Qiping Zhang | Curriculum Vitae

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Education

Yale University 2021 – present
Ph.D. in Computer Science advised by Marynel Vázquez.

The University of Texas at Austin 2019 – 2021
M.S. in Computer Science advised by Peter Stone and Scott Niekum.
Thesis: Interactive Learning from Implicit Human Feedback: the EMPATHIC Framework

The University of Hong Kong 2015 – 2019
B.Eng. CS Major & Math Minor, First-Class Honours

Research Interests

- **Interactive machine learning**: learning from human-generated rewards, demonstrations, and implicit feedback.
- **Human-robot interaction**: efficient robot learning of tasks and social rules via intelligent interactions with humans.

Publications

Conference Publications

- **Towards Inferring Users' Impressions of Robot Performance in Navigation Scenarios**
  Qiping Zhang*, Nathan Tsoi*, Booyeon Choi, Jie Tan, Hao-Tien Lewis Chiang, Marynel Vázquez
  In submission to ICRA 2024 [link]
- **Self-Annotation Methods for Aligning Implicit and Explicit Human Feedback in Human-Robot Interaction**
  Qiping Zhang, Austin Narcomey, Kate Candon, Marynel Vázquez
  Proceedings of the 2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI), Mar 2023 [link]
- **The EMPATHIC Framework for Task Learning from Implicit Human Feedback**
  Qiping Zhang*, Yuchen Cui*, Alessandro Allievi, Peter Stone, Scott Niekum, W. Bradley Knox
  Proceedings of the 4th Annual Conference on Robot Learning (CoRL), Nov 2020 [link]
- **3D Backscatter Localization for Fine-Grained Robotics**.
  Zhihong Luo, **Qiping Zhang**, Yunfei Ma, Manish Singh, Fadel Adib
  16th USENIX Symposium on Networked Systems Design and Implementation (NSDI), Feb 2019 [link]

Workshop Publications

- **SEAN-VR: An Immersive Virtual Reality Experience for Evaluating Social Robot Navigation**
  Qiping Zhang*, Nathan Tsoi*, Marynel Vázquez
  HRI'23 Videos and Demos, Mar 2023 [link]
- **Reaction Modeling for Deriving General Task Information from Implicit Human Feedback**
  Qiping Zhang*, Yuchen Cui*, Sahil Jain, Alessandro Allievi, Peter Stone, Scott Niekum, W. Bradley Knox
  HRI'21 Workshop on Applications for Autonomous Non-Verbal Human-Robot Interactions, Mar 2021
- **Demonstration of the EMPATHIC Framework for Task Learning from Implicit Human Feedback**
  Qiping Zhang*, Yuchen Cui*, Sahil Jain, Alessandro Allievi, Peter Stone, Scott Niekum, W. Bradley Knox
  AAAI-21 Demonstrations Program, Feb 2021

(* indicates equal contribution)

Research Experience

Yale Interactive Machines Group (IMG) Yale University, 2021 – Present
Advised by Marynel Vázquez and Brian Scassellati
Developing effective robot learning algorithms from intelligent human-robot interaction.

Learning Agents Research Group (LARG) UT Austin, 2019 – 2021
Advised by Peter Stone and Scott Niekum
Student lead of the EMPATHIC framework: interactive reinforcement learning from implicit human feedback.

CMU Robotics Institute (RI) CMU, Jun – Dec 2020
Advised by Reid Simmons
Research internship: developing a game-playing robot that conditions its behavior on different human player moods recognized during interaction.

MIT Media Lab MIT, Jun – Sep 2020
Advised by Fadel Adib
Research internship: developing a RF-based 3D backscatter tracking system for fine-grained robotics.

Qualitative Reasoning Group (QRG) Northwestern University, Mar – Jun 2018
Advised by Ken Forbus
Undergraduate study: building an inference-based AI cognitive system with Microsoft \psi framework to support interactive dialogues and multi-modal Q&A tasks.

Teaching Experience

Graduate Teaching Assistant Yale University

- CPSC 484/584: Introduction to Human-Computer Interaction, Spring 2023
- CPSC 472/572: Intelligent Robotics, Fall 2022

Undergraduate Teaching Assistant HKU

- COMP2396: Object-oriented Programming and Java, Fall 2017
- ENGG1111: Computer Programming and Applications, Spring 2017

Selected Projects

Reward Sharing for Multi-Agent RL UT Austin, Nov 2019
Advised by Peter Stone and Scott Niekum
Designing reward sharing methods using dynamic and weighted-distance neighborhoods for faster and more stable value convergence in traffic light control domains.

Semantic Video Segmentation HKU, 2018 – 2019
Advised by Kenneth K.Y. Wong
Final year project: improving temporal segmentation consistency by combining the DeepLab model with optical flow.

Quantum Communication in Superposition of Causal Orders HKU, Aug – Oct 2017
Advised by Giulio Chiribella
Constructing a quantum circuit implementing "2-switch" operation for unambiguous determination of quantum channels.

Skills

- **Programming:** Python (Pytorch, TensorFlow, ROS), C/C++, C#, Javascript, MATLAB, Java
- **Languages:** English, Mandarin, Cantonese

Awards

- **Lee Shau Kee Scholarships for Student Enrichment** 2018
- **First Prize in National Robot and Artificial Intelligence Competition** 2017
- **Dean's Honours List** 2015 – 2019
- **Ho Fook Prize in Engineering (Top 1 GPA in freshman in the Faculty of Engineering)** 2015