# Yuzhen Huang

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**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").

[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.

[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] 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. Arxiv.

[2] 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. Arxiv.

[3] 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.

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

[5] **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

## PAST EMPLOYMENT

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

## PROFESSIONAL ACTIVITIES

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

## 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