PEIDE HUANG

+1 (650) 505 8033 ⋄ peideh@andrew.cmu.edu ⋄ https://peidehuang.github.io/

EDUCATION

Carnegie Mellon University September 2020 - Present
M.S. in Machine Learning
Ph.D. in Mechanical Engineering *Pittsburgh, PA, US*
Academic advisors: Prof. Ding Zhao (SafeAI Lab), Prof. Fei Fang (AI and Social Good Lab)

Stanford University September 2018 - April 2020
M.S. in Mechanical Engineering (Robotics Track), GPA: 3.9/4.0 *Stanford, CA, US*

Nanyang Technological University, Singapore September 2014 - May 2018
B.E. in Aerospace Engineering with Highest Distinction, GPA: 4.9/5.0 *Singapore*

CURRENT RESEARCH

Peide Huang's research goal is to understand the interaction between the reinforcement learning agent and the tasks, with the objective to enable robust, safe and explainable decision-making. To achieve this goal, he leverages curriculum learning, representation learning, multi-agent system and game theory. He also tackles real-world applications in robotics and autonomous driving.

SELECTED PUBLICATIONS

1. **Robust Reinforcement Learning as a Stackelberg Game via Adaptively-Regularized Adversarial Training**
   Peide Huang, Mengdi Xu, Fei Fang, Ding Zhao. The 31st International Joint Conference on Artificial Intelligence (IJCAI 2022, acceptance rate: 15%).

2. **Group Distributionally Robust Reinforcement Learning**
   Mengdi Xu, **Peide Huang**, Visak Kumar, Jielin Qiu, Chao Fang, Kuan-Hui Lee, Xuewei Qi, Henry Lam, Bo Li, Ding Zhao. Under review by ICML 2022.

3. **Latent Goal Allocation for Multi-Agent Goal-Conditioned Self-Supervised Imitation Learning**
   Peide Huang*, Rui Chen*, and Laixi Shi*. NeurIPS 2021 Bayesian Deep Learning Workshop.

4. **Accelerated Policy Evaluation: Learning Adversarial Environments with Adaptive Importance Sampling**
   Mengdi Xu, **Peide Huang**, Fengpei Li, Jiacheng Zhu, Xuewei Qi, Kentaro Oguchi, Zhiyuan Huang, Henry Lam, and Ding Zhao. Under review by IEEE Robotics and Automation Letters. Abridged in ICLR 2021 Workshop on Security and Safety in Machine Learning Systems.

SELECTED PROFESSIONAL SERVICES

Reviewer ICML 2022, IJCAI 2022

SELECTED PRESENTATIONS

· Bayesian Deep Learning Workshop, NeurIPS 2021

· Workshop on Security and Safety in Machine Learning Systems, ICLR 2021

INTERNSHIP EXPERIENCE

Flexiv Robotics Ltd. June 2019 - September 2019
System Engineer *California, US*

- Established a new experimental software and hardware framework to expedite the prototyping and testing procedure of products in development. Developed a multi-threaded inter-process communication software library to achieve more robust and faster communication between middleware modules.
- Coordinated with senior engineers and managers to ensure smooth integration of the new framework into the R&D department. Constructed a standard operating procedure for the experimental setup.

Agency for Science, Technology and Research, Singapore January 2017 - June 2017
Research Assistant *Singapore*

- Designed and develop a variable footprint, Omni-directional mobile robotic platform that can change the morphology for increased stability or compactness in response to the task requirements.
- Communicated with the supervisor and managed the project timeline, budgeting, and deliverables.

TEACHING EXPERIENCE

CMU Modern Control Theory, Fall 2021	Head of teaching assistants
CMU Linear Control Systems, Fall 2020	Head of teaching assistants
NTU Introduction to Computing, Spring 2016	Peer tutor

LEADERSHIP EXPERIENCE AND HONORS

- Student Travel Award, ICLR 2021
- Co-founder and Vice President, NTU Robotics Club
- Recipient of NTU President Research Scholar with Distinction, 2016

SELECTED COURSES

Data Science and Machine Learning, Probability and Mathematical Statistics, Advanced Deep Learning, Decision Making Under Uncertainty, Probabilistic Graphical Models, Convex Optimization, Robotic Autonomy, Deep Reinforcement Learning, Advanced ML and Game Theory.

SELECTED PROJECTS

- Autonomous Vehicle Racing: https://www.youtube.com/watch?v=HOhLT9md4TM
- The Walking Robot: Eletric Beest: https://www.youtube.com/watch?v=0GoRiBrYU6w
- The Autonomous Garbage Collection Robot: https://www.youtube.com/watch?v=8HiO4uXJZPQ
- Multi-agent Coverage with Time-variant Density Function: https://www.youtube.com/watch?v=b-o1qhRA3cc

TECHNICAL SKILLS

Software	Python, MATLAB, Simulink, C/C++, assembly language
Hardware design	Altium, SolidWorks
Language	English, Mandarin, German (Goethe Institut A2)