

Liyi Zhou

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I focus on **Security** and **Privacy**. My work often integrates **System Analysis** and **Machine Learning** methodologies, particularly within the domains of Blockchain, Decentralized Finance (DeFi) and Blockchain Extractable Value (**BEV**).

Affiliations Computer Science Lecturer (~Assistant Professor) @ **The Univeristy of Sydney** June 2024 – Present
Co-founder @ **Decentralized Intelligence AG (D23E)** Dec 2022

Publications The **CORE ranking** is one assessment metric for academic conference quality. Of the 792 assessed venues, **A*** occupies the top 7.45%, whereas **A** encompasses the top 16.41%. The first author indicates a primary contribution, “co-first(*)” authors denote equivalent principal contributions, following authors are sequenced by diminishing contributions, and the last author(s) signify supervisory roles.

SoK: Decentralized Finance (DeFi) Attacks **Security** **Privacy** **BEV**

Liyi Zhou, Xihan Xiong, Jens Ernstberger, Stefanos Chaliasos, Zhipeng Wang, Ye Wang, Kaihua Qin, Roger Wattenhofer, Dawn Song, Arthur Gervais
A* *IEEE Symposium on Security and Privacy (SP’23)*

High-Frequency Trading on Decentralized On-Chain Exchanges **Security** **BEV**

Liyi Zhou, Kaihua Qin, Christof Ferreira Torres, Duc V Le, Arthur Gervais.
A* *IEEE Symposium on Security and Privacy (SP’21)*

On the Just-In-Time Discovery of Profit-Generating Transactions in DeFi Protocols **Security** **BEV** **System Analysis**

Liyi Zhou, Kaihua Qin, Antoine Cully, Benjamin Livshits, Arthur Gervais.
A* *IEEE Symposium on Security and Privacy (SP’21)*

Blockchain Amplification Attack **Security**

Taro Tsuchiya, Liyi Zhou, Kaihua Qin, Arthur Gervais, Nicolas Christin
A* *Measurement and Modeling of Computer Systems (Sigmetrics ’25)*

Quantifying Blockchain Extractable Value: How dark is the forest? **Security** **BEV**

Kaihua Qin, Liyi Zhou, Arthur Gervais.
A* *IEEE Symposium on Security and Privacy (SP’22)*

Speculative Denial-of-Service Attacks in Ethereum **Security**

Aviv Yaish, Kaihua Qin, Liyi Zhou, Aviv Zohar, Arthur Gervais.
A* *Usenix Security Symposium (USENIX-Security’24)*

The Blockchain Imitation Game **Security** **BEV** **System Analysis**

Kaihua Qin, Stefanos Chaliasos, Liyi Zhou, Ben Livshits, Dawn Song, Arthur Gervais.
A* *Usenix Security Symposium (USENIX-Security’23)*

Blockchain Censorship **Security**

Anton Wahrstätter, Jens Ernstberger, Aviv Yaish, Liyi Zhou, Kaihua Qin, Taro Tsuchiya, Sebastian Steinhorst, Davor Svetinovic, Nicolas Christin, Mikolaj Barcentewicz, Arthur Gervais
A* *International World Wide Web Conference (WWW’24)*

On How Zero-Knowledge Proof Blockchain Mixers Improve, and Worsen User Privacy **Privacy**

Zhipeng Wang, Stefanos Chaliasos, Kaihua Qin, Liyi Zhou, Lifeng Gao, Pascal Berrang, Ben Livshits, Arthur Gervais
A* *International World Wide Web Conference (WWW’23)*

Smart Contract and Defi Security Tools: Do They Meet the Needs of Practitioners? **Security**

Stefanos Chaliasos, Marcos Antonios Charalambous, Liyi Zhou, Rafaila Galanopoulou, Arthur Gervais, Dimitris Mitropoulos, Ben Livshits.
A* *International Conference on Software Engineering (ICSE’24)*

Towards Automated Security Analysis of Smart Contracts based on Execution Property Graph **Security**

Kaihua Qin, Zhe Ye, Zhun Wang, Weilin Li, Liyi Zhou, Chao Zhang, Dawn Song, Arthur Gervais.
A *ACM SIGSOFT International Symposium on Software Testing and Analysis (ISTAT’25)*

Mitigating Decentralized Finance Liquidations with Reversible Call Options **BEV**

Kaihua Qin, Jens Ernstberger, Liyi Zhou, Philipp Jovanovic, Arthur Gervais
A *Financial Cryptography and Data Security (FC’23)*

Attacking the DeFi ecosystem with flash loans for fun and profit **Security** **System Analysis**

Kaihua Qin, Liyi Zhou, Benjamin Livshits, Arthur Gervais.
A *Financial Cryptography and Data Security (FC’21)*

An Empirical Study of DeFi Liquidations: Incentives, Risks, and Instabilities **BEV**

Kaihua Qin, Liyi Zhou, Pablo Gamito, Philipp Jovanovic, Arthur Gervais.
A *ACM Internet Measurement Conference (IMC’21)*

SoK: Data Sovereignty

Jens Ernstberger, Jan Lauinger, Fatima Elsheimy, Liyi Zhou, Sebastian Steinhorst, Ran Canetti, Andrew Miller, Arthur Gervais, Dawn Song.
IEEE European Symposium on Security and Privacy (EuroS&P’23)

DeFiAligner: Leveraging Symbolic Analysis and Large Language Models for Inconsistency Detection in Decentralized Finance **BEV**

Rundong Gan, Liyi Zhou, Le Wang, Kaihua Qin, Xiaodong Lin
6th Conference on Advances in Financial Technologies (AFT 2024)

Cyclic Arbitrage in Decentralized Exchanges **BEV**

Ye Wang, Yan Chen, Haotian Wu, Liyi Zhou, Shuiguang Deng, Roger Wattenhofer.
Companion Proceedings of the Web Conference (WWW’22)

CeFi vs. DeFi – Comparing Centralized to Decentralized Finance

Kaihua Qin* (equal), Liyi Zhou* (equal), Arthur Gervais.
Crypto Valley Conference (CVC’21)

Preprints **Do You Need a Zero Knowledge Proof?**

Isaac David, Liyi Zhou, Kaihua Qin, Dawn Song, Lorenzo Cavallaro, Arthur Gervais.

Do you still need a manual smart contract audit? **Security** **Machine Learning**

Jens Ernstberger, Stefanos Chaliasos, Liyi Zhou, Philipp Jovanovic, Arthur Gervais.

Blockchain Large Language Models **Security** **Machine Learning**

Yu Gai* (equal), Liyi Zhou* (equal), Kaihua Qin, Dawn Song, Arthur Gervais.

Time to Bribe: Measuring Block Construction Market **Security**

Anton Wahrstätter, Liyi Zhou, Kaihua Qin, Davor Svetinovic, Arthur Gervais.

A2MM: Mitigating Frontrunning, Transaction Reordering and Consensus Instability in Decentralized Exchanges **BEV** **System Analysis**

Liyi Zhou, Kaihua Qin, Arthur Gervais.

Teaching **INFO2222: Computing 2 Usability and Security** @ The University of Sydney 2025

Services **Program Committee Co-Chair**
ACM CCS Workshop on Decentralized Finance and Security (ACM CCS **A*** Co-located Event) 2024, 2025
Program Committee
A* The ACM Conference on Computer and Communications Security (CCS) 2025
A Financial Cryptography and Data Security (FC) 2024, 2025
The Science of Blockchain (Stanford) 2023, 2024, 2025
The Latest in DeFi Research (TL;DR), 2024, 2025
CESC Crypto Economics Security Conference (UC Berkeley) 2022
ACM CCS Workshop on Decentralized Finance and Security (ACM CCS **A*** Co-located Event) 2021, 2022, 2023
Invited Reviewer
Transactions on Information Forensics & Security 2023
Financial Innovation 2021, 2022, 2023, 2024
Transactions on Dependable and Secure Computing 2023
External Reviewer
A* IEEE Symposium on Security and Privacy 2023

Grants **Innosuisse Start-Up Innovation Project**, 703k CHF (~770k USD), AI-Enhanced Smart Contract Auditing Ongoing, 2024
Ethereum Academic Grant 2024, 55k USD, Training an EVM-native GPT Completed, 2024
Ethereum Academic Grant 2023, 72k USD, Blockchain Censorship DoS Completed, 2023
Ethereum Academic Grant 2023, 25k USD, Blockchain Censorship Measurement Completed, 2023

Education **PhD candidate in Computer Science** Imperial College London Oct 2019 – Jan 2025
MRes in Web Science and Big Data Analytics University College London Oct 2017 – Sep 2018
MSci & ARCS in Mathematics and Computer Science (4 years) Imperial College London Oct 2010 – Sep 2014