Matthew Hambrecht

Software Engineer | Full-Stack Development • Systems Programming • AI/ML

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Skills

- **Languages:** Python, C++, C, Rust, JavaScript, TypeScript, SQL, Bash
- **Frameworks/Technologies:** React, React Native, Flask, FastAPI, JQuery, PostgreSQL, MySQL
- **Tools:** Git, GitHub, VSCode, Docker, Podman, Kubernetes, Jenkins, GitLab, PyTest, GoogleTest, AWS

Work Experience

Software Engineer (May 2025 – Present)

Sealing Technologies: A Parsons Company, Columbia, Maryland

- Designed and implemented a versatile, high-performance framework to manage complex multi-modal data queries efficiently.
- Developed a robust and responsive WebSocket interface and agent framework leveraging concurrent processing techniques to handle multiple real-time agentic reasoning queries, reducing perceived latency.
- Improved scalability and deployment reliability using Docker containerization, networking optimization, and scripting automation.
- Actively participated in pair programming, peer code reviews, and agile ceremonies, enhancing team code quality, collaboration, and knowledge sharing.

Software Engineering Intern (May 2024 – Present)

Sealing Technologies: A Parsons Company, Columbia, Maryland

- Developed and deployed a React-based frontend integrated with a Python REST API, facilitating interactive multi-user experiences with large language models.
- Designed and executed robust CI/CD pipelines tailored for cyber-intelligence applications on Red Hat Enterprise Linux (RHEL), significantly improving deployment consistency and system reliability.
- Implemented cutting-edge generative AI techniques (Hybrid Retrieval-Augmented Generation, synthetic data pipelines), achieving 50% faster data ingestion and a 20% boost in retrieval accuracy over the product's original benchmarks.

Computer Science Teaching Fellow (August 2022 – May 2024)

UMBC: Department of Computer Science and Electrical Engineering, Baltimore, Maryland

- Taught critical computer science concepts, including Data Structures, C++, Python, and Linux, enriching students' theoretical and practical programming skills.
- Facilitated hands-on debugging sessions and mentored lab groups of 20 students, fostering collaborative problem-solving environments.
- Delivered detailed feedback on assignments and exams, actively improving student academic performance and confidence.

Education

Bachelor of Science, Computer Science

University of Maryland: Baltimore County, Maryland

February 2022 – May 2025

Major GPA: 4.0

- Undergraduate Representative – Computer Science Promotion and Tenure Review Committee – October 2023
- Interim President, Web Development Chair, Recruitment Chair – Phi Kappa Sigma Fraternity – June 2022
- Member – CyberDawgs Computer Security Club – February 2022

Personal Projects

EAQL-DB (Present) – Rust, Educational SQL Alternative – https://github.com/matthambrecht/eaql-db

• EAQL (English Augmented Query Language) is a simplified, English-like query language designed as a stepping stone to SQL. It's being built for learners, educators, and simple projects where traditional SQL may feel intimidating or overly complex.

Mailbox (2025) – C Library, IPC System Utility – https://github.com/matthambrecht/Mailbox

• Developed a high-performance C library to facilitate Interprocess Communication (IPC), enabling multi-directional message sharing mimicking a postal system via POSIX shared memory for efficient data communications.

FaceSync (2024) – C++, CCTV Person Detection Platform – https://github.com/matthambrecht/FaceSync

• Engineered a robust computer vision platform for facial and body recognition, featuring an intuitive GUI with real-time notifications, tailored for home security solutions.

ScalpNotifier (2023) – Python, Facebook Marketplace Notifier – https://github.com/matthambrecht/ScalpNotifier

• Facebook Marketplace notification application that allows users to monitor and be notified about product postings in real-time. Utilized Selenium and BeautifulSoup in a Python backend for web scraping. Tornado Web Handler, HTML, CSS, and Bootstrap5 frontend.

Certifications

- **Certified ScrumMaster (CSM)** – ScrumAlliance.org – March 2025
- **CIRTL Associate Certified** – Center for the Integration of Teaching, Research, and Learning – May 2023