

Shaoyang Cui(Joey)

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EDUCATION

• Bachelor of Engineering in Artificial Intelligence

Sep 2021 - Jul 2025

Yuanpei College, Peking University

Overall Grade: 86/100 | GPA: 3.52/4.0

Member of the **Tong Class**, an honorary pilot program specializing in AI at Peking University.

RESEARCH INTERESTS

My research interests lie at the intersection of Artificial Intelligence and Neuroscience. I aim to leverage AI to decode the brain's structural and functional complexity through a bi-directional approach: from a bottom-up perspective, modeling neurons as fundamental computational units; and from a top-down perspective, analyzing macro-scale brain dynamics using neuroimaging techniques (e.g., MRI, EEG). By bridging these scales, I hope to unravel the neural substrates of intelligence and contribute to computational therapeutics for neurological disorders.

RESEARCH EXPERIENCE

– Research Assistant, Brain-Inspired Algorithmic Modeling Lab

Jul 2025 – Present

Department of Psychological and Cognitive Sciences, Tsinghua University

– Research Intern, Computational Neuroscience Team (PI: Dr. Kai Du)

Jul 2023 – Jul 2025

Institute for Artificial Intelligence, Peking University

PUBLICATION

– Task Ability Decomposition and Difficulty Quantification for AGI Evaluation

Mar 2024 - Jul 2025

Cui, S. Y., He, X. Y., Han, J. H., Zhang, Z. L., & Peng, Y. J.

* Science China Technological Sciences (JCR Q1). Full title available upon request.

* First to explore the structure of task-ability space and its link to task difficulty.

* Proposed TADDL-V: a framework for quantifying difficulty of visual tasks to support AGI evaluation.

* Released AGI-V70: a curated benchmark set for testing diverse visual abilities. See GitHub.

PROJECTS

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Implicit Theory of Mind in LLM Agents' Decision Making.

Jan 2024 – Present

Collaborative Research Project, supervised by Dr.Junqi Wang and Dr.Lifeng Fan

- Designed and developed **TradeCraft**, a large-scale multi-agent benchmark integrating planning and social reasoning modules to assess the functional utility of Theory-of-Mind in strategic decision-making.
- Manuscript under review at **ICLR 2026**.

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Possible Models of Self-Awareness in Conscious Turing Machines

Sep 2022 - Dec 2022

Supervised by Prof. Lenore Blum(CMU) and Prof.Manuel Blum(CMU)

- Based on the previous works of Conscious Turing machine(CTM), discussed the consciousness and self-consciousness of a CTM, gave a clear definition.
- Invited to present at the **IJTCS2023 workshop**.

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FAB: Factory of Abstract-style Benchmark

Nov 2024 – May 2025

Independent Project

- Developed the first fully automated, low-cost benchmark generation framework for abstract-style evaluation across multipul academic fields.
- Open-source benchmark available on GitHub: FAB Benchmark Repository.

ON-CAMPUS

- * Champion, 2nd AI Cup Badminton Tournament, Institute for AI, Peking University Jun 2025
- * Team Manager and Coach: Women's Football Team, Yuanpei College Oct 2022 - Jun 2024
- * Member of the Tennis Team, Yuanpei College Oct 2022 - Jul 2025

AWARDS

- * IJCAI 2022–2023 Special Track: Chinese Standard Mahjong AI Competition Jun 2022 –Jun 2023
Peking University, under the supervision of Prof. Wenxin Li
 - Achieved 10th place in IJCAI 2022 and 7th place in IJCAI 2023, invited to present at the IJCAI 2023 Special Track.
 - Competition details available at official game page.

PERSONAL QUALITIES

IELTS: 7.5

Technical Skills: Proficient in PyTorch, NEURON as well as development tools like Git and GitHub.