

Qiyi Yao | Curriculum Vitae

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🌐 <https://yqiyi.github.io/Yqiyi/>

PERSONAL INFORMATION

Date of Birth: May 28, 1998

Birthplace: Qiqihar, China

Marital Status: Unmarried

EDUCATION

University of Science & Technology of China (USTC)

Hefei, Anhui, China

Ph.D. in Cyber Science & Technology (Cyberspace Security)

Sep. 2020 – Present

Advisor: Prof. Weiming Zhang

Sun Yat-sen University (SYSU)

Guangzhou, Guangdong, China

B.Eng. in Computer Science & Technology

Sep. 2016 – Jun. 2020

Advisor: Prof. Fangjun Huang

RESEARCH INTERESTS

I am interested in a number of research areas related to the theoretical and practical aspects of computer science, but primarily in steganography and coding theory.

In particular, I have been working on the following topics in recent years.

Steganographic Coding: Adaptive steganographic coding and robust adaptive steganographic coding (E.g., I proposed the third near-optimal adaptive steganographic coding scheme based on LDGM codes and the first near-optimal robust adaptive steganographic coding scheme based on nested polar codes.)

Source Coding: Lossy source coding with a time-varying distortion measure

(E.g., I proposed the near-optimal lossy polar coding scheme for a symmetric Discrete Memoryless Source (DMS) with a time-varying distortion measure.)

Watermarking: Vector database watermarking and image watermarking

(E.g., my colleagues and I proposed the first watermarking scheme for vector databases based on approximate nearest neighbor searches like HNSW.)

Distributed Algorithms: Consistent hashing

(E.g., my colleagues and I proposed the efficient Multiplication Modulo-based Highest Random Weight (MM-HRM) consistent hashing scheme with indefinite scalability and low lookup complexity.)

ARTICLES PUBLISHED

Qiyi Yao, Kai Zeng, Weiming Zhang, and Kejiang Chen. **Reliable Robust Adaptive Steganographic Coding Based on Nested Polar Codes.** In *IEEE Transactions on Signal Processing (IEEE TSP)*, Volume: 73, 2025, 12-25.

Qiyi Yao, Weiming Zhang, Kejiang Chen, and Nenghai Yu. **LDGM Codes Based Near-optimal Coding for Adaptive Steganography.** In *IEEE Transactions on Communications (IEEE TCOM)*, Volume: 72, Issue: 4, April 2024, 2138–2151.

Qiyi Yao, Weiming Zhang, and Nenghai Yu. **Optimality of Polar Codes in Additive Steganography under Constant Distortion Profile**. In *2022 14th International Conference on Wireless Communications and Signal Processing (WCSP)*, 2022, 404-408.

ARTICLES SUBMITTED

Qiyi Yao, Weiming Zhang, Kai Zeng, and Kejiang Chen. **Rate-Distortion Theory of Robust Adaptive Steganographic Coding**. Submitted, *IEEE Journal on Selected Areas in Communications (IEEE JSAC)*.

Zhiwen Ren, Qiyi Yao, Wei Fan, Jing Qiu, Weiming Zhang, and Nenghai Yu. **Vector Database Watermarking**. Submitted, *Proceedings of the VLDB Volume 18 (for VLDB 2025)*.

Muhammad Waqas, Sian-Jheng Lin, Bin Liu, Qiyi Yao, and Adnan Fazil. **A New Weight Function for Highest Random Weight Scheme and its Efficient Lookup Implementations**. Submitted, *IEEE TRANSACTIONS ON NETWORK AND SERVICE MANAGEMENT (IEEE TNSM)*.

ARTICLES IN PREPARATION

Qiyi Yao and Weiming Zhang. **Theory and Constructions of Adaptive Steganographic Coding from the Perspective of Lossy Compression**. In Preparation.

Qiyi Yao and Weiming Zhang. **Lossy Polar Coding for a Symmetric Discrete Memoryless Source with a Time-Varying Distortion Measure**. In Preparation.

AWARDS AND HONORS

Outstanding Graduate: University of Science & Technology of China	2025
First-class Scholarship: University of Science & Technology of China	2024
First-class Scholarship: University of Science & Technology of China	2021
CUDA Certificate: Nvidia China	2019

ACADEMIC SERVICES

Reviewer: IEEE Transactions on Communications (IEEE TCOM)

TEACHING

Teaching Assistant (TA) in USTC: CYSC6405P.01: Information Hiding Fall 2024