NATHNAEL (NATI) BEKELE

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EDUCATION

The University of Chicago   Chicago, IL
Bachelor of Arts in **Computer Science (Focus: Computer Systems)**   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, HTML/CSS, Bash, SQL.
Libraries & Frameworks:
   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, VS Code, GDB, Tmux, SQLite, PostgreSQL, MongoDB.
Interests: Backend & Library Development, Computer Systems, Open Source, High Performance Computing, TUI.

EXPERIENCE

Infleqtion (Quantum Software and Hardware Company)   Chicago, IL
Quantum Software Engineering Intern in the Compiler Team   June 2024 – Current
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.

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 for the Wilkinson Microwave Anisotropy Probe satellite cameras.
● Designed cross-process locks to enable safe shared memory access across Python processes, reducing data races to 0.
● Implemented shared memory lookup table, accelerating access from ~20 milliseconds to ~10 microseconds.
● Implemented multithreaded image capture to synchronize 4 cameras, reducing inter-camera delay from ~10s to ~1s.
● Developed UDP image transmission with bz2 compression, reducing network and storage load by ~30%.
● Built a Python Tkinter desktop app to filter and browse images, streamlining debugging and replacing manual review.

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.
   o   Customized Jupyter kernel discovery and connection logic.
   o   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.
   o   Used NLTK to score sentence relevance and generate progressively helpful hints with Python.
   o   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.
   o   Built a fast, cross-platform utility to scan and report licences for Python project dependencies.
   o   Features a multithreaded check for and formatting of license headers for Python projects.