

## EDUCATION

**The University of Chicago**  
Bachelor of Arts in **Computer Science (Focus: Computer Systems)**

Chicago, IL  
June 2025

**Honors:** Odyssey Scholar (2021-25), Winter Tech Showcase Best Overall for GuessTheWiki (2024), University of Chicago Advanced Scholar (2024), Dean's List (2021-22).

## TECHNICAL SKILLS

**Programming Languages:** Python, C, JavaScript, C++, Rust, Go, HTML/CSS, Bash, SQL.

**Python:** Flask, Django, FastAPI, Jinja, Cirq, Qiskit, Pytest, NumPy, Pandas, Multiprocessing, Threading, Asyncio.

**JavaScript:** React, Socket.IO, Express, D3.

**Tools & Skills:** Git, Linux, AWS, Docker, REST Api, SQLite, PostgreSQL, MongoDB, VS Code, GDB, Tmux.

**Interests:** Backend & Library Development, Computer Systems, Open Source, HPC, OS.

## EXPERIENCE

**Meyer's Group (Astrophysics Research Group at the University of Chicago)**

Chicago, IL

**Research Assistant- Computer System Development**

September 2024 – Current

Developing sensor and control systems with Python for the balloon-borne cosmic background radiation experiments.

- Designed locks using `fncctl` to enable safe shared memory access across Python processes, reducing data races to 0.
- Implemented shared memory lookup table for Python's `ShareableList`, speeding up access from  $\sim 20$  ms to  $\sim 10$   $\mu$ s.
- Designed a safe, multithreaded image capture to synchronize 4 cameras, reducing timing difference from  $\sim 10$ s to  $\sim 1$ s.
- Developed UDP image transmission with `bz2` compression, reducing network and storage load by  $\sim 30\%$ .
- Built a Python Tkinter desktop app to filter and browse images, streamlining debugging and replacing manual review.
- Designed a terminal log viewer with a file watcher to filter and monitor live logs for improved and faster debugging.

**Infection (Quantum Software and Hardware Company)**

Chicago, IL

**Quantum Software Engineering Intern in the Compiler Team**

June 2024 – August 2025

Contributed to quantum compiler tooling, including testing infrastructure, code formatting, and website improvements.

- Designed control and measurement conversion between `Pytket` and `Cirq`, expanding circuit support in the compiler.
- Implemented job cancellation to cut resource consumption and improve user experience during job submissions.
- Implemented password recovery, email validation, and legacy hash support with `Flask` to strengthen account security.
- Enhanced non-deterministic algorithms with seeding for reproducibility and debugging, reducing test failures to 0.
- Built `Pylint` plugins to enforce style consistency and detect typing errors, boosting code quality across the codebase.

**University of Chicago Biological Science Division**

Chicago, IL

**Student Data Analyst and Programmer**

November 2023 – June 2025

Automated fiscal and analytical workflows for the department.

- Built a multithreaded Tkinter Box backup app with version control and OAuth to automate large-scale backups.
- Automated faculty publication tracking via `Flask` web app, saving 5+ hours of weekly manual data entry.
- Developed a Selenium web scraper extracting 300+ faculty award data points, saving 3 days of manual work.
- Cleaned, prepared, and analyzed NIH-Reporter data with `Pandas` to generate faculty funding reports.

## PERSONAL PROJECTS

- [Erys](#) (Python, Open Source): Terminal interface for creating, opening, editing, and executing Jupyter notebooks.
  - Customized Jupyter kernel discovery and connection logic.
  - Built an asynchronous consumer/producer architecture for code execution in notebooks.
- [GuessTheWiki](#) (Flask, React): Web game for guessing Wikipedia article titles from increasingly relevant hints.
  - Used `NLTK` to score sentence relevance and generate progressively helpful hints with Python.
  - Developed multiplayer mode using `WebSockets` for real-time interaction with JavaScript.
- [licensepy](#) (Rust, Open Source): CLI tool for Python dependency license checks and license header formatting.
  - Built a fast, cross-platform utility to scan and report licences for Python project dependencies.
  - Features a multithreaded check for and formatting of license headers for Python projects.