

# 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

RESEARCHER FOR <LIFELONG IMITATION LEARNING>

May. 2018 - Present

- Established a robot lifelong imitation learning framework based on visuomotor control learning methods
- Developed a LIL-DMPs method for manipulation robotic imitation learning
- Established a novel IRL imitation learning method with lifelong intention encoding for multi-intention imitation learning problem
- Performed extensive experimental validation with Baxter, UR5 arm, Mujoco, and V-rep simulation environment
- Supplementary video: <https://www.youtube.com/watch?v=z-sCkKaLyUg>

### Research Assistant, 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 simulated environment and Jackal robot
- Reformed the robust SLAM and navigation system in dynamic environment via Hector and Cartographer algorithms
- Performed research on 2D/3D visual information fusion for bioinspired SLAM

### Undergraduate Research Assistant, 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 robot
- Performed research on multiagent positioning, movement and coordinate actions
- Performed research on ad hoc teamwork
- Presented a scalability approach of multi-robot learning from demonstration for NAO and self-maded humanoid robots

## 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 diverse behaviors learning model in gym simulation environment and physical robot arm based on inverse reinforcement Learning algorithm
- Developed a lifelong unsupervised visuomotor control reinforcement learning framework

## 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

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- **Yue Huang**, Huaping Liu, and Fuchun Sun, "Lifelong Imitation Learning using Dynamic Movement Primitives," Submitted in IEEE International Conference on Robotics and Biomimetics (ROBIO), 2019
- 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

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

## Academic Service

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### China Robot Competition | RoboCup China Open

China

TECHNICAL COMMITTEE CHAIR AND ORGANIZING COMMITTEE MEMBER

2015 - 2019

- Conducted the technical infrastructure of RoboCup ChinaOpen Simulation league
- Co-organizer of the competition of China Robot Competition
- Organizer of technical challenge community in China Robot Competition

### RoboCup 3D Simulation League

Nagoya, Japan

TECHNICAL COMMITTEE MEMBER

June. 2016 - Aug. 2017

- Collaborated conducted the competition of RoboCup 3D Simulation League
- Updated competition platform for RoboCup 2017 3D Simulation League

### RoboCup 3D Simulation League

Leipzig, Germany

TEAM LEADER OF HFUTENGINE SIMULATION LEAGUE TEAM

June. 2015 - June. 2017

- Developed a 3D simulation system with my teammates and participated in several Robotics competitions
- Assistant taught course on autonomous multiagent systems