Zeyu Zhang

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Education

The Chinese University of Hong Kong, Hong Kong, China — Aug. 2024–Jul. 2028 (expected)
Ph.D. in Computer Science and Engineering
ANSR Lab, supervised by Prof. John C.S. Lui

Huazhong University of Science and Technology, Wuhan, China — Sep. 2020 – Jun. 2024
B.E. in Electronics Engineering (EE) — **GPA: 3.92/4.0**
Advanced Class in Mathematics and Physics for Information Science — **Rank: 1/30**

Honors and Awards

- National Scholarship×2 — Dec. 2021, Dec. 2023
  Top 2% - Highest honor for undergraduates in China
- Merit Student×2 — Oct. 2021, Oct. 2023
  Top 5% - Excellent student in HUST
- Outstanding Undergraduates in Term of Academic Performance — Oct. 2021
  Top 3% - Outstanding Undergraduates in Academics
- *Top 1%* in Alibaba Global Mathematics Competition — Apr. 2022
- *The first prize* in the 13th Mathematics Competition for Chinese University Students — Dec. 2021
- *The second prize* in Interdisciplinary Contest in Modeling (ICM) — Jun. 2022
- *The second prize* of Hubei Area in National University Mathematical Modeling Competition — Oct. 2022

Research Interests

My previous research focused on adjustable spatial encoding strategies for video analysis with online feedback, particularly in adapting video quality under fluctuating bandwidth conditions. Building on this experience, my current academic interests are centered on Online Learning and Large Language Models (LLMs). I am particularly intrigued by how online learning can enable LLMs to quickly adapt and learn from interactive information, much like an intelligent agent. This dynamic learning capability, I believe, is a meaningful and promising area of research.

Publications

- Xiangxiang Dai, **Zeyu Zhang**, Peng Yang, Yuedong Xu, Xutong Liu, John C.S. Lui, **AxiomVision: Accuracy-Guaranteed Adaptive Visual Model Selection for Perspective-Aware Video Analytics**, accepted in the 32nd ACM Multimedia Conference (MM), 2024. (CCF A)
- Chuqin Zhou, Peng Yang, **Zeyu Zhang**, Chengzhi Wang, Ning Zhang, **Bandwidth-Efficient Edge Video Analytics via Frame Partitioning and Quantization Optimization**, accepted in the IEEE International Conference on Communications (ICC), 2023.

Research Experience

Research Intern at The Chinese University of Hong Kong — Jan. 2024 – May 2024
Under the supervision of Prof. John C.S. Lui

- Developed multiple DNN models specifically designed to handle perspective factors and dynamic content variations in videos. Furthermore, integrated an online learning approach to develop a strategy for adaptively switching between these DNN models in response to network bandwidth constraints. This work has been accepted for presentation at MM'2024.

- Developed an online system for group-accelerated configuration adaptation in camera clusters. This system enables fine-grained configuration learning by dynamically grouping cameras with similar characteristics. It also supports both fixed and mobile cameras, with algorithms offering provable performance guarantees. This research has been submitted to NIPS'2024 (under review).

Research Intern at Huazhong University of Science and Technology Jan. 2021 – Jan. 2023

Under the supervision of Assoc. Prof. Peng Yang

- Implemented a Python library for DNN video analysis, featuring functions for resolution modification, encoding parameter adjustment, and segmentation.
- Led a team in securing three patents in the areas of machine vision encoding and network communication.
- Designed, implemented and evaluated a spatially variable quality video encoding strategy that leverages DNN feedback results. This work was accepted in ICC'2023.

Skills

- Programming Languages: Python, Matlab, C
- Strong foundation in mathematics and modeling
- Language Proficiency: English (IELTS: 6.5), Chinese (native)