Longcheng Li

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Research Interest

I am broadly interested in theoretical computer science and quantum computation, with a focus on understanding the quantum advantages in cryptography and distributed computing. Specifically, I am exploring the (im)possibility of quantum computation to enhance the security of cryptographic schemes, such as public-key encryption, and to accelerate distributed computing tasks, including Byzantine agreement.

Education

University of Chinese Academy of Sciences, Beijing, China   Sep 2022 – Present
- MS in Computer Science   GPA: 3.93/4.0   Advisor: Jialin Zhang

University of Chinese Academy of Sciences, Beijing, China   Sep 2018 – Jun 2022
- BS in Computer Science   GPA: 3.92/4.0   Rank 2/104

Publications

Authors are listed in alphabetical order unless specified otherwise.

1. **Toward the Impossibility of Perfect Complete Quantum PKE from OWFs**
   L. Li, Qian Li, Xingjian Li, Qipeng Liu
   Innovations in Theoretical Computer Science (ITCS), 2025, to appear

2. **Quantum Byzantine Agreement Against Full-Information Adversary**   [%]
   L. Li, Xiaoming Sun, Jiadong Zhu
   International Symposium on Distributed Computing (DISC), 2024

3. **How (not) to Build Quantum PKE in Minicrypt**   [%]
   L. Li, Qian Li, Xingjian Li, Qipeng Liu
   Annual International Cryptology Conference (CRYPTO), 2024

4. **Fast exact synthesis of two-qubit unitaries using a near-minimum number of T gates**   [%]
   L. Li (first author), Cheng Guo, Qian Li, Xiaoming Sun
   Physical Review A, 107 (4), 042424

Teaching

Teaching Assistant of *Combinatorics*   UCAS, Fall 2023
Teaching Assistant of *Introduction to Computer Science*   UCAS, Spring 2020

Visiting

Southern University of Science and Technology, Shenzhen, China   Mar 2024 - Jun 2024
- Visiting Student on quantum error correction   Advisor: Youpeng Zhong

National University of Singapore, Singapore   Aug 2021 - Dec 2021
- Non-Graduating Programme (Coursework)

Awards

National Scholarship   Nov 2024
Silver Medal, *45th International Collegiate Programming Contest Asia East-Continent Final*   Apr 2021

Skills

Coding: C/C++, Python, HTML/CSS/JS
English: TOEFL 106/120 (Reading 30, Listening 28, Speaking 23, Writing 25)