0.1 Research on Blockchain Consensus Protocols (Master's Thesis)

- Implemented blockchain consensus protocols for Tezos, Proof of Work and Authority. Created tools, such as Bootstrapper and Live Testing Tool, using OCaml to enhance protocol creation, performance evaluation.

0.2 Arrow Distributed Directory Protocol

- Implemented a distributed directory protocol node in Go, featuring a live visualization tool for network state and access control in distributed systems.

0.3 Distributed Database / Filesystem

- Created a distributed database and filesystem using Rust and Libp2p, focusing on efficient data storage and retrieval in a peer-to-peer network.

0.4 On-disk Key Value Database

- Engineered a key-value disk database in C, utilizing B-trees for optimized data management and access.

0.5 Language Design / Compiler

- Created Garbage Lisp, a Go-based interpreter and an OCaml-based Pascal to Assembly (X_86) compiler, demonstrating expertise in language design, parsing, and code generation.

0.6 Ethereum / EVM / Solidity

- Developed in Solidity a DEX with liquidity pool mechanics for token swaps and a game leveraging smart contracts for interactive gameplay, both deployed on the EVM.

0.7 Solana / Anchor / Rust

- Built a fully decentralized social network leveraging TypeScript and IPFS, and implemented a token holding platform with incentives, both utilizing Solana's blockchain capabilities.