Sicheng He

✉ sichengh@usc.edu · ⚘ hesic73.github.io · ⭘ heisc73 · **in** sicheng-he · ⚲ Los Angeles, CA

🎓 Education

University of Southern California — Los Angeles, CA
M.S. in Computer Science — *Jan 2024 - now*

Tsinghua University — Beijing, China
B.E. in Electronic Engineering — *Sept 2019 – Jul 2023*

👥 Experience

USC Robotic Embedded Systems Laboratory — Los Angeles, CA
Research Assistant Advisor: Prof. Daniel Seita — *Feb 2024 – now*

Imitation Learning for Bimanual Manipulation
- Adapted and tuned the ACT algorithm within our project as a baseline

Tsinghua NICS-EFC — Beijing, China
Research Intern Advisor: Dr. Chao Yu — *Aug 2023 – Jan 2024*

Multi-Agent Reinforcement Learning for Drone Control
- Achieved over 90% success in cooperative drone juggling tasks
- Investigated self-play algorithms (e.g., PSRO) in adversarial scenarios
- Replace the motion planning module with RL techniques in a quadrotor ball playing system

HKUST Stat and ML Research Group — Hong Kong, China
Summer Intern Advisor: Dr. Xiao Zhou — *Jul 2022 – Oct 2022*

Effective Sparsification of Neural Networks
- Implemented smaller dense subnetworks equivalent to sparse ones on Bert, VGG and other architectures
- Built a framework for a distributed training algorithm to mitigate the dependence on data copying
- Achieved speedup in pretraining Bert with negligible performance loss

Moka HR — Beijing, China
NLP Intern — *Feb 2023 – Jun 2023*

Instance Generation & Embedding
- Developed a data annotation application using Gradio
- Applied the self-instruct method to create instructions and instances within the HRM domain
- Finetuned and evaluated M3E3, a general-purpose text embedding model for Chinese

🚀 Projects

⭘ **gomoku_rl**: train an AI to master the game of Gomoku
- Created a GPU-parallelized gomoku environment for a faster reinforcement learning training pipeline
- Implemented PPO, DQN, independent RL and PSRO
- Trained agents to achieve human-level proficiency in Gomoku on a 15×15 board within hours

⚙ Skills

- Programming Languages: Python, C/C++, Rust, C#, Golang
- Tools and Frameworks: Pytorch, Git, Qt, Markdown, LaTeX