

Daniel Hines

Software Engineer

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WORK EXPERIENCE

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 (about 6000 lines of OCaml, ReasonML, and Ligo in total).
- 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.

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.

SKILLS

OCaml

Distributed Systems

TypeScript

Web Dev

Nix and NixOS

PERSONAL PROJECTS

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.

Tezos Place

- I made a clone of Reddit's r/place as a Tezos Smart Rollup (the first to be used in production). The system processed over 600K transactions from 184 players over 24 hours. I compiled the result into an [interactive NFT](#) that auctioned for 101tz. Players described it as "the most fun they've had on Tezos since [the NFT boom of] 2021".

WORK EXPERIENCE

Software Engineer Finsemble (now interop.io)

10/2018 - 11/2020

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

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- 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

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- 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.