

Qiyi Yao | Curriculum Vitae

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🌐 <https://yqiyi.github.io/Yqiyi/>

EDUCATION

University of Science & Technology of China

Hefei, Anhui, China

Ph.D. in Cyber Science & Technology (Cybersecurity)

Sep. 2020 – Present

Supervisor: Prof. Weiming Zhang

Sun Yat-sen University (SYSU)

Guangzhou, Guangdong, China

B.S. in Computer Science & Technology

Sep. 2016 – Jun. 2020

RESEARCH INTERESTS

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

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

Shannon Theory: Extensions of the conventional Shannon Theory to more general scenarios (e.g., the AEP in the non-stationary memoryless regime and its applications)

Source Coding: Extensions of the conventional source coding model and polar codes-based source coding schemes (e.g., lossy source coding with a time-varying distortion measure and lossy polar coding)

Covert Communications: Adaptive steganographic coding and robust adaptive steganographic coding (e.g., LDGM codes-based adaptive steganographic coding schemes and nested polar codes-based robust adaptive steganographic coding schemes)

Watermarking: Vector database watermarking and image watermarking (e.g., watermarking for vector databases based on approximate nearest neighbor searches like HNSW)

ARTICLES PUBLISHED, SUBMITTED, OR IN PREPARATION

Theory and Constructions of Adaptive Steganographic Coding from the Perspective of Lossy Compression, with Kai Zeng, Weiming Zhang, and Kejiang Chen. In Preparation.

Lossy Polar Coding for a Symmetric Discrete Memoryless Source with a Time-Varying Distortion Measure, with Weiming Zhang, Kejiang Chen, and Nenghai Yu. In Preparation.

Vector Database Watermarking, with Zhiwen Ren, Wei Fan, Jing Qiu, Weiming Zhang, and Nenghai Yu. Submitted, *Proceedings of the ACM SIGSAC Conference on Computer and Communications Security (ACM CCS)*.

The Asymptotic Equipartition Property in the Non-Stationary Memoryless Regime and its Applications in Source Coding and Information Embedding, with Weiming Zhang, Kejiang Chen, and Nenghai Yu. Submitted, *IEEE Transactions on Information Theory (IEEE TIT)*.

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

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

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

AWARDS AND HONORS

First-class Scholarship: University of Science & Technology of China	2024
First-class Scholarship: University of Science & Technology of China	2021

ACADEMIC SERVICES

Reviewer: IEEE Transactions on Communications (TCOM)

TEACHING

Course Assistant (CA) in USTC: CYSC6405P.01: Information Hiding	Fall 2024
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