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, Git, JavaFX, React.js, Flutter, Hadoop, Spark, Axum (Rust web framework), Matplotlib, WebGL2, p5.js

Experience

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

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
- Asks 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 credential 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 chooses 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

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, visualizing solution step-by-step
- Implemented asynchronous UI and worker threads to keep the app responsive while the puzzle-solving code was busy