Harry Law

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Summary

As a software developer, I love to tackle problems, debug issues, and get things working perfectly. In my experience, this is not always easy, but it is extremely rewarding to be able to see the fruits of your hard work and see people enjoying/ utilising your creations. I love to learn, challenge myself and achieve the goals I set for myself. I feel that constant learning, reflection and self-improvement are key skills of mine, which I strive to always improve upon.

My passions lie in problem-solving. Whatever the problem may be, I enjoy finding innovative solutions and applying appropriate methodologies to the task at hand. Producing solid, efficient and functional solutions to problems is an extremely rewarding experience. Because of this, I enjoy implementing data structures, algorithms and theoretical concepts from scratch and have experience doing so in my personal projects. Recently, I have begun work on a standard library of tooling for C99 in the form of numerous single header file libraries.

Experience

PROTOCOL DEVELOPER (CONTRACTOR) - INCLUSIVE FINANCE - 11/2024 - 12/2024

At Inclusive Finance, I was hired to build out a Request For Quote (RFQ) intent-based auction system for cross-chain swaps - enabling Market Makers (MMs) and solvers to bid on and settle users' orders in a cross-chain environment. In doing so, I built out the solidity smart contracts for the on-chain auction itself, encompassing all aspects of the auction from whitelisting MMs/solvers (during the early stages of its deployment), the order lifecycle (creation, propagation, bidding and winner selection), contract deployment and upgradability as well as off-chain components used to drive the auction and create a simulated environment for testing purposes. Here, I also created a cross-chain indexer to track orders throughout their lifetimes. I spent a lot of time optimising solidity types for storage reductions as well as implementing custom encoding and decoding of these types for efficient usage on and off-chain.

KEYWORDS

- Auction, Cross-chain, Indexer, Encoding, Decoding, Simulation, Solidity, Optimisation

PROTOCOL DEVELOPER (CONTRACTOR) - POLYMER LABS - 04/2024 - 08/2024

The majority of my work at Polymer was focused on their custom IBC relayer and building out a hierarchical key derivation system, as well as refactoring the relayer to use a producer/consumer model using many derived accounts to send its transactions. I also implemented automated linting, formatting and other styling tooling; contract binding deployments for both Go and JS/TS; fixed multiple issues with testing; improved the runtime of E2E testing times as well as the quality of the CI workflows for differing purposes, and debugged many issues in the staging environment during mainnet preparation.

KEYWORDS

- IBC, Relayer, Testing, Key Derivation, Refactoring, Automation, CI/Workflows

PROTOCOL DEVELOPER - GROVE (PREV. POCKET NETWORK INC) – 12/2022-03/2024

Working at Grove building out the Pocket Network Protocol, I gained experience in building both a new L1 chain from the ground up as well as building a Cosmos-SDK chain with Rollkit and Celestia after a pivot.

When building the native L1, I led the design of the CLI and RPC interface for the blockchain as well as the key base for users to create accounts and use the network. I also worked on a native Golang implementation of IBC for non Cosmos- SDK chains and Sparse Merkle Trie (SMT) support.

After pivoting to using Cosmos-SDK, my work primarily focused on leading the design, architecture, and implementation of the Gateway actor. This included the usage of Ring Signatures, and I have contributed numerous times to the open-source library used. I was also heavily involved in developing an in-house reactive programming framework of Observables and Channels for off-chain actors to subscribe and listen to on-chain events.

Alongside this, I worked on the SMT, which was used at the core of the protocol's business logic. I Implemented new features such as the Sparse Merkle Sum Trie to keep track of key-value-weight tuples as well as novel proving mechanisms for deterministic proofs of membership, non-membership and closest distance for key-value (or key-value-sum) entries.

KEYWORDS

- Leading Projects, Features and Design Decisions; Trees/Tries; Cryptography; Cosmos-SDK; IBC; Code Review; Testing and Debugging, Golang

Education

DURHAM UNIVERSITY – CERTIFICATE OF HIGHER EDUCATION IN COMPUTER SCIENCE, 2023

Skills

In all my roles I have achieved and learned a great number of skills and continue to build upon them, some of those being: independence, communication and time management; working fast in small teams and startups; programming in Golang, Python, Rust and C; Cryptography; Implementing existing and novel Data Structures and Algorithms; Debugging; Code Review; Testing; Optimisations as well as Research and Leading the Design of new Features.

Any references can be provided upon request from my previous roles.