Samuel Skean

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Education

University of Illinois at Chicago Chicago, IL

B.S. and M.S. in Computer Science *Aug. 2020 – B.S. Earned May 2024 – M.S. Expected May 2026*

- **GPA**: 3.93/4.0
- **Relevant Coursework**: Cloud Computing, Operating Systems, Compilers, Interpreters, Data Structures, Concurrent Computing, Systems Performance, Graphics.

Technical Skills

Languages: C/C++, Rust, Java, C#, Dart, Swift, Go, Scala, Python, SQL (SQLite), JavaScript, HTML/CSS, F#, OCaml, Matlab, Bash, AWK, x86 Assembly (AT&T)
Frameworks/Libraries: JavaFX, React.js, Flutter, Hadoop, Spark, Axum (web framework), Matplotlib, WebGL2, p5.js

Experience

CS Teaching Assistant (Undergrad and Grad) January 2023 – Present

UIC *Chicago, IL*

- Helped students with syntax and Data Structures (lists, trees, hashmaps) in C++
- Motivated and explained database (SQL), functional (F#), and concurrent (Go) programming
- Leads students in debugging simple embedded projects in C++ with Arduino and breadboards
- Proctors exams and labs, giving short lessons on related topics
- 5 semesters of teaching experience, helping over 50 students personally

Student Ambassador for National Science Foundation Engineering Scholarship August 2024

UIC *Chicago, IL*

- Taught a short, custom lesson on algorithmic thinking, and helped with lessons on logic gates
- Offered advice on classes, professors, and skills relevant to CS and engineering

Information Technology Support Specialist August 2021 – December 2022

UIC Technology Solutions *Chicago, IL*

- Demonstrated patience with older/technology-unfamiliar people and those in stressful, unfamiliar situations
- Troubleshooted new services and software packages daily, including overlapping credential systems

Projects

Path Tracer and Bezier Drawer | *Rust, SDL2, pixels, winit, serde* February 2024 – August 2024

- Developed a simple path tracer (a kind of 3D renderer), mostly following Raytracing in One Weekend by Peter Shirley et al.
- Used JSON to create a format to represent the world, and randomly generated spheres within that world
- Added a command-line front-end and a concurrent graphical preview of the rendering
- Gained an 8x speedup by parallelizing the code across multiple cores
- Wrote a tool to draw bezier curves and splines, with a simple GUI

Tracing Garbage Collector | *C* December 2022

- Implemented a mark-and-sweep garbage collector in C
- Allocated memory using sbrk(), maintaining an intrusive free list
- Manipulated pointers to find all allocated, unused memory on the heap and free it without the user calling free

15-Puzzle Graphical Game | *Java, JavaFX* November 2021

- Developed a GUI application to let the player solve a 15-puzzle, a puzzle where numbers must be arranged in a certain way in a grid
- Used A* search to solve the puzzle if the player asks
- Implemented asynchronous UI and worker threads to keep the app responsive while the puzzle-solving code was busy