Yue Huang

Robotics · Reinforcement Learning · Imitation Learning

Tsinghua University, State Key Laboratory of Intelligent Technology and Systems, Beijing, P.R.China.

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Education

Tsinghua University — *Beijing, China*

Visiting Student in State Key Laboratory of Intelligent Technology and Systems — *May. 2018 - Present*

- Member of the reinforcement learning research group

Harbin Institute of Technology — *Harbin, China*

M.S. in Computer Science and Technology — *Sep. 2017 - Jul. 2019*

- First Prize Scholarship of Harbin Institute of Technology

HeFei University of Technology — *Hefei, China*

B.S. in Computer Science and Engineering — *Sep. 2013 - Jul. 2017*

- Rank: 5/167
- First Prize Scholarship of HeFei University of Technology

Experience

Research Assistant, Tsinghua University, State Key Laboratory of Intelligent Technology and Systems (Advisor: Prof. Huaping Liu) — *Beijing, China*

Research: Imitation Learning, Lifelong Learning and Active Perception — *May. 2018 - Present*

- Established an active perception framework based on visuomotor control imitation learning
- Established a Lifelong Imitation Learning framework via Dynamic Movement Primitives (LIL-DMPs)
- Established a multi-task imitation learning method via IRL from multi-intention demonstrations

Graduate student, HIT Research Center of Multi-agent Robot (Advisor: Prof. Songhao Piao) — *Harbin, China*

Researcher for <Autonomous Robotic SLAM-based Indoor Navigation> — *Mar. 2017 - May. 2018*

- Performed research on self-adaptive laser-based SLAM algorithms on ROS simulation environment and physical robots
- Performed research on the robust SLAM and navigation system via Hector and Cartographer algorithms
- Performed research on 2D/3D visual information fusion for bioinspired SLAM

Undergraduate student, Robotics and Intelligent Technology Lab (Advisor: Prof. Baofu Fang) — *Hefei, China*

Team leader for HFUT RoboCup 3D Simulation Team — *May. 2014 - Mar. 2017*

- Researched on bipedal locomotion and skill learning for both physical and simulation humanoid robots
- Performed research on multiagent positioning, movement and coordinate actions
- Performed research on ad hoc teamwork

Research Project

Multi-Modal Fusion Perception and Human-Robot Interaction for Robotic Manipulation, National Natural Science Foundation Key Project (U1613212) — *Beijing, China*

Research Member — *May. 2018 - Present*

- Developed a robust multi-task imitation learning method via dynamic movement primitives
- Developed a multi-intention movement behaviors learning model in based on inverse reinforcement Learning algorithm
- Developed a lifelong unsupervised visuomotor learning framework with RL
- Implemented extensive experiments with Baxter, Widowx Arm, UR5 Arm, Mujoco, GYM, ROS and V-rep simulation environment
- Supplementary video: `https://www.youtube.com/watch?v=-LdyWwnYYrY&feature=youtu.be`

Optimization of an Omnidirectional Humanoid Walk and Tracking Objects, National University Student Innovation Project (NO.201510359080) — *Hefei, China*

Principal Investigator — *May. 2015 - May. 2017*

- Implemented filter algorithms for tracking objects in a dynamic environment
- Optimization of an omnidirectional self-adaptive humanoid walk
- Researched adversarial attack learning system for multi-agent environment with evolutionary algorithms

Publication

- **Yue Huang**, Huaping Liu, and Fuchun Sun, "Lifelong Imitation Learning using Dynamic Movement Primitives," Submitted in International Conference on Robotics and Automation (ICRA), 2020
- Songhao Piao, **Yue Huang**, and Huaping Liu, "Online Multi-modal Imitation Learning via Lifelong Intention Encoding," IEEE International Conference on Advanced Robotics and Mechatronics (ICARM), 2019

Honors & Awards

2018	**First Prize**, Scholarship of Harbin Institute of Technology	*Harbin, China*
2017	**1/167**, Outstanding Students of HeFei University of Technology	*Hefei, China*
2017	**First Prize**, RoboCup ChinaOpen 2017 Soccer 3D Simulation League	*Rizhao, China*
2016	**First Prize**, Scholarship of HeFei University of Technology	*Hefei, China*
2014	**Champion**, Mathematical Contest in Modeling of HeFei University of Technology	*Hefei, China*

Academic Service

China Robot Competition | RoboCup China Open — *China*

Technical Committee Chair and Organizing Committee Member — *2015 - 2019*

- Conducted the technical infrastruction of Simulation league in RoboCup ChinaOpen
- Organizer of technical challenge workshop in China Robot Competition
- Co-organizer of China Robot Competition and RoboCup ChinaOpen

RoboCup 3D Simulation League — *Nagoya, Japan*

Technical Committee Member — *June. 2016 - Aug. 2017*

- Developed and maintained software for simulation platform in RoboCup 3D Simulation League
- Co-organizer of RoboCup 2017 3D Simulation League

RoboCup 3D Simulation League — *Leipzig, Germany*

Team leader of HFUTEngine simulation League team — *June. 2015 - June. 2017*

- Participated on and led the HFUTEngine RoboCup robot 3D simulation soccer team
- Assisted in teaching autonomous multiagent systems