

Lulu Zhou

EDUCATION

PhD Student <i>Computer Science</i>	Sep 2022 - 2024
Yale University, New Haven, CT	
Bachelor of Science <i>Statistics and Data Science</i>	Sep 2015 - Jun 2020
Fudan University, Shanghai, China	

PROJECTS

Prover Market Design <i>zk-rollup, mechanism design</i>	Sep 2023 - Present
<ul style="list-style-type: none">Designing effective market for zk-rollup provers and users.	
TEE Secret Management <i>secret management, incentives</i>	Sep 2021 - Present
<ul style="list-style-type: none">Developing a Trusted Execution Environment (TEE)-based wallet for secure secret management.Making the authorization process accountable with OAuth.	
Sprints <i>Layer1, blockchain consensus</i>	Jan 2021 - Mar 2022
<ul style="list-style-type: none">Developed 'Sprints', a novel blockchain protocol combining Proof of Work (PoW) and Proof of Delay (PoD) to significantly reduce ecological impact while maintaining security parity with traditional PoW systems.Validated Sprints' effectiveness and security through practical performance analysis and testing with 100 patched Bitcoin clients in an emulated network, demonstrating only a minor reduction in resilience.	
Real-Time Recursive Routing <i>Payment Channel</i>	Jun 2021 - Sep 2022
<ul style="list-style-type: none">Developed Real-Time Recursive Routing (RTRR), an innovative routing algorithm for Payment Channel Networks (PCNs) enhancing routing efficiency, privacy, and adaptability in dynamic scenarios.Conducted theoretical and empirical analyses on RTRR, focusing on its bidding process and equilibrium strategy, demonstrating preference for nodes with higher success rates and overall improved performance.	
Transaction Relay Strategy <i>Payment Channel</i>	Jun 2020 - Jun 2021
<ul style="list-style-type: none">Analyzed optimal transaction relaying in Payment Channel Networks (PCNs) using MDP to optimize relay policies.Developed an algorithm for optimal relay strategies in PCNs, assessing the impact on network performance.	
Optimal attack strategy of selfish mining and block withholding <i>blockchain consensus, attack</i>	Jan 2020 - Jun 2020
<ul style="list-style-type: none">Conducted PoW Consensus Attack Analysis by integrating selfish mining and blockchain withholding strategies, utilizing Markov Decision Processes (MDP) for optimal attacker strategy determination.	

PROFESSIONAL EXPERIENCE & SERVICE

33rd USENIX Security Symposium <i>sub-reviewer</i>	2023
44th IEEE Symposium on Security and Privacy <i>sub-reviewer</i>	2022
Shanghai Qizhi Institute <i>Researcher</i>	Jul 2020 - Jul 2021
20th International Conference on Autonomous Agents and Multiagent Systems <i>sub-reviewer</i>	2020
Internship at Deloitte <i>Winter intern for auditing, ranked Exceed Expectation</i>	Dec 2017 - Feb 2018

HONORS & AWARDS

Cargill Global Scholarship	2018
1st prize in China University Physics Tournament (National Level)	2016

PUBILICATION

- Mirkin, Michael, **Lulu Zhou**, Ittay Eyal, and Fan Zhang. "Sprints: Intermittent Blockchain PoW Mining." The Science of Blockchain Conference 2023 (SBC'23).
- Liu, Jiayuan, Canhui Chen, **Lulu Zhou**, and Zhixuan Fang. "Real-Time Recursive Routing in Payment Channel Network: A Bidding-based Design." In 2022 20th International Symposium on Modeling and Optimization in Mobile, Ad hoc, and Wireless Networks (WiOpt), pp. 193-200. IEEE, 2022.