Yuzhen Huang

Email: yhuanghj@cse.ust.hk Homepage: hyz17.github.io

Research Interests: I am primarily focused on large language models, particularly in advancing their reasoning capabilities and multimodal understanding. To achieve this, my research interests lie in: (1) enhancing reasoning and planning abilities through self-improvement and RL techniques, (2) improving the architecture and training methods of multimodal models to strengthen their understanding across multiple modalities and (3) developing reliable evaluation methods for language models.

Education

The Hong Kong University of Science and Technology, Hong Kong SAR, China. *Feb. 2024 - present*
– **Ph.D in Computer Science**
– Advisor: Prof. Junxian He

Shanghai Jiao Tong University, Shanghai, China *Sep. 2019 – Jul. 2023*
– **B.Eng. in Computer Science**
– *GPA*: 3.89/4.3, *Score*: 90.27/100

Research Projects

[1] SimpleRL-Zoo: Investigating and Taming Zero Reinforcement Learning for Open Base Models in the Wild
– **Achieve improvements in both reasoning accuracy and response length across diverse models.**
– Introduce SimpleRL-Zoo, a simple reinforcement learning recipe to improve models' reasoning abilities.
– Identify key factors that shape the emergence of advanced reasoning behaviors (i.e., the "aha moment").
– Published in COLM 2025 as the co-first author.

[2] B-STaR: Monitoring and Balancing Exploration and Exploitation in Self-Taught Reasoner
– **Quantitatively analyze the dynamics of exploration and exploitation during self-improvement.**
– Introduce B-STaR, a Self-Taught Reasoning framework that autonomously adjusts its configurations.
– Balance exploration and exploitation, leading to superior performance.
– Published in ICLR 2025 as the co-first author.

[3] Compression Represents Intelligence Linearly
– **Investigate the linear correlation between compression and intelligence in LLMs.**
– Provide evidence for the belief that superior compression is indicative of greater intelligence.
– Propose compression efficiency serves as an unsupervised and reliable metric to assess LLMs' abilities.
– Published in COLM 2024 as the first author.

[4] C-Eval: A Multi-Level Multi-Discipline Chinese Evaluation Suite for Foundation Models
– **The first comprehensive Chinese evaluation suite for LLMs.**
– Conduct a thorough evaluation of the most advanced LLMs.
– Over 9.8M downloads on Hugging Face and more than 100 models on leaderboard.
– Published in NeurIPS 2023 as the first author.

Publications

* **denotes equal contribution**

[1] **Y Huang***, W Zeng*, X Zeng, Q Zhu, J He. Pitfalls of Rule-and Model-based Verifiers–A Case Study on Mathematical Reasoning. Arxiv.

[2] W Liu, R Zhou, Y Deng, **Y Huang**, J Liu, Y Deng, Y Zhang, J He. Learn to Reason Efficiently with Adaptive Length-based Reward Shaping. Arxiv.

[3] W Zeng*, **Y Huang***, Q Liu*, W Liu, K He, Z Ma, J He. SimpleRL-Zoo: Investigating and Taming Zero Reinforcement Learning for Open Base Models in the Wild. COLM 2025

[4] K Shum*, **Y Huang***, H Zou, D Qi, Y Liao, X Chen, Q Liu, J He. Predictive Data Selection: The Data That Predicts Is the Data That Teaches. ICML 2025.

[5] W Zang*, **Y Huang***, L zhao, Y Wang, Z Shan, J He. B-STaR: Monitoring and Balancing Exploration and Exploitation in Self-Taught Reasoner. ICLR, 2025.

[6] **Y Huang***, J Zhang*, Z Shan, J He. Compression Represents Intelligence Linearly. Conference on Language Modeling (COLM), 2024.

[7] **Y Huang***, Y Bai*, Z Zhu, J Zhang, J Zhang, T Su, J Liu, C Lv, Y Zhang, Y Fu, M Sun, J He. C-Eval: A Multi-Level Multi-Discipline Chinese Evaluation Suite for Foundation Models. NeurIPS (Datasets and Benchmarks track), 2023

Internship

Research Intern, Tencent *Nov. 2023 – Jan. 2024*
Mentor: Zifei Shan

Intern Research Scientist, TikTok Singapore *Jan. 2025 – Now*
Mentor: Dr. Qian Liu

Professional Activities

Reviewer: NeurIPS 2024, ICLR 2025, ICML 2025, NeurIPS 2025, ARR

Talks

[1] Emerging Reasoning with Reinforcement Learning is Both Effective and Efficient. *Mar 2025, Georgia Tech PAIR*

[2] Emerging Reasoning with Reinforcement Learning is Both Effective and Efficient. *Feb 2025, Apple AIML*

[3] Compression Represents Intelligence Linearly. *May 2024, BAAI*

Teaching

Teaching Assistant, The Hong Kong University of Science and Technology *Fall 2024*
COMP 5212 Machine Learning

Standard Tests

[1] **TOEFL** – 102