

Xue Ru Zhou

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EDUCATION

The Cooper Union for the Advancement of Science and Art <i>MEng in Electrical Engineering (GPA: 4.0/4.0)</i> Thesis: Low-power and wideband quadrature phase generator for wireless communication	Sep. 2023 – Present New York, NY
<i>BEng in Electrical Engineering (GPA: 3.7/4.0)</i> Minor in Computer Science	Sep. 2019 – May 2023

RESEARCH EXPERIENCE

Graduate Student Researcher: Master's Thesis <i>The Cooper Union, Advised by Professor Jabeom Koo</i> <ul style="list-style-type: none">Designing an inductorless wideband quadrature phase generator with an emphasis on low power consumption	Sep. 2023 – Present New York, NY
Undergraduate Researcher: Senior Thesis <i>The Cooper Union, Advised by Professor Jabeom Koo and Professor Neveen Shlayan</i> <ul style="list-style-type: none">Collaboratively taped-out a 5GHz Wi-Fi radio frequency receiver front-end, incorporating a low-noise amplifier, mixer, and local oscillatorUtilized the 130 nm SKY130 PDK in partnership with Efabless, NYDesign's I.C. programEmphasized linearity optimization, with simulations of individual blocks indicating comparable linearity performance to existing designs although it sacrifices other performance measures such as gainAwaiting chips to be fabricated for further testing	Sep. 2022 – Present New York, NY
Research Intern: Project Lumen <i>The Cooper Union/Mt Sinai, Advised by Professor Neveen Shlayan and Mt Sinai BioDesign</i> <ul style="list-style-type: none">Collaborated in a team to develop prototypes for brain-implanted light-emitting devices that decelerate the progression of Alzheimer's disease through neural recoveryFocused on fiber optics for light transmission and regulators to maintain illumination levels in the brainResulted in a prototype and test protocol that will contribute to further tests on cadaveric brain tissue	Feb. 2022 – May 2022 New York, NY

WORK EXPERIENCE

Hardware Engineer Intern, Summer 2023 <i>Persistent Systems LLC</i> <ul style="list-style-type: none">Led data transfer and video benchmark testing of USB-C to USB-C connector boards for a new prototypeDesigned 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 instrumentsConclusively identified suboptimal performance in the connectors, providing insights for future iterations	June 2023 – Aug. 2023 New York, NY
Part-time Hardware Engineer Intern, Fall 2022 <i>Persistent Systems LLC</i> <ul style="list-style-type: none">Designed a GUI that calculates the high-frequency impedance of various components within a cable pinout	Sep. 2022 – Jan. 2023 New York, NY
Hardware Engineer Intern, Summer 2022 <i>Persistent Systems LLC</i> <ul style="list-style-type: none">Conducted power efficiency assessments on prototype main boards and successfully debugged voltage rail issuesWrote a Java script to automate the functionality of a pocket oscilloscope for quality control testingPerformed a design review of pinouts/footprints in schematic and layout on a device interface boardCreated a comprehensive design for an integrated antenna power supply unit	May 2022 – Aug. 2022 New York, NY

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, helping to build a diverse group of individuals passionate about mathematics in real-world applications
- Successfully organized, promoted and hosted The Cooper Union's first Integration Bee, attracting over 60 attendants from a variety of majors and years

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