Vanhger Pham

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EDUCATION

University of Engineering and Technology (UET) — Hanoi, Vietnam
Bachelor of Information Technology; Cumulative GPA: 3.68/4.0 — *2021 – Present*

Lam Son High School for Gifted Students — Thanh Hoa, Vietnam
Information Technology Major — *2018 – 2021*

SKILLS

Cryptography: Zero-knowledge proof systems, Folding Scheme, Threshhold Signature, Asymmetric/ Symmetric Encryption.

Technical Skills: Rust, C++, JavaScript, Java, SQL, Docker, Git, Document Writing.

Blockchain: Bitcoin and Ethereum mechanisms, Consensus Protocols, Layer2 Rollup.

Algorithms: Proficient in Data Structures and Algorithms, Dynamic Programming, Discrete Mathematics, and Probability Statistics.

General Knowledge: OOP, Functional Programming, Software Development, Computer Networking, and Databases.

EXPERIENCE

ZKP Researcher — Mar 2024 – Nov 2024
SotaZkLab — *Hanoi, Vietnam*

- **Cryptography**: Researching and writing documentation of ZKP technology, including SNARKs, STARKs, Folding Scheme, Threshold Signature, FHE, etc.
- **Rust language**: Implementing ZKP protocols in Rust for learning purpose: PLONK, KZG, FRI, Nova, etc.
- **Apstark**: A Layer 2 ZK-Rollup blockchain built on top of the Aptos network. Implementing a Rust-based SHARP prover equivalent service for generating and submitting verification proofs.
    * Utilizing Stone-prover for proof generation.
    * Adapting Stark-evm-adapter for parsing and manipulating STARK proof outputs, enabling the generation of "split proofs" required for proof verification on Ethereum.
    * Building a server to submit Cairo programs, generate proofs, and submit them to the smart contract verifier.

AWARDS AND ACHIEVEMENTS

Vietnam Rust Hackathon, First Prize — Jan 2024
CKB ZK Rollup Team

- Won first prize in the Vietnam Rust Hackathon, the region's largest gathering of Web3 Rust developers, organized by ZKP Labs, with over 200 attendees.

UET Campathon, First Prize — Aug 2023
Adutainers Team

- Secured first place in UET Campathon 2023, a hackathon focused on Smart Campus solutions.

IAI Hackathon, Third Prize — Aug 2023
Adutainers Team

- Achieved third place in the IAI Hackathon 2023, organized by the AI Institute of UET, focused on gamifying education.

ACM-ICPC, Second Prize — Vietnam National Contest 2021
Doge Team

- Secured second place in the Vietnam National Contest 2021 of ACM-ICPC, the most prestigious competitive programming competition for college students.

Vietnam Olympiad in Informatics (VOI), Honor Prize — 2021
Thanh Hoa Team

- Received the Honor Prize in the Vietnam Olympiad in Informatics 2021, one of the most prestigious annual computer science competitions for high school students.

SHOWCASE PROJECTS

PLONK CKB | *Rust, Docker, Starknet*   Jun 2024
- Developed a Proof of concept Zero-knowledge proof system on CKB chain using PLONK with KZG, aiming for Layer 2 ZK-Rollup and CairoVM integration.
- Implemented the SNARKs proof system.
- Collaborated with 3 friends as a team of 4.

Ethereum IPFS | *Solidity, JavaScript, React, Docker*   March 2024
- Developed a private, distributed storage solution for securely storing data across multiple nodes.
- Utilized Geth to establish a private blockchain and integrated IPFS for decentralized storage.

UETSmartMap | *Javascript, Nodejs, MongoDB, React*   Aug 2023
- Developed a website to assist students in locating places, events, or booking empty spaces at UET.
- Implemented the backend using FastAPI and leveraged Leaflet library to create an interactive map.
- Collaborated with 3 friends as a team of 4.

ACTIVITIES

Teaching Curriculum Co-Author   2022
- Co-authored two competitive programming curriculums for students at Lam Son Gifted High School.

Competitive Programming Instructor   Jul 2022
- Taught data structures and algorithms (DSA) to the Lam Son High School team in preparation for the Vietnam Olympiad in Informatics.