

ELIAS BENBOURENANE

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Versatile software engineer with a background in full stack development, ML infrastructure, cloud systems, and open source

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
- Architected a secure, *HIPAA*-compliant *Linux* and *Docker* infrastructure for **AI** compute workloads, now serving **200+** users
- Managed, architected, and/or deployed **10+** production servers on-prem or in the cloud using *AWS EC2/ECS/ALB*
- Modernized a *SQL* analytics codebase with modular design and incremental processing, reducing runtime by **9x** (38h → 4h)
- 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*
- Orchestrated **parallelized** ETL pipelines reducing data processing time by **90%+** using *SLURM* and *Amazon Redshift*

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
- Developed an analytics dashboard using *Django* and *Chart.js* to analyze user engagement and inform outreach decisions
- Implemented a secure user authentication and authorization system with *OAuth 2.0 integration* to manage access
- Established **CI/CD** pipelines with *GitHub Actions*, streamlining *React* builds, *Jest* tests, and deployment processes on *AWS*

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
- Developed **CI/CD** pipelines using *AWS*, *Docker*, and *GitHub Actions*, fully automating daily codebase builds and deployments

PROJECTS

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

2025

- Built a media synchronization service tracking media watch-status between *Plex* and *AniList*, achieving **50,000+** *Docker* pulls
- Developed a *Python* sync engine using *asyncio* for **concurrent** multi-user processing and *GraphQL* for *AniList* API mutations
- Maintain a metadata mapping database aggregating from **9** sources with **~99.8%** average media content ID matching accuracy
- Automated mapping aggregation, validation, and *Docker* **CI/CD** pipelines with *GitHub Actions*, reliably serving **~500 users**

RARAR | Python, Go, CLI

2025

- Open-sourced the first random-access RAR reader, enabling archive streaming with **~99.98%** bandwidth savings for some tasks
- 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

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

- Built *libDrive*, an open source media library indexer using *React*, *Flask*, and *MongoDB* with native cloud storage integration
- Led development of *libDrive*'s successor, *Dester*, combined garnering a community of **300+** members and **100K+** downloads

MagnetMagnet | Python, Qt

2021

- Built a cross-platform GUI program to aggregate 5 torrent trackers, offering a consolidated interface to search or scrape them
- Attracted **1,000+** downloads and over **60** GitHub stars for the program's UI and ability to cut user search times

TECHNICAL SKILLS

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

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

Technologies: PostgreSQL, SQLite, Oracle SQL, MongoDB, GraphQL, SAS, Jupyter, RStudio, AWS, Docker, Git, Linux

Concepts: Technical Leadership, Software Engineering, Full Stack Development, Machine Learning, CI/CD, DevOps, System Architecture, Database Management, HPC, Distributed Systems, Performance Optimization, Project Management, Agile/Scrum