

Asherah Connor

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Systems engineer. Highly experienced generalist working across web, application and systems technologies. Security- and performance-minded.

Experience

Independent Penetration Tester

Multiple clients

📅 2020 — today 📍 Melbourne, Australia (remote)

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

Software Engineer

Radiopaedia

📅 2020 — 2023, 2024 — 2025 📍 Melbourne, Australia (remote)

- Maintained and improved a high-traffic Rails application on a 10+ year old code base used by medical industry professionals from every country on earth.
- Managed process and workflow for the team while improving QA processes.
- Diagnosed and resolved subtle reliability issues.
- Revamped and corrected DOI submission system; applied formal methods.

Senior Systems Engineer

GitHub (Microsoft)

📅 2016 — 2019 📍 San Francisco, USA (remote)

- Led the effort to convert all user content on the site from an ad-hoc organic Markdown implementation to a standards-based one.
 - Migrated more than half a billion items of user content — every single issue, pull request, and comment — 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 several core codebases in C, achieving performance in security-critical systems.
- Collaborated with Microsoft on porting the [VFS for Git](#) client to Linux, including writing the FUSE-based filesystem driver and refactoring the .NET core.
- Maintained and evolved our proprietary source code highlighting system, migrating it from an in-process library to a microservice handling millions of requests per hour.
- Regularly deployed github.com and acted as first responder for complex issues.
- Worked remotely in teams spanning EMEA, APAC and the Americas.
- Founding member of advisory council regarding inclusion and diversity.

Tech Lead

Alliance Software

📅 2014 — 2016 📍 Melbourne, Australia

- 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

Draftable

📅 2012 — 2014 📍 Melbourne, Australia

- 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

Noble Samurai

📅 2008 — 2012 📍 Melbourne, Australia

- 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/l10n, secure design practices, reverse-engineering, build systems (especially reproducible), programming language theory and design

Works

[Escapology: how, when and why to encode and escape](#)

📅 18 April 2012

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

[Snapchat: not for state secrets](#)

📅 10 May 2013

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

[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.

[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.

[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.

[Git and jujutsu: in miniature](#)

📅 9 November 2024

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

Open source

Project founder, lead and maintainer

[Comrak](#)

📅 2016 – present

Rust

100% CommonMark (plus GitHub extensions) compatible Markdown parser and renderer for Rust. Used by [GitLab](#), [crates.io](#) and [docs.rs](#) for Markdown rendering. Reddit's new-style site uses a *Comrak* fork and its developers contribute back to the project. 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

[cmark-gfm](#)

📅 2016 – 2019

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.

Contributor

many other projects

📅 2008 – present

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