Yilan Liu

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EDUCATION

The University of Chicago   Chicago, IL
Bachelor's of Science in Mathematics, Computer Science (Theory specialization)   June 2023
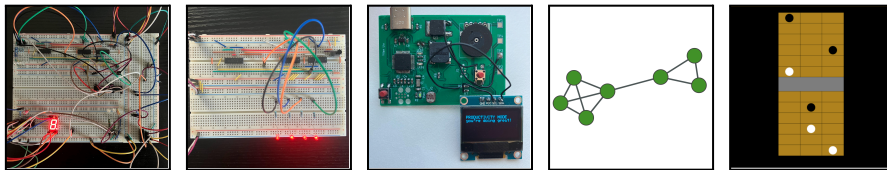
SKILLS & RELEVANT COURSEWORK

- *Skills:* C, C++, Scala, Typed Racket, Coq, Pie, Verilog, Python, breadboard building/debugging.
- *Courses:* Formal Languages, Type Theory, Programming Languages, Complexity Theory, Cryptography, Honors Algorithms, Honors Discrete Math, Mathematical Logic I, Real Analysis I-III, Abstract Algebra I-II, Interactive Electronics on PCBs.
- *Self-taught:* Digital logic design and low-level computer architecture.

CAREER OBJECTIVE

- Seeking an **engineering** role after two years of working in film/television post-college.

PROJECTS

- [Manually Bit Banging the MAX7219 without a Microcontroller](#)
  - Proved that data can be sent serially to the MAX7219 by just using pushbutton switches.
  - Keywords: SR Latch, K-Map, Minimum SoP and PoS, MAX7219, 7-Segment LED display.
- [4-bit Counter on Breadboard](#)
  - Wired 4 JK flip flops on a breadboard to output a 4-bit number iterated with each clock pulse.
  - Keywords: JK Flip Flop, Counter.
- [Building a Computer with HDL](#)
  - Built a computer with the HDL specified in *The Elements of Computing Systems* by Nisan & Schocken.
  - Keywords: HDL, Computer Architecture, Memory, Combinational logic, Sequential logic.
- [Light Sensor "Study Companion" PCB](#) (school project)
  - Designed PCB with ATSAMD21G18 microcontroller. Wrote and flashed C++ code onto microcontroller to use data from a light dependent resistor to control other peripherals.
  - Keywords: ATSAMD21G18 microcontroller, Light dependent resistor, KiCad, C++.
- [Tiling a Chessboard](#) (school project)
  - Adapted the pseudocode in Bird's "FUNCTIONAL PEARL: On tiling a chessboard" paper in Scala. Computed the total number of ways to cover a chessboard with dominoes without overlap.
  - Keywords: Scala, Functional programming
- Graph Rendering Algorithms with d3.js (school project): Designed algorithms to illustrate design principles in Kindlmann & Scheidegger's "An Algebraic Process for Visualization Design" paper.
- [River Game](#): Built a web browser game using HTML, CSS, and JavaScript.

WORK EXPERIENCE

Film Lighting Repair Department   Brooklyn, NY
Lux Lighting - Film Equipment Rental House   March 2024 - current
- Use schematics, documentation, and various instruments to diagnose issues.
- Present and discuss repair options with clients and execute repair.

Film Equipment Rental Coordinator   Brooklyn, NY
The Sodium Ranch - Film Equipment Rental House   June 2023 - March
- Interfaced with clients to rent equipment to various productions.   2024