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

- Research on creative agents constructing buildings in Minecraft with imagination

**Research Intern** *May 2025 – Present*
*BeingBeyond*

- Research on deploying foundation models to real robots in embodied AI

## Publications and Preprints

**Creative Agents: Empowering Agents with Imagination for Creative Tasks**

**Penglin Cai***, Chi Zhang*, Yuhui Fu, Haoqi Yuan, Zongqing Lu

The 41st Conference on Uncertainty in Artificial Intelligence (UAI), Poster, 2025

**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**, Multi-Agent Systems in the Era of Foundation Models: Opportunities, Challenges and Futures workshop @ ICML 2025

**Reviewer**, Open-World Agents workshop @ NeurIPS 2024

**Reviewer**, Foundation Models for Decision Making workshop @ NeurIPS 2023

## Awards and Scholarships

**Outstanding Graduate of Yuanpei College**, Peking University, Summer 2025

**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