

Daniel Hines

Software Engineer

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WORK EXPERIENCE

Senior Software Engineer BrightSpec

01/2024 - Present

BrightSpec is building the first industry-ready molecular rotational resonance spectrometers.

Achievements/Tasks

- Within my first month, built our telemetry infra using Loki, Grafana, and custom code. Identified dozens of bugs and enabled real-time response to customer issues and instrument malfunctions.
- 84 pull requests, 19,469++ 10,667-- LOC in the first 4 months.
- Act as the team's full stack switch-hitter, unblocking both my teammates (100% Rust backend), and our contractor team (100% Typescript frontend).
- Built a fast, fully reproducible build pipeline in Nix. Shaved minutes off both incremental build and CI times.

Co-founder SetaPay

07/2023 - 10/2023

SetaPay was a cryptocurrency payment gateway and marketplace featuring non-custodial chargebacks.

- Took our product from idea to MVP, building a working payment system and marketplace deployed to Tezos Mainnet in under a month.
- Built a scraper with GPT3 to sift through a database of ~10,000 crypto-friendly businesses to find ones compatible with our product, finding some of our most promising leads.

Tech Lead for Deku Sidechain Marigold

04/2022 - 03/2023

Deku was a framework for writing high-performance sidechains for Tezos in any programming language.

- Lead every technical aspect of Deku project, growing the project from a prototype to a functioning blockchain system and improving performance from 1000 to 300,000 transactions/second.
- Expanded the project's visibility with comprehensive docs, tutorials, and demos. Fostered community engagement and reach with showcases like [Deku-Plays-Pokemon](#) that spiked our Twitter impressions.
- Trained my 8-member team in Deku's design, blockchain fundamentals, OCaml, and Nix, empowering them to become key contributors in the Tezos ecosystem.

SKILLS

Rust

OCaml

Blockchain/Distributed Systems

TypeScript

Web Dev

Nix and NixOS

PERSONAL PROJECTS

Congregate (Currently in Closed Beta)

- I don't like forgetting things, especially what was said in meetings, so I built Congregate, a browser extension/desktop app that automatically transcribes Slack Huddles with speaker identification and timestamps.

Rote (Unreleased)

- Unsatisfied with my brain's ability to absorb a large new codebase focused on an unfamiliar domain (molecular rotational resonance spectroscopy), I built Rote, a spaced repetition system that makes learning foreign code more tractable. Through syntactic analysis, types and functions are automatically transformed into flashcards that get harder as you master them. Rote is written in Rust using Askama, HTMX, and TailwindCSS.

Flamingo Lang

- Inspired by Inclezan and Gelfond's research on the action language ALM, I wrote [Flamingo](#), an ALM compiler and runtime for reactive systems. Flamingo lets users specify business logic in a fully declarative and modular manner, compiling to WASM or native NodeJS modules via Rust.

Git Anger

- My role as tech lead for Deku required me to work on many features at once, so I wrote [a tool](#) in OCaml that implements "stacked PR chains" to help me maintain any number of clean, atomic PR's simultaneously with minimal overhead. My teammates re-implemented the tool in Rust and use it to this day.

WORK EXPERIENCE

Software Engineer

Marigold

11/2020 - 04/2022

Worked on the Tezos blockchain and the Deku sidechain project.

- Implemented the [global constants](#) feature for Michelson, a safety-critical virtual machine that secured \$4 billion in assets at the time. Global constants dramatically increased the potential size for smart contracts, unlocking new use cases for Tezos.
- Designed and implemented novel features of Deku's consensus algorithm, including [async state hashing](#), which was instrumental for Deku's later performance gains.
- Improved our code velocity by overhauling our build system, CI, and deployment pipeline.

Software Engineer

Finsemble (now interop.io)

10/2018 - 11/2020

Trading desktop automation framework used by the world's largest banks.

- Championed several significant refactors, including adoption of ESModules, Typescript, Redux, and the Elm/FRP architecture.
- Led a skunkworks project in collaboration with my Master's thesis advisor to develop mathematical models using the specification language ALM. Used the model to provide deep insight into the interaction between core features during a pivotal rewrite of the product.

Data Analyst

Regent University

09/2016 - 10/2018

- Fully automated the job I was hired for (creating spreadsheets in Excel) within 3 months.
- I identified key bottlenecks in our departments workflow and developed custom a custom web app in Typescript/Angular2 to fix it. The app quickly became mission-critical for the department (100+ employees).
- Rewrote the online student application in C#, Typescript, and Angular2, significantly enhancing the user experience for thousands of online applicants and streamlining the application pipeline for our department.