

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

- **Undergraduate GPA:** *Major:* 4.0 *Overall:* 3.93
- **Relevant Coursework:** Databases, Networking, Operating Systems, Systems Performance, Concurrent Computing, Compilers, Interpreters, Data Structures, Algorithms, Cloud Computing, Graphics

TECHNICAL SKILLS

Languages: C/C++, Rust, Java, C#, Dart, Swift, Go, Scala, Python, SQL (SQLite + PostgreSQL), JavaScript, HTML/CSS, F#, OCaml, Matlab, Bash, AWK, x86 Assembly (AT&T)

Technologies: Ansible, Wireshark, Git, JavaFX, React.js, Flutter, Axum (Rust web framework), WebGL2, p5.js

EXPERIENCE

CS Research Assistant (Grad)

May 2025 – Present

UIC

Chicago, IL

- Working on Compound, a project to improve inter-process communication speed by emulating Linux kernel behavior in userspace
- Debugging quirks of signal handlers and race conditions to ensure clean termination of processes

CS Teaching Assistant (Undergrad and Grad)

January 2023 – May 2025

UIC

Chicago, IL

- 6 semesters of teaching experience, helping over 50 students personally
- Explained data structures in C++; motivated and troubleshooted SQL, F#, and Go programming
- Led students in debugging simple embedded projects in C++ with Arduino and breadboards
- Asked probing questions to help students understand principles of correct concurrent programming in Java
- Graded and proctored exams, homework, and labs

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 IAM systems

PROJECTS

Path Tracer and Bezier Drawer | Rust, pixels, winit, serde

February 2024 – August 2024

- Rendered spheres, planes, and reflections, mostly following Raytracing in One Weekend by Peter Shirley et al.
- Added lights and a real-time graphical preview of the render
- Gained an 8x speedup by parallelizing the code across multiple cores
- Also wrote a similar tool to draw bezier curves and splines, with a simple GUI

MMap and Other Extensions for XV6 | C

September 2024

- Enabled user programs to treat inode files as though they were part of memory for flexible random access
- User can choose to load each page lazily for minimum memory usage - or all-at-once for predictable performance
- Also implemented color terminal and graphical display drivers, saving and restoring state for a clean interface

- 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

- 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 and worker threads to solve the puzzle in the background if the player asks, visualizing solution step-by-step