Aumetra Weisman

Curriculum Vitæ

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Work Experience

Software Engineer, *Confio GmbH*, remote work.   **Mar 2024 - Current**

- Development and maintenance of the CosmWasm Virtual Machine and associated tooling
- Design and mplementation of cryptographic APIs as Virtual Machine Intrinsics
- Design and implementation of a new schema format
- Design and implementation of a code generation tool for the new schema format

Software developer, *blueline-networks GmbH*, Ulm.   **Aug 2021 - Mar 2024**

- Development and maintenance of Java EE systems running on Wildfly and Quarkus-based JEE systems
- Design and implementation of a performance-critical WebRTC signalling server based on the MQTT protocol in Rust
- Operation of operation-critical Java EE systems on Kubernetes

Publications

ActivityPub and HTTP Signatures.   **16 April 2024**

Contribution to the Community Group Report which aims to collect and define the usage of HTTP signatures in ActivityPub

Live Version

Open Source Contributions

Founder, *Hypernova Labs*.

- Research and Development for a Rust implementation of the I2P Protocol based on Tokio (currently unreleased)

Founder, *Kitsune Social*.

- Design and implementation of a modular ActivityPub server implementation in Rust, based on Axum and Diesel
- Design and implementation of a fault-tolerant job scheduler based on Redis and PostgreSQL
- Design and implementation of a fast, hard-to-misuse, and async-integrated crate for HTTP signatures

Contributor, *RustCrypto*.

- Contribution of an implementation of the DSA signature scheme
- Contribution of an MVP of an generic implementation of recoverable public keys for ECDSA signatures (based on the implementation in the *k256* crate)
- Contribution of parallel lane processing for the Argon2 password hashing algorithm

Contributor, *Lemmy*.

- Discovery and fix of a potential memory-exhaustion Denial-of-Service in their *activitypub_federation* crate

Languages

- German
- English

Programming languages

Experienced

Rust: Network programming, implementation of cryptographic algorithms, implementation of Wasm-based execution environments

Java: Backend development with standard Java EE APIs and Quarkus

TypeScript: Implementation of frontend applications using Astro, SvelteKit, and Vue

Learned

C#: Part of apprenticeship

Dhall: Used to be the primary configuration language for Kitsune

Tools

Kubernetes and Docker: DevOps

Nix(OS): Build system and system administration