

Joseph Paul Koyi

Profile

Computer science graduate with a strong foundation in software engineering, specializing in high-performance systems. Passionate about solving complex problems programmatically and building production-grade software.

Skills

Languages Java, C++, Python, C, SQL, NOSQL

Core Concepts Algorithms, Data Structures, Complexity Analysis, Concurrency, OOP

Systems Performance Optimization, Memory Management, Low-Latency Design

Tools Git, Docker, JUnit, CMake, GitHub Actions, Linux

Practices Full SDLC, Code Review, CI/CD, TDD

Work Experience

Nov 2024–May 2025 **Software Engineering Intern**, *Ericsson*, Budapest, Hungary

- Built static analyzers for Java using SpotBugs and SEI CERT secure coding standards, achieving 99% true positive rate
- Designed and tested custom bug detectors with high precision, validated on large-scale open-source Java projects
- Implemented detector registration, XML configurations, and contributed to GitHub/GitLab PR workflows

Projects

NebulaPower Platform

- Built a cloud-based IoT platform using Spring Boot, Next.js, and PostgreSQL for solar energy financing, real-time device monitoring, payment compliance, and remote service control. Implemented scheduled workflows for automated reminders and enforcement, WebSocket live updates, and asynchronous event-driven processing across core modules. Improved performance and reliability through transactional service design, JPA query optimization, and PostgreSQL indexing.

BareMetalVM

- Engineered a 16-bit virtual machine in C with a custom instruction set architecture, register-based execution, and variable-length instruction encoding. Built the core execution pipeline with opcode dispatch, CPU state management, memory allocation, and bounds-checked instruction processing across a 65KB address space. Improved runtime safety and control through explicit handling of halt, memory, and segmentation error conditions.

Education

Sept 2023–Feb 2026 **BSc Computer Science**, *Eötvös Loránd University*, Budapest, Hungary

Relevant coursework: Algorithms & Data Structures, OOP, Operating Systems, Concurrent Programming, Computer Architecture

Certifications

- Docker Foundations Professional Certificate – Docker Inc. (Feb 2025)
- Ubuntu Linux Professional Certificate – Canonical (Feb 2025)