

Alexander McClain

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Summary

Senior Systems Engineer with nearly a decade of software development experience, including 5 years specializing in Rust. Leader in the open-source community, having authored and maintained a foundational crate ecosystem with over 1 million downloads. Proven expertise in systems architecture, asynchronous programming, and API design, with additional proficiency in Python and Java.

Core Competencies

Languages	Rust, Python, Java
Domains	Systems Programming, Asynchronous Programming, Network Protocols, API Design, Open Source Leadership
Technologies	Tokio, WebAssembly (WASM), Docker, Git, CI/CD, Linux, x86-64 Assembly

Professional Experience

Senior Engineer & Independent Consultant

Remote

Self-Employed

2020 – Present

A multi-faceted role encompassing leadership in open-source projects and providing software engineering services to clients.

Open Source Development (2020 – Present)

- Authored and lead the development of **Lofty**, a production-ready audio metadata library, achieving **1 million+** cumulative downloads and adoption in **400+** public repositories.
- Manage the full open-source lifecycle for a portfolio of crates, including API design and community mentorship; successfully reviewed and merged **100+** contributor pull requests.
- Engineered a custom **Java Virtual Machine (JVM)** and a supporting **x86-64 assembler** from the ground up in Rust.

Client Engagements & Consulting (2024 – Present)

- **Tangle Network (Rust Engineer):** Served as a key engineer on the **Blueprint SDK**. Designed the core networking layer, asynchronous job engine, and sandboxed deployment targets.
- **Hardcore Engineering (Software Engineer):** Developed the **Huly Mobile App**, a cross-platform application, from concept to completion. Utilized Rust and the Dioxus UI framework.

Key Open Source Projects

Lofty: Production Rust Audio-Metadata Crate

[GitHub Repository](#) 

- Authored and maintain a comprehensive, production-ready audio metadata library in Rust supporting all major formats (MP3, FLAC, WAV, etc.).
- Achieved widespread adoption within the Rust community, accumulating over **1 million** downloads and use in 400+ public projects.

JVM in Rust: Custom Java SE 24 Runtime

[GitHub Repository](#) 

- Engineered a custom Java Virtual Machine from the ground up in Rust
- Provided a deep, practical understanding of language runtimes and virtual machine architecture.

Supassembler: Runtime x86-64 Assembler

- Developed a runtime x86-64 assembler in Rust to serve as the Just-In-Time (JIT) compiler backend for the JVM project.
- Supports numerous modern AMD/Intel instruction set extensions, including AVX-512.