

Joss Duff

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Education

Lehigh University - B.S. in Computer Science and Business (honors)
2023

August 2019 - May

Courses: Blockchain Algorithms, Blockchain Concepts, Operating Systems, Database Systems, Algorithms, Game Theory

Skills

Rust, Kubernetes, Linux SysAdmin, Solidity, theGraph, Redis, C, C++, Python, TypeScript, Hardhat, Git

Experience

Software Engineer - [Envio Indexer](#) (Rust, Kubernetes, Linux SysAdmin)

October 2023 - Present

- Implemented Ethereum JSON RPC interface over our embedded database.
- Upgraded our EVM compatible embedded database to support alternate VMs & chains.
- Wrote python SDK using rust
- Deployed & maintained production, staging, and backup Kubernetes clusters on bare-metal servers.

Smart Contract Developer - [ChainBytes](#) (Solidity, theGraph)

January 2022 - December 2022

- *Won best overall* at Lehigh's 2022 Computer Science capstone fair.
- Undergraduate capstone project mentored by Eric Grill, ChainBytes CEO and blockchain advisor to the President of El Salvador to verify fair payment of wages to coffee laborers in El Salvador.
- Designed, developed, tested, and deployed Solidity smart contract on an Ethereum Goerli testnet and a subgraph on theGraph network.
- Maintained team's Hardhat repo for smart contract and subgraph development.

Software Developer - [Float Capital](#) (Solidity, ReScript)

June 2022 - August 2022

- Built a custom indexer using GraphQL, Apollo, and ReScript to save emitted events and verify event data against data collected by subgraph.
- Designed, wrote, and tested Solidity smart contract for Protocol Owned Liquidity dapp.
- Developed and tested subgraph on theGraph network for Protocol Owned Liquidity smart contract.

Projects

[DeFi Liquidation Bot](#) (Rust, Solidity)

Continuous

- Designed and wrote a liquidation bot targeting Compound V2 lending protocol forks.
- Flash loan solidity smart contract to liquidate accounts of any size.

[SemiSwap](#) (Solidity)

September 2022 - December 2022

- Designed, wrote, and thoroughly tested an ERC-20 to Ether AMM to be used as the assignment for the Blockchain Algorithms and Systems class I graded for.
- Wrote up an assignment description based on the reference solution I made to give my students a challenging but rewarding assignment.

Researcher & Developer - Hierarchical Consensus (C++)

August 2022 - May 2023

- Member of Lehigh's Scalable Systems & Software Research Group.
- Modified Stellar Consensus protocol into a hierarchical consensus mechanism for central bank digital currencies.
- Reading and understanding published research papers in the database, distributed system, and parallel computing fields.

Leadership

Grader, Course Designer, Lecturer - Blockchain Algorithms and Systems

August 2022 - December 2022

- Graded assignments of 60+ students.
- Designed, wrote, tested, and assigned class Solidity Automatic Market Maker project (see projects: SemiSwap).
- Gave a lecture on comparison of EVM and AVM as well as smart contract languages Solidity, Vyper, Yul, Reach, PyTeal, and TEAL.

President - Lehigh Blockchain Club

October 2021 - May 2022

- Led educational discussions with students about blockchain and cryptocurrency topics.
- Recruited 100+ members.