

# ELIAS BENBOURENANE

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*Software engineer with experience designing systems, leading infrastructure decisions, and building performant developer tools*

## EDUCATION

### University of Pittsburgh

Aug 2022 – Apr 2026

*Bachelor of Science in Computer Science, Minor in Physics*

*Pittsburgh, PA*

- Coursework: DS & Algorithms II, Software Engineering, Web Dev, Software QA, Quantum Computing, OS, Cloud Computing

## EXPERIENCE

### Software Engineer

May 2023 – Present

*University of Pittsburgh*

*Pittsburgh, PA*

- Led architecture and drove key technical decisions across **9** projects, often as the lead or sole developer/engineer
- Developed a tool with *React*, *SAS*, and *FastAPI* to explore drug-disease relationships in **13M+** *PaTH Network* patient records
- Built an **LLM**-powered *Next.js* app with *Prisma* to visualize and summarize biomedical knowledge graphs of drug mechanisms
- Prototyped a **ML** tool for *UPMC* hospital to identify dangerous patient care transitions with *FastAPI*, *SQLAlchemy*, and *React*
- Modernized a *SQL* analytics codebase with modular design and incremental processing, reducing runtime by **9x** (38h → 4h)
- Architected a secure, *HIPAA*-compliant *Linux* and *Docker* infrastructure for **AI** compute workloads, now serving **200+** users

### Full Stack Developer Intern

May 2023 – Sep 2023

*Center for Analytical Approaches to Social Innovation*

*Pittsburgh, PA*

- Promoted post-internship to a **consulting** role, advising on direction and key engineering decisions for multiple projects
- Led full stack migration of project to a *Django* and *React* stack, introducing new features while enabling faster development
- Implemented a secure user authentication and authorization system with *OAuth 2.0 integration* to manage access
- Developed an analytics dashboard using *Django* and *Chart.js* to analyze user engagement and inform outreach decisions

### Software Developer

Dec 2022 – May 2023

*Levy Lab*

*Pittsburgh, PA*

- Extended a custom *Grafana* fork with new *Go* and *React* modules for querying high-frequency physics time series data
- Refactored **SQL** tables containing billions of rows, reducing database size by over **40%** and improving indexing performance
- Engineered automated *Go SQL* data validation pipelines for high-frequency sensor data, cutting **~6h** of weekly physicist review

## PROJECTS

### PlexAnibridge | Python, Svelte, Tailwind, GraphQL, asyncio

2025

- Built a media synchronization service tracking media watch-status between *Plex* and *AniList*, achieving **30,000+** *Docker* pulls
- Developed a *Python* sync engine using *asyncio* for **concurrent** multi-user processing and *GraphQL* for *AniList* API mutations
- Automated mapping aggregation, validation, and *Docker CI/CD* pipelines with *GitHub Actions*, reliably serving **~500 users**
- Designed a progressive web app in *Svelte* to track and interact with *Plex*, *AniList*, and the synchronization backend

### RARAR | Python, Go, CLI

2025

- Open-sourced the first random-access RAR reader, enabling archive streaming with **~99.98%** bandwidth savings for some tasks
- Implemented HTTP workflow support, allowing for efficient partial archive access in cloud scenarios like distributed storage
- Integrated *RARAR* into the open-source Go-based download client *Decypharr*, delivering RAR support to over **3,000 users**

### DineAI | Java, JavaScript, Spring Boot, React, Tailwind, Jest, JUnit

2025

- Collaborated in **Agile** to prototype a SaaS platform with *Spring Boot* and *React* for restaurants to host **AI-powered** menus
- Implemented sentiment analysis pipelines using **LLM APIs** to summarize customer reviews and deliver insights to restaurants
- Configured **CI/CD** pipelines with *Docker* and *GitHub Actions* for automated *JUnit* and *Jest* testing, building, and deployment

### CSAW | Python, SQL, Wireshark

2023

- Organized *CSAW 2023*, the largest annual student-run cybersecurity event with **3,000+** participants and **hundreds** of teams
- Designed a **CTF** challenge involving **SQL** injections and packet sniffing, which was attempted by **50+** teams and solved by six

### libDrive | Python, Go, Flask, React, MongoDB

2022

- Led development of *libDrive*'s successor, *Dester*, combined garnering a community of **300+** members and **100K+** downloads
- Contributed to *Dester*'s backend migration from *Python* to *Go* and collaborated on front end development in *React*
- Built *libDrive*, an open source media library indexer using *React*, *Flask*, and *MongoDB* with native cloud storage integration

## TECHNICAL SKILLS

**Languages:** Python, Java, Go, TypeScript, JavaScript, Rust, C, C++, HTML, CSS, SQL, Bash, PowerShell

**Frameworks:** FastAPI, Spring Boot, React, Next.js, Svelte, Django, Flask, PyTorch, Qt, Pytest, Jest, JUnit

**Technologies:** PostgreSQL, SQLite, Oracle SQL, MongoDB, GraphQL, Git, Docker, AWS, Linux

**Concepts:** Software Engineering, Object-Oriented Programming, System Architecture, Design Patterns, Performance Optimization, API Design, Database Design, Version Control, Agile/Scrum, Technical Leadership