Asherah Connor

ashe@kivikakk.ee kivikakk.ee kivikakk Asherah Connor

Systems engineer. Highly experienced generalist working across web, application and systems technologies.
Security- and performance-minded.
All positions worked from Melbourne, Australia, or Tallinn, Estonia.

Experience

Staff Software Engineer 2026 — today
Senior Backend Engineer 2025 — 2026
GitLab

- Fixed loads of security bugs
- Made the world a better place
- Ate a good deal of ice cream

Independent Penetration Tester 2020 — 2025
Multiple clients

- Conducted whitebox/greybox/blackbox testing of web applications written in a wide variety of frameworks.
- Provided fast, comprehensive, actionable feedback.

Software Engineer 2020 — 2023, 2024 — 2025
Radiopaedia

- Maintained and improved a high-traffic Rails application on a 15+ year old code base used by medical industry professionals from every country on earth.
- Diagnosed and resolved subtle reliability issues.
- Revamped and corrected DOI submission system.

Senior Systems Engineer 2016 — 2019
GitHub (*Microsoft*)

- Led effort onverting *all* user content from ad-hoc Markdown implementation to a standards-based one.
  - Migrated >500m items of user content safely without downtime, data loss, or user workflow disruption.
- Led work on our next-generation code search engine, anonymous request caching tier, backup systems, Git storage systems, and novel datastore experiments.
- Maintained multiple core codebases in C, achieving performance in security-critical systems.
- Maintained and evolved our source code highlighting system, migrating it from an in-process library to a microservice handling millions of requests per hour.
- Ported the VFS for Git client to Linux, creating a FUSE-based filesystem driver and refactoring the .NET core.
- Regularly deployed github.com and acted as first responder for complex issues.
- Worked in teams spanning EMEA, APAC and AMER.
- Founding member of DIB advisory council.

Tech Lead 2014 — 2016
Alliance Software

- Led efforts to complete and deploy an SMS gateway frontend within a client's infrastructure (Django, Angular, AWS), and led technical communication with a partner company implementing payment systems.
- Performed pre-acquisition due diligence penetration testing for a client.
- Responsible for and managed technical quality for a number of projects, mostly Django, PHP/WordPress, in-house CMS, and Symfony.

Development Lead 2012 — 2014
Draftable

- Led a team of five working on a technologically diverse codebase (Python, C# (SharePoint, Office extensions), F#, Node.js, Chrome extension).
- Produced a high-quality Microsoft Outlook extension using algorithms developed by academics in-house to cluster documents found in the inbox, inferring and creating a version history by textual and metadata analysis.

Software Engineer 2008 — 2012
Noble Samurai

- Led efforts to achieve reliable test suites and repair architecture of mission-critical systems.
- Application work was in Adobe AIR (HTML/JS/ActionScript), web in PHP and Rails, backend/systems in Erlang, Rails and Node.js.
- Co-led effort to decompose a monolithic Erlang application based on poorly-defined NoSQL store into several independent REST- and AMQP-based services, backed by a relational store.
- Maintained account and payment systems, and was primary contact for a long-running project involving co-ordination with several third-party API vendors.
- Architected and developed a proprietary HTTP proxy with several unique requirements; maintained extremely high performance and reliability in production.
- Introduced Git to the company and supported our migration from Subversion.

Skills

Highly experienced

C, C++, CommonMark, Git/jujutsu, Go, JavaScript, Linux, macOS, Nix, PostgreSQL, Python, React, Ruby, Rust, TypeScript, Zig

Experienced

ActivityPub, Amaranth, AMQP, AWS, Azure, C#, Chisel, Clojure, CSS, CUE, Docker, Elixir, Erlang, F#, flex/yacc, FluxCD, FreeBSD, Haskell, Java, Kubernetes, Lua, MySQL/MariaDB, Objective-C, OCaml, OpenBSD, Perl, PHP, Protobuf, Puppet, Redis, Scala, SQLite, Swift, Verilog, Windows, x86/Arm/RISC-V assembly

Special interest

Compilers, parsers, virtualisation, low-level systems, FPGAs, Unicode, i18n/l17n, secure design practices, reverse-engineering, build systems (especially reproducible), programming language theory and design

Works

Git and jujutsu: in miniature 9 November 2024

A side-by-side comparison of using Git and jujutsu to achieve the same result.

Chisel and C++, together at last 28 May 2024

A talk I gave at the Yosys User's Group about using Chisel with C++ for simulation and testing.

A formal spec for GitHub Flavored Markdown 14 March 2017

GitHub Engineering writeup of formalising GitHub Flavored Markdown in terms of CommonMark, and the transition of all user content from the existing syntax to the new, standardised one.

Breaking homegrown crypto 20 February 2016

Analysis of a popular PHP's framework session storage mechanism, and cryptanalysis of the included fallback encryption mechanism, breaking it completely.

Snapchat: not for state secrets 10 May 2013

A gentle introduction to conducting MitM attacks, reverse-engineering, and very basic cryptanalysis.

Escapology: how, when and why to encode and escape 18 April 2012

A primer on what it means to encode or escape data.

Open source

Project lead and maintainer 2016 — present
Comrak Rust

100% CommonMark (plus GitHub extensions) compatible Markdown parser and renderer for Rust. Used by GitLab, crates.io, docs.rs, Reddit, and many more. It is depended upon by tens of thousands of other downstreams, with a total end-user base estimable in the tens of millions.

Project lead 2016 — 2019
cmark-gfm C

Renders all Markdown content on GitHub.com. I forked the upstream CommonMark standard and its reference implementation, adding extensions for features used by GitHub users to make it a suitable replacement for our old ad-hoc Markdown implementation. I continued to maintain the library (and derived standard) by keeping parity with upstreams, responding to feature requests, and making bug and security fixes.

Author 2008 — present
many projects

Dozens of projects over my lifetime, small and large in size, typically released as free software. See nóssa for both active and archived projects (itself such an example).

Contributor 2008 — present
many other projects

Features, bug fixes, documentation commits, etc. in hundreds of other projects.