Penglin Cai

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Education

Peking University *Sept 2021 – Jul 2025*
BEng in Artificial Intelligence | Tong Class | Yuanpei College

- **GPA:** 3.713/4.000
- **Selected Courses:** Mathematical Foundation for Artificial Intelligence (96), Natural Language Processing with Deep Learning (94), Rationality and Intelligence: From Human to Machine (96), Directed Research in AI Systems (95), Multi-Agent Systems (98)

Research Interest

Reinforcement Learning, Embodied AI, General Agents that can acquire skills and accomplish tasks in the open world

Research Experience

Research Intern *July 2022 – Present*
PKU-RL Lab

- Apply pre-trained VLA models to dexterous robotic hands with new modalities
- Research on offline model-based skill stitching

Research Intern *Dec 2022 – Aug 2023*
Beijing Academy of Artificial Intelligence (BAAI)

- Research on creative agents constructing buildings in Minecraft with imagination

Publications and Preprints

Creative Agents: Empowering Agents with Imagination for Creative Tasks
Chi Zhang*, **Penglin Cai***, Yuhui Fu, Haoqi Yuan, Zongqing Lu
arXiv, Dec 2023

Plan4MC: Skill Reinforcement Learning and Planning for Open-World Minecraft Tasks
Haoqi Yuan, Chi Zhang, Hongcheng Wang, Feiyang Xie, **Penglin Cai**, Hao Dong, Zongqing Lu
NeurIPS Foundation Models for Decision Making Workshop, 2023

Projects

Mastering Dexterous Hands Grasping with Tactile-Aided Vision-Language-Action Models *Dec 2024 – Present*

- Apply pre-trained VLA models to dexterous robotic hands, with tactile information as a complementary modality
- Key Words: Vision-Language-Action Models, Dexterous Hands, Embodied Agents

Offline Model-Based Skill Stitching *Mar 2024 – Sept 2024*

- Research on stitching two adjacent skills in the domain of offline model-based reinforcement learning
- Key Words: Skill Stitching, Offline RL, Model-Based RL

Large-Scale Multi-Agent Cooperation in Multi-Team Systems *Mar 2024 – Aug 2024*

- Research on the optimization and approximate equilibrium when there are multiple teams to compete, with agents cooperating within each team, in Neural MMO
- Key Words: Multi-Agent Systems, Multi-Agent Reinforcement Learning, Self Play

Academic Services

Reviewer, NeurIPS Open-World Agents workshop, 2024

Reviewer, NeurIPS Foundation Models for Decision Making workshop, 2023

Awards and Scholarships

Zheng Geru Outstanding Student Scholarship, Peking University, 2023-2024 Academic Year

Merit Student, Peking University, 2023-2024 Academic Year

The Third Prize of Peking University Scholarship, Peking University, 2022-2023 Academic Year

Award for Academic Excellents, Peking University, 2022-2023 Academic Year

The First Prize of Freshman Scholarship, Peking University, Fall 2021