

# 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

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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

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- [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

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\* 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. ICML 2025.
- [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

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**Research Intern**, Tencent  
Mentor: Zifei Shan

*Nov. 2023 – Jan. 2024*

## PROFESSIONAL ACTIVITIES

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

## TALKS

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- [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

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

*Fall 2024*

## STANDARD TESTS

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- [1] **TOEFL** – 102