination levels in the brain
- Resulted in a prototype and test protocol that will contribute to further tests on cadaveric brain tissue

WORK EXPERIENCE

Hardware Engineer Intern, Summer 2023 June 2023 – Aug. 2023
Persistent Systems LLC New York, NY

- Led data transfer and video benchmark testing of USB-C to USB-C connector boards for a new prototype device
- Designed and ran a test system with over 60 scenarios of which included baseline cases, usage of various utility tools, interfaces to different monitors, disks, reclockers, laptops, HDMI and DP cables, and testing instruments
- Conclusively identified suboptimal performance in the connectors, providing insights for future iterations

Part-time Hardware Engineer Intern, Fall 2022 Sep. 2022 – Jan. 2023
Persistent Systems LLC New York, NY

- Designed a GUI that calculates the high-frequency impedances of various components within a cable pinout
- Supported other engineers in evaluating the functionality of hardware and firmware through iterative testing

Hardware Engineer Intern, Summer 2022 May 2022 – Aug. 2022
Persistent Systems LLC New York, NY

- Conducted power efficiency assessments on prototype main boards and successfully debugged voltage rail issues
- Developed a Java script to automate the functionality of a pocket oscilloscope for quality control testing
- Performed a design review of pinouts/footprints in schematic and layout on a device interface board
- Created a comprehensive design for an integrated antenna power supply unit

TEACHING EXPERIENCE

Co-Instructor

July 2021 - Aug. 2021

Cooper Union Summer STEM Outreach: Medicine and Machine Learning

New York, NY

- Introduced machine learning and its practical applications to a total of 46 high school students coming from diverse educational backgrounds, starting from Calculus and basic programming skills
- Covered topics in linear regression, Python, quantum mechanics, and electronics through lectures and assignments
- Facilitated students in completing a final project involving 1D and 2D linear regression for health outcome prediction, followed by their online presentations to their program cohort

Grader

Sep. 2021 – Present

The Cooper Union: Circuit Analysis, Physics II, Physics III, Linear Algebra

New York, NY

- Grades weekly problem sets, providing detailed written feedback to students

Teacher Assistant

Feb. 2019 - Sep. 2022

Kumon North America, Inc.

New York, NY

- Taught comprehensive English, arithmetic, and algebra to over 30 elementary and intermediate level students

LEADERSHIP

Co-Initiator of The Cooper Union SIAM Chapter

Sep. 2022 - May 2023

Society for Industrial and Applied Mathematics (SIAM)

New York, NY

- Actively participated in the establishment and early development of The Cooper Union SIAM Chapter
- Assisted in the recruitment and onboarding of new members
- Successfully organized and hosted The Cooper Union's first Integration Bee, attracting over 60 attendants

HONORS AND AWARDS

Graduated Magna Cum Laude (*May 2023*)

Dean's List (*Fall 2020 - Spring 2023*)

Martin Trust 1956 Scholarship (*Spring 2022*)

TECHNICAL SKILLS

Software: Cadence Virtuoso, Xilinx Vivado, Synopsis IC Compiler II, LTSpice

Programming/Computing: Python, MATLAB, C++, Verilog, LaTeX