Gabriel Welvaert

Full Stack Software Engineer

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Work Experience

ARDX - Software Developer

2024 - Current Virginia Beach, Virginia

- Software Developer for a Centers for Medicare & Medicaid Services (CMS) Application Development Organization (ADO), primarily working on a RHEL 9 LAMP-stack web application serving 180,000 users.
- Led code development and reviews through releases, presenting work to team leads and collaborating with testers and business analysts to deliver client requirements to production.
- Developed and optimized AWS-integrated solutions to improve scalability and reliability, including automating file synchronization between servers and Amazon S3 via AWS Lambda, eliminating legacy cron jobs.
- Improved database performance and integrity by optimizing queries, adding schema-level constraints, and eliminating duplicates in concurrent operations, eliminating duplicate-generation during high-lag conditions.
- Strengthened application security posture through custom defenses and framework-independent implementations, such as CSV injection prevention and CSRF protection using synchronizer tokens, fully resolving audit findings.
- Refactored legacy code by moving client-side logic to the browser, reducing server load while preserving final backend validation.

Projects

TheGabebook - Node/Express Social Platform (GitHub)

- Developed a full-stack social media platform using Node.js, Express, MySQL, and vanilla HTML/CSS/JavaScript, adhering to MVC architecture and RESTful design, hosted on AWS EC2.
- Built core functionalities including user posts, friendship, messaging, comments, likes, profiles, notifications.
- Authentication managed with Express sessions, authorization handled with custom middleware (e.g., friendship validation), and additional middleware for security including CSRF protection.
- Enabled real-time features with WebSockets (Socket.IO) for instant messaging and notifications.

Realm of the Mad Gabe - C++ Video Game (GitHub)

- Implemented a templated entity-component-system (ECS) architectural pattern to reverse-engineer a video game from scratch, omitting a game engine to gain a deeper understanding of memory structures and algorithms used in game development and high performance computing environments.
- Applied data-oriented design principles and contiguous component pools to optimize CPU cache utilization.
- Leveraged essential C++ features including templates, constexpr, smart pointers, enums, auto, initializer lists.

Education

University Of Virginia - Bachelor of Arts, Computer Science

2021 - 2023 Charlottesville, Virginia

Skills

C++, JavaScript, Python, PHP, HTML, CSS, Node/Express, React, MVC, REST, OOP, MySQL, MySQL Workbench, Docker, Valgrind, GDB/GCC, Fortify, Git, GitHub, Confluence, Jira, Agile, AWS, Linux, Windows, VSCode, GIMP, SDL