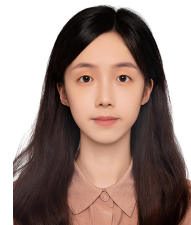


Junyu Zhang

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EDUCATION

- **University of Illinois Urbana-Champaign (UIUC)** Illinois, US
M.S. in Computer Science Aug 2024 - Present
 - **GPA: 4.0/4.0**
 - **Research Interest:** Reinforcement Learning, LLMs, Embodied AI, Trustworthy Machine Learning
 - **Research Advisor:** Prof. Huan Zhang
- **Huazhong University of Science and Technology (HUST)** Hubei, China
B.E. in Artificial Intelligence, Honor Class of Artificial Intelligence Sept 2020 - June 2024
 - **GPA: 3.89/4; Rank: 1/29** (selected from 360 students in the school)
 - **English Proficiency:** TOEFL 105 (Speaking 24); GRE 325+3.5 (Verbal 156, Quantitative 169, Writing 3.5)

PUBLICATIONS AND PREPRINTS

- Chengke Zou*, Xingang Guo*, Rui Yang*, **Junyu Zhang**, Bin Hu, Huan Zhang, “DynaMath: A Dynamic Visual Benchmark for Evaluating Mathematical Reasoning Robustness of Vision Language Models”, in **ICLR 2025** [PDF] [Website] [Dataset]
- Heng Dong*, **Junyu Zhang***, Chongjie Zhang, “Leveraging Hyperbolic Embeddings for Coarse-to-Fine Robot Design”, in **ICLR 2024** [PDF] [Website]
- Heng Dong, **Junyu Zhang**, Tonghan Wang, Chongjie Zhang, “Symmetry-Aware Robot Design with Structured Subgroups”, in **ICML 2023** [PDF] [Website]
- Jianhao Wang*, Jin Zhang*, Haozhe Jiang, **Junyu Zhang**, Liwei Wang, Chongjie Zhang, “Offline Meta Reinforcement Learning with In-Distribution Online Adaptation”, in **ICML 2023** [PDF]

RESEARCH EXPERIENCE

- **Research Assistant - Assured and Trustworthy AI Research Lab** Illinois, US
Supervisor: Prof. Huan Zhang Aug 2024 - Present
 - Dynamic Benchmark for Mathematical Reasoning in Vision-Language Models**
 - Investigated the mathematical reasoning robustness and revealed limitations of SOTA VLMs.
 - Proposed a dynamic benchmark capable of generating a large number of question variants and conducted an extensive evaluation of both closed-source and open-source VLMs.
 - Our work is accepted by ICLR 2025.
 - Vision-Driven Embodied Agent Benchmark of Multi-modal Large Language Models**
 - Developed a standardized, multifaceted evaluation platform for automatically quantifying the performance of task planning in MLLM-based embodied agents.
 - Created capability-oriented task datasets from high-level rearrangement to low-level manipulation and performed extensive experimental evaluations to further understand MLLM-based planning.
 - Our work is submitted to ICML 2025.
 - Visual Preference Optimization (in progress)**

- Proposed a learning framework that applies explicit, dense supervision to LVLMs by jointly optimizing both visual prior and language posterior representations.
- Distilled knowledge from contextualized to non-contextualized vision language models to enhance their alignment and performance.

Efficient Safety Alignment for Large Language Models (in progress)

- Introduced a scalable and efficient Q-learning-based self-alignment approach that requires minimal human supervision.
- Incorporated strategies to dynamically mask safety-relevant dimensions based on internal Q function and effectively altered future generations towards alignment.

Research Intern - MIT-IBM Watson AI Lab

Massachusetts, US (remote)

Supervisor: Prof. Chuang Gan

April 2023 - Mar 2024

Sequential Decision Making for Robotic Manipulation

- Proposed a novel framework that enabled efficient policy generalization in the offline multi-task and imitation learning settings.
- Incorporated mixture of experts layers into the transformer model that effectively harnesses the commonalities and discriminations of multimodal data.
- Evaluated our method on the RL Bench benchmark that demonstrated great generalization ability.

Research Intern - IIS, Tsinghua University

Beijing, China

Supervisor: Prof. Chongjie Zhang

July 2022 - Jan 2024

Offline Meta Reinforcement Learning

- Revealed theoretical insights for offline meta-RL with online adaptation.
- Generated in-distribution context using a given uncertainty quantification and performed effective task belief inference to address new tasks.
- Our work is accepted by ICML 2023.

Robot Design via Reinforcement Learning

- Designed robots with various functionalities in simulated environments by using symmetry to exploit the structure of the robot design space with symmetry.
- Proposed a novel plug-and-play transformation module to map any robot design into a learned symmetry space and provided theoretical analysis to verify its rationality.
- Our work is accepted by ICML 2023.

Multi-cellular Soft Robot Design

- Inspired from real multi-cellular organisms and developed a novel algorithm to co-design soft robots in behavior and morphology.
- Introduced coarse-to-fine robot design strategy and conducted a comprehensive analysis of its benefits in the evolution of intelligent collectives
- Our project is accepted by ICLR 2024.

Research Assistant - School of AI, HUST

Hubei, China

Supervisor: Prof. Dongrui Wu

May 2021 - May 2022

Epilepsy Seizure Detection and Automatic Classification Project

- Cooperated with Wuhan Children's Hospital Affiliated to Tongji Medical College.
- Integrated transfer learning to deal with the lack of epileptic seizure data.

- Utilized manually extracted features to regularize and initialize neural network.

World Robot Contest - BCI Brain Control Robot Contest

- Completed Event-Related Potential experiments to figure out the position of target images in the sequence and determine their categories by analyzing the EEG signals.
- Introduced Euclidean-Space Alignment to deal with the differences of EEG signals between users and XDAWN spatial filter to maximize the signal-to-noise ratio.
- Our project won the Second Prize.

Innovation Project Member - School of AI, HUST

Hubei, China

Supervisor: Prof. Wenbing Tao

Mar 2022 - July 2022

Innovation and Entrepreneurship Training Program

- Aimed to build a complete football analysis system from football player detection, player identification to real-time position tracking and action recognition.
- Applied TinaFace based on RetinaNet to achieve face recognition due to the high degree of blurriness in facial images and the difficulty in capturing faces in videos.

HONORS AND AWARDS

- Outstanding Graduate Honor - 2024
- Outstanding Undergraduate Student Award (top 1%) - 2022
- Freshman Self-improvement Scholarship - 2021
- Excellent Academic Scholarship - 2021
- The Second Prize of the World Robot Contest-BCI Brain Control Robot Contest - 2021
- The First Prize for Individual Events in the School Spring Sports Meeting - 2021
- Science and Technology Innovation Scholarship - 2022
- Honorable Mention in Mathematical Contest in Modeling - 2022
- Third Prize of the Seventeenth C Programming Language Contest - 2022
- The Second Prize in the Badminton event at the Fourth Sports Teaching Class Student Sports Skills Competition - 2022
- Science and Technology Innovation Scholarship - 2023

ACADEMIC SERVICE

- **Conference Reviewer** International Conference on Learning Representations (ICLR) 2025

TEACHING EXPERIENCE

- **Teaching Assistant** ECE598-Advanced Topics in Machine Learning and Formal Methods, University of Illinois Urbana-Champaign, Fall 2024.

SKILLS SUMMARY

- **Programming Languages** Python, C/C++, Matlab, SQL, Bash
- **Languages** Chinese, English
- **Frameworks** PyTorch, TensorFlow, Keras, OpenCV, Scikit, etc.
- **Tools** PyCharm, VS Code, Markdown, Jupyter Notebook, MobaXterm, Kubernetes, Git