

Yunqi Li

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Education

- Aug. 2018 – **University of Illinois at Urbana-Champaign, PhD Candidate, US.**
Present Advisor by Prof. Andrew Miller. Department of Electrical and Computer Engineering.
- Sep. 2014 – **Shanghai Jiao Tong University, B.ENG. in Computer Science, China.**
Jun. 2018 **ACM Honors Class** of Zhiyuan College, one of the top undergraduate programs in China.

Research Interests

Applied cryptography, cryptocurrencies, and design of secure distributed system.

Selected Projects

- Oct. 2019 – **MPC Sidechain Framework.**
Present Made Multi-Party Computation(MPC) as a sidechain to provide full confidentiality for smart contract in a general purpose way. A unified high-level language, Ratel, is designed to allow application developers to program all components with a single common language. Implemented several applications including a confidential Automatic Market Maker that hides liquidity pool volumes and trades amounts secret to prevent front-running attacks.
- Feb. 2020 – **Guideline to Design Privacy-preserving Applications on Blockchain Platform.**
Aug. 2020 Proposed a framework to determine appropriate cryptographic design for privacy-preserving decentralized applications and evaluated it on IBM Hyperledger Fabric platform.
- May. 2019 – **Efficient, General-purpose and Scalable Decentralized “Watchtower”.**
Aug. 2019 Participated in the design and implementation of State Guarding Network (SGN) to solve off-chain availability problems in state channels.
- Aug. 2018 – **Resource Exhaustion Attack on PoS.**
Oct. 2018 Investigated and disclosed a series of resource exhaustion vulnerabilities which affected 26+ Proof-of-Stake cryptocurrencies. Medium Post of public disclosure is in “Fake Stake” attacks on chain-based Proof-of-Stake cryptocurrencies.

Publications

Flash Boys 2.0: Frontrunning in Decentralized Exchanges, Transaction Reordering, and Consensus Instability,

Philip Daian, Steven Goldfeder, Tyler Kell, Yunqi Li, Xueyuan Zhao, Iddo Bentov, Lorenz Breidenbach, Ari Juels,

IEEE Symposium on Security and Privacy 2020.

I Can't Believe It's Not Stake! Resource Exhaustion Attacks on PoS,

Sanket Kanjalkar, Joseph Kuo, Yunqi Li, Andrew Miller,

Financial Cryptography and Data Security 2019.

Awards & Honors

ACM-International Collegiate Programming Contest.

- ICPC Mid-Central USA Regional Contest 2018, Team PinDuoDuo. **Third Place**
- Asia Regional Shanghai, 2014, Team Pivot.

Gold Medal & The Best Women's Team, rank 12/270.

The first gold medal won by a women's team in an ACM-ICPC Chinese regional.

Programming Languages

C++.

Experience

- 2019 Summer **Software Engineer Intern**, Celer Network.
2017 Fall **Research Intern**, IC3 Group, Cornell University, advised by Prof. Ari Juels.