Mingxun Zhou

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wuwuz.github.io
Interests: Privacy-preserving Technology, Cryptography, Blockchain

Education

Carnegie Mellon University — Pittsburgh, US
- *Ph.D. in Computer Science* — *Feb. 2021 - Present*

Peking University — Beijing, China
- *Bachelor of Science (Honored) in Computer Science* — *Sep. 2016 - Jul. 2020*
  - **Turing Class**: First honor class

Working Experience

NTT Research Cryptography and Information Security Lab — USA
- *Research Intern, Oblivious Algorithm Design* — *Jun. 2022 - Aug. 2022*

University of Hong Kong — Hong Kong SAR, China
- *Research Assistant, Privacy-preserving Data Aggregation* — *Jun. 2021 - Aug. 2021*

Shanghai Qizhi Institute — Shanghai, China
- *Research Assistant, High Performance Blockchain Network Research* — *Aug. 2020 - Feb. 2021*

Publications

1. Ashrujit Ghoshal, **Mingxun Zhou**, & Elaine Shi.(Random Order) *Efficient Pre-processing PIR Without Public-Key Cryptography*, EUROCRYPT 2024.

   Primary author.

2. **Mingxun Zhou**, Mengshi Zhao, T-H. Hubert Chan, & Elaine Shi.(Random Order) *Advanced Composition Theorems for Differential Obliviousness.* ITCS 2024.

   Primary author.

3. **Mingxun Zhou**, Andrew Park, Elaine Shi & Wenting Zheng. *Piano: Extremely Simple, Single-Server PIR with Sublinear Server Computation.* IEEE S&P 2024.

4. **Mingxun Zhou**, Elaine Shi, T-H. Hubert Chan, & Shir Maimon (Random Ordered). *A Theory of Composition for Differential Obliviousness.* EUROCRYPT, 2023.

   Primary author.

5. **Mingxun Zhou**, Wei-Kai Lin, Yiannis Tselekounis, & Elaine Shi (Random Ordered). *Optimal Single-Server Private Information Retrieval.* EUROCRYPT, 2023.

6. **Mingxun Zhou***, Liyi Zeng*, Yilin Han, Peilun Li, Fan Long, Dong Zhou, Ivan Beschastnikh, & Ming Wu. *Mercury: Fast Transaction Broadcast in High Performance Blockchain System.* IEEE INFOCOM, 2023.

   *Equal contribution.

7. **Mingxun Zhou**, Tianhao Wang, T-H. Hubert Chan, Giulia Fanti, & Elaine Shi. *Locally Differentially Private Sparse Vector Aggregation.* IEEE S&P, 2022.

8. Charlie Hou*, **Mingxun Zhou***, Yan Ji., Phil Daian, Florian Tramer, Giulia Fanti, & Ari Juels. *SquirRL: Automating Attack Analysis on Blockchain Incentive Mechanisms with Deep Reinforcement Learning.* NDSS, 2021.

   *Equal contribution.

9. Minmei Wang*, **Mingxun Zhou***, Shouqian Shi, & Chen Qian. *Vacuum Filters : More Space-Efficient and Faster Replacement for Bloom and Cuckoo Filters.* VLDB, 2020.

   *Equal contribution.

Preprints and Other Research Projects

1. **Mingxun Zhou**, Elaine Shi, & Giulia Fanti. *Proof of Compliance for Anonymous, Unlinkable Messages.* 2023.
2. **Mingxun Zhou**, & Elaine Shi. *The Power of the Differentially Oblivious Shuffle in Distributed Privacy Mechanisms.* 2022.

Open Source Projects

1. *Piano: Extremely Simple, Single-Server PIR with Sublinear Server Computation*, 2023.
   https://github.com/pianopir/Piano-PIR/
2. *Mercury: Fast Transaction Broadcast in High-Performance Blockchain System*, 2022.
   https://github.com/wuwuz/P2PNetwork
3. *Locally Differentially Private Sparse Vector Aggregation*, 2022.
   https://github.com/wuwuz/sparse-vector-aggregation
4. *SquirRL: Automating Attack Analysis on Blockchain Incentive Mechanisms with Deep Reinforcement Learning*, 2021.
   https://github.com/wuwuz/SquirRL
5. *Vacuum Filters: More Space-Efficient and Faster Replacement for Bloom and Cuckoo Filters*, 2020.
   https://github.com/wuwuz/Vacuum-Filter

Competitions

International Collegiate Programming Contest, Regional Gold Medal, *ICPC Foundation* — Oct. 2018
National Olympiad of Informatics, Gold Medal, *China Computer Federation* — Aug. 2015

Awards and Honors

CyLab Presidential Fellowship, *CMU* — Aug. 2023
Outstanding Dissertation for Bachelor's Degree (**Top 10** in the EECS school), *PKU* — Jun. 2020
Turing Benteng Scholarship, *PKU* — Nov. 2019
Kwang-Hua Scholarship (**Top 3** in class, ∼**1%** of students), *PKU* — Dec. 2018
Chuang-Long Ke Scholarship, *PKU* — Dec. 2017
Dean Scholarship for Freshman, *PKU* — Sep. 2016

Coding

- **Primary Languages**: C++, Go, Python
- **Others**: C, Rust