Fuchen Ma

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🎓 Education

Tsinghua University , Beijing, China   2019 – 2024

PhD in Software Engineering, graduated in June, 2024

Beijing University of Posts and Telecommunications, Beijing, China   2015 – 2019

B.S. in Software Engineering

👥 Experience

1) Webank Scholar Project   2021 – 2023

- I designed a system named LOKI which performs the fuzz testing on consensus protocols by masquerading itself as a blockchain node.
- LOKI detected 40 vulnerabilities in 6 blockchain systems including Ethereum, Quorum, Hyperledger Fabric, FISCO-BCOS, Diem and EOS, 13 of them are assigned with CVE identifiers by NVD.

2) Webank Smart Contract IDE Project   2020 – 2021

- I developed the front-end part of an smart contract IDE named SCStudio which is an extension of VSCode.
- I implemented a symbolic execution tool named Pluto to detect the bugs in smart contracts in this IDE. Compared with state-of-the-art tools, Pluto supports vulnerabilities in inter-contract scenarios.

3) CCF-Tencent Rhino-Bird Funds Project   2019 – 2020

- I developed a reinforcement EVM which detects risky behaviours during transaction execution.

📕 Representative Publications

Full publications can be found at my homepage: https://fcorleone.github.io

- Phoenix: Detect and Locate Resilience Issues in Blockchain via Context-Sensitive Chaos
  F Ma, Y Chen, Y Zhou, J Sun, Z Su, Y Jiang, J Sun, H Li (**CCS 2023**)
- LOKI: State-Aware Fuzzing Framework for the Implementation of Blockchain Consensus Protocols.
  F Ma, Y Chen, M Ren, Y Zhou, Y Jiang, T Chen, H Li, J Sun (**NDSS 2023**)
- Pied-Piper: Revealing the Backdoor Threats in Ethereum ERC Token Contracts.
  F Ma, M Ren, L Ouyang, Y Chen, J Zhu, T Chen, Y Zheng, X Dai, Y Jiang, J Sun (**TOSEM 2022**)
- Pluto: Exposing Vulnerabilities in Inter-Contract Scenarios.
  F Ma, Z Xu, M Ren, Z Yin, Y Chen, L Qiao, B Gu, H Li, Y Jiang, J Sun (**TSE 2021**)
- EVM*: From Offline Detection to Online Reinforcement for Ethereum Virtual Machine.
  F Ma, Y Fu, M Ren, M Wang, Y Jiang, K Zhang, H Li, X Shi (**IEEE SANER 2019**)

🏆 Honors and Awards

1) National Scholarship	2023, 2019
2) Huawei Scholarship	2022
3) FISCO BCOS MVP of the Year	2021
4) Tencent Rhino-Bird Elite	2020

ℹ Other Information

- Github Repository: https://github.com/fCorleone
- Programming Languages: C++, Python, Rust
- TA for the course 'Fundamentals of Computer Programming' in 2019-2022
- Lovers for tennis and football games.