

# 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:** Major: 4.0 Overall: 3.93
- **Relevant Coursework:** Cloud Computing, Operating Systems, Compilers, Interpreters, Data Structures, Algorithms, 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)

**Technologies:** Ansible, Git, 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*

- 5 semesters of teaching experience, helping over 50 students personally
- Explained data structures in C++; and motivated SQL, F#, and Go programming
- Grades and proctors exams and labs, giving short lessons on related topics
- Leads students in debugging simple embedded projects in C++ with Arduino and breadboards

### 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

- 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

### 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