

# Penglin Cai

📍 Beijing, China    ✉ cpl@stu.pku.edu.cn    🔗 <https://intellouis.github.io/>    🏠 Intellouis

## 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)

### Peking University

Sept 2025 – Now

Ph.D. in Computer Science | School of Computer Science

## Research Interest

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

## Internship

### 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

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**Program Committee**, AAAI 2025

**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

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**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