

Freddy Li

DEV TEAM LEAD AT CHAINSAFE SYSTEMS(TORONTO, ON CANADA) · M.ENG(SE) GRADUATE FROM UNIVERSITY OF WATERLOO

☎ (+1) 226-750-0779 | ✉ tobeacookie@gmail.com | 📷 freddyli7 | 📱 freddy-li-771264b7/

"Love technology ; Self-motivated learning ; Love music, love sports and love compiled binary"

Skills

- Golang, NodeJS, Solidity, Ethereum, Truffle, Geth, Web3, Cosmos-SDK, Tendermint, Consensus Algorithms, Redis, PostgreSQL, MySQL, MongoDB, LevelDB, SQS, KMS, Linux, Git

Education

University of Waterloo

MASTER OF ENGINEERING (SOFTWARE ENGINEERING)

Waterloo, ON

Sept. 2015 - Dec. 2017

Tianjin University of Technology

BACHELOR OF SOFTWARE ENGINEERING

Tianjin, China

Sept. 2011 - Jun. 2015

Working Experience

ChainSafe Systems

TEAM LEAD

Toronto, ON

Aug. 2021 - Now

- Lead the development work on Cosmos-Chainlink module(Detail is in Project section).
- Lead the development work on GTS(Gasless Transaction as Service)(Detail is in Project section).
- Developer & Researcher of the ChainSafe ChainBridge(Detail is in Project section).

ChainSafe Systems

BLOCKCHAIN DEVELOPER

Toronto, ON

Jan. 2021 - Aug. 2021

- Technologies: Go, NodeJS, Cosmos, IBC, Cosmos-Chainlink Moudle, Ethermint, GTS
- Developed Ethermint RPC layer(Detail is in Project section).
- Designed and developed Cosmos-Chainlink module(Detail is in Project section).
- Designed and developed GTS(Gasless Transaction as Service)(Detail is in Project section).

BitSpawn

BLOCKCHAIN PAYMENT SYSTEM DEVELOPER

Toronto, ON

Jul. 2019 - Dec. 2021

- Technologies: Go, NodeJS, BitCoin, Solana, Ethereum, Solidity, Etherscan-api, BlockCypher-api, ERC-20 Standard, PostgreSQL, Redis, Bloom Filter, HD wallet, KMS, BitGo, Paypal, Stripe
- Designed and implemented Deposit Manager(Detail is in Project section).

OneLedger

BLOCKCHAIN PROTOCOL DEVELOPER

Toronto, ON

Apr. 2019 - Jan. 2021

- Technologies: Go, Typescript, NodeJS, Tendermint, PBFT, LevelDB, HD key derivation, PostgreSQL, SQS, Linux
- Developed Blockchain RPC endpoint layer.
- Developed Blockchain Transaction Verification layer.
- Developed Blockchain Transaction Check and Distribution layer.
- Developed Blockchain Fullnode and Validator node block scope layer.
- Developed Blockchain Distributed Database layer.
- Designed and developed Oneledger HD Wallet that supports BTC, ETH and OLT(Oneledger) key derivation.
- Designed and developed Oneledger Blockchain SDK.
- Designed and developed Oneledger Blockchain Explorer.

SkyQuark

Toronto, ON

BLOCKCHAIN APPLICATION DEVELOPER

Apr. 2018 - Apr. 2019

- Technologies: Ethereum, geth, parity, Solidity, Truffle, Mist, web3, IPFS, EOS, Docker, koa framework
- Designed and developed Skyquark Crowdsourcing system back-end using NodeJS, MongoDB, LevelDB, web3JS, Parity
- Designed and developed Skyquark Aristotle Chain using Parity.
- Designed and developing the Aristotle token system within Edusphere eco-system.
- Developed Edusphere Intellectual Property protection dApp(smart contracts) on Aristotle Chain.
- Developed Edusphere certificate verification dApp(smart contracts) on Aristotle Chain.
- Designed and developed Skyquark ICO smart contract(ERC-20)
- Provided 'Blockchain for Junior' online lectures as instructor at www.edusphere.io
- Developed an EOS based PoC of Aristotle Chain prototype.

BlackBerry

Waterloo, ON

SECURITY PLATFORM AUTOMATION DEVELOPER INTERN

May. 2017 - Sept. 2017

- Technologies: Android, Jenkins, Shell Script, UiAutomatorViewer, JUnit4, Linux, Git, JIRA, SSH, Security key exchange
- Developed security key based unit test cases including S/MIME, PGP and large size Sign and Encrypt key.
- Developed test sanity to automatically build testing job for different BlackBerry app components.
- Set up and configure Jenkins server and nodes to organize BlackBerry security message jobs.
- Designed and developed Monkey command tool App for automation and pressure test on BlackBerry apps.

Oracle

Tianjin, China

BACK-END DEVELOPER INTERN

Sept. 2014 - Feb. 2015

- Technologies: JavaEE, AJAX, jQuery, DBCP, MySQL, Tomcat, Apache Component lib, MVC, Linux, SSH, Git
- Developed a social network system based on JavaEE(SSH framework) and MySQL.
- Designed the database and implemented with PowerDesigner.
- Designed the architecture and using MVC for implementation.
- Awarded Best Intern Project by Oracle.

Projects(Github)

ChainSafe Systems - ChainBridge

TECHNOLOGIES: Go, ETHEREUM, SOLIDITY, CRYPTOGRAPHY, LEVELDB, ORACLE

Feb. 2022 - Now

- ChainSafe ChainBridge is a decentralized cross-chain messaging protocol. It currently supports ERC20, ERC721 and generic message between any EVM based chain.
- Participated as researcher & dev in this project.
- Mainly in charge of the Dynamic fee feature, which is another independent service to connect with chain oracle and provide the gas price and token price for the destination chain as reference to the cross-chain messaging request; It also contact the fee handler contract to preform fee calculation.
- Also working on the research for bringing Cosmos ecosystem into the project by Cosmos ComsWasm.

ChainSafe Systems - Cosmos Chainlink Module

TECHNOLOGIES: Go, COSMOS-SDK, CHAINLINK

Mar. 2021 - Nov. 2021

- Cosmos Chainlink module is one of the Cosmos SDK modules that designed and developed by ChainSafe Systems.
- Participated as TL & dev in this project.
- This module follows Cosmos Module development standard.
- It links Cosmos and Chainlink ecosystems so that community developers are able to submit/retrieve the feed data from Chainlink in the Cosmos ecosystem.
- Hierarchical management design makes sure the validity of the oracle data. Each data feed maintains its own owner list and data provider list.
- Token rewarded to the valid data provider each round.
- Business agnostic design makes the module generic in any kind data.

ChainSafe Systems - Ethermint

TECHNOLOGIES: Go, ETHEREUM, COSMOS

Jan. 2021 - Mar. 2021

- Ethermint is a blockchain protocol developed in Go that enables Solidity on Cosmos which combines the smart contract ability of Ethereum with the fast finality and cheaper gas of Cosmos.
- Developed the gRPC and JSON-RPC layer for Ethermint. It is compatible with Web3js so that any dApps using web3js can be connected to Ethermint seamlessly.

BitSpawn - Deposit Manager

TECHNOLOGIES: Go, NODEJS, REDIS, PostgreSQL, BLOOM FILTER, HD WALLET, FSM, ETHEREUM, BITCOIN, SOLANA

Jul. 2019 - Dec. 2021

- Designed and implemented Deposit Manager(Golang+NodeJS) centralized server which is the Bitspawn Payment Gateway that
 - 1.) accepts deposit by multiple currencies(ETH/BTC/ERC20 tokens/SPL tokens/USD) and mint SPWN token on internal POA network;
 - 2.) allow withdraw from SPWN token to multiple currencies(ETH/BTC/ERC20 tokens/SPL tokens/USD);
 - 3.) Providing real time currency exchange rate query, internal token conversion .etc APIs for other backend services.
- Cobra CLI: support side features other than deposit/withdraw: token migration; KMS encryption/decryption; admin mint/burn/transfer; smart contract deployment; HD wallet management and Production tx scanning and reporting.
- Support multiple platforms withdraw for one currency.
- Down time catching up for all missed blocks/transactions.
- Highly configurable: easily switch ON/OFF for deposit/withdraw currency availability, and support auto or manual process.
- Finite State Machine design allows future scalability.
- Admin customizable Solidity smart contracts ensure the atomicity of both deposit and withdraw transactions.
- This whole project was implemented by myself, currently has approximately 170,000 active users(By Jan 2022).

OneLedger - Blockchain Protocol

TECHNOLOGIES: Go, TENDERMINT

Oct. 2019 - Dec. 2021

- OneLedger blockchain is one of the public Blockchain networks which aims to build enterprise level Interoperability and open source for community to build dApps. (<https://github.com/Oneledger/protocol>).
- Using Tendermint as core consensus engine, OneLedger chain has application(node) layer, RPC layer, transaction verification /distribution layer and chain state distributed database(LevelDB) layer on fullnode and validator node.
- RPC layer: designed and implemented RPC endpoints for transaction and query.
- Transaction layer: designed and implemented transaction verification(signature mapping) for all transaction types, transaction fee charge logic, fee collection and reward withdrawal for validators.
- Distributed Database layer: designed and implemented database schema and store structure for different transaction types and block info.
- Block scope: designed and implemented block beginner and block end for internal transaction logic.
- Transactions: OneLedger Domain Service, Governance, Staking&Delegation, Block Rewards, Multi-currency Transfer, ETH/OLT Interoperability.

OneLedger - Hierarchical Deterministic(HD) Wallet

TECHNOLOGIES: BITCOIN, ETHEREUM, TYPESCRIPT, BIP-32, BIP-39, ED25519, SECP256K1, RIPEMD160, SHA256

Jun. 2019 - Apr. 2020

- OneLedger HD Wallet is a JavaScript module that provides ability to generate keypairs and sign Raw Transactions for multiple chains.
- Support configurable entropy to derive master seed.
- Support whole wallet backup and recovery from any device by mnemonic.
- Support BTC, ETH and OLT(OneLedger) keys derivation, address verification and transaction signing.
- Hide derived master seed and all private key to maximum security.
- Using hardened extended key path from BIP-39.
- Easily extendable to support other blockchain key algorithm.

Accomplishments

Waterloo Hackathon No.1 Team 2016

Oct. 2016 - Oct. 2016

- Technologies: HTML5, CSS3, AngularJS.
- Developed a widget based on UW Portal SDK in a 5 people team.
- This widget allows students to create and answer questions for different subjects.
- Questions and answers could be ranked by different features.
- Awarded No.1 Hackathon project.