Yijiong Lin

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Address: University of Bristol, Beacon House, Queens Road, Bristol, BS8 1QU, UK

Education

University of Bristol, Bristol, United Kingdom Dec.. 2020 - Present
Doctoral Programme in Engineering Mathematics (Robot Learning)
Thesis: *Sim-to-Real Deep Reinforcement Learning for Dexterous Manipulation with Tactile Sensing*
Supervisors: Prof. Nathan F. Lepora, Dr. Dandan Zhang

Guangdong University of Technology, Guangzhou, China Sept. 2017 - July 2020
Master Degree in Mechanical Engineering and Automation
Thesis: *Improving the Robot Learning Efficiency with Deep Reinforcement Learning*
Supervisors: Prof. Yisheng Guan and Dr. Juan Rojas

Guangdong University of Technology, Guangzhou, China Sept. 2013 - June 2017
Bachelor Degree in Mechanical Engineering and Automation
Ranking: 1 out of 52

Peer-reviewed Publications

[10] **Yijiong Lin**, John Lloyd, Alex Church, Nathan F. Lepora, "Tactile Gym 2.0: Sim-to-real Deep Reinforcement Learning for Comparing Low-cost High-Resolution Robot Touch", Aug., 2022 IEEE Robotics and Automation Letters (RA-L). [paper] [code][website]

[9] Nathan F. Lepora, **Yijiong Lin**, Ben Money-Coomes, John Lloyd, "Digitac: A digit-tactip hybrid tactile sensor for comparing low-cost high-resolution robot touch", Aug., 2022 IEEE Robotics and Automation Letters (RA-L). [paper] [code][website]

[8] Wen Fan, Hongbo Bo, **Yijiong Lin**, Yifan Xing, Weiru Liu, Nathan Lepora, Dandan Zhang, "Graph Neural Networks for Interpretable Tactile Sensing", 27th International Conference on Automation and Computing (ICAC), Aug., 2022. (Best Paper Finalist) [paper]

[7] John Lloyd, **Yijiong Lin**, and Nathan F. Lepora, "Probabilistic Discriminative Models Address the Tactile Perceptual Aliasing Problem", Robotics: Science and Systems (RSS 2021). [paper]

[6] Jiancong Huang*, **Yijiong Lin***, Hongmin Wu, and Yisheng Guan, "Variational Augmented the Heuristic Funnel-Transitions Model for Dexterous Robot Manipulation", International Conference on Intelligent Robotics and Applications, Jul., 2020. [paper]

[5] **Yijiong Lin**, Jiancong Huang, Matthieu Zimmer, Juan Rojas, Paul Weng, "Invariant Transform Experience Replay: Data Augmentation for Deep Reinforcement Learning", July., 2020 IEEE Robotics and Automation Letters (RA-L). [paper] [code][website] [video]

[4] **Yijiong Lin**, Jiancong Huang, Matthieu Zimmer, Juan Rojas, Paul Weng, "Towards more sample efficiency in reinforcement learning with data augmentation", Thirty-third Conference

on Neural Information Processing Systems (NeurIPS) Workshop on Robot Learning, Vancouver Convention Center, Vancouver, Canada, Dec. 8- 14, 2019. [paper]

[3] **Yijiong Lin**, Yihui Li, Yan Huang, Kaifu Zhang, Haifei Zhu, Yansui Liu, Yisheng Guan, "An Odd-Form Electronic Component Insertion System Based on Dual SCARA", IEEE International Conference on Robotics and Biomimetics (ROBIO),Kuala Lumpur, Malaysia, Dec., 2018. [paper][video]

[2] Yihui Li, Haifei Zhu, Yan Huang, **Yijiong Lin**, Xubin Lin, Yisheng Guan, "A Less-Dependent Threshold Corner Detection Algorithm", 2018 IEEE International Conference on Robotics and Biomimetics (ROBIO), Kuala Lumpur, Malaysia, Dec., 2018. (accepted after peer review) [paper]

[1] Shuangqi Luo, Hongmin Wu, Shuangda Duan, **Yijiong Lin**, and Juan Rojas "Endowing Robots with Longer-term Autonomy by Recovering from External Disturbances in Manipulation Through Grounded Anomaly Classification and Recovery Policies", Journal of Intelligent and Robotic Systems, Sep., 2018. [paper][website]

Selected Awards and Fellowships

2022 **Best Student Paper Finalist Award** on Service Robotics at ICIA 2022 for the work "Graph Neural Networks for Interpretable Tactile Sensing".

2020 **University of Bristo/China Scholarship Councill joint-funded scholarship**. Full funding for 4 years.

2018 **Top-notch Innovative Personnel** in Guangdong University of Technology. (top 4.7% out of 359).

2018 **The First Prize Scholarship of Master** in Guangdong University of Technology (top 7.2% out of 359).

2017 **Top-notch Innovative Personnel** in Guangdong University of Technology (top 5.7% out of 359).

2017 **The First Prize Scholarship of Master** in Guangdong University of Technology(top 6.7% out of 359).

2016 **Excellent Postgraduate Candidates Exempt from Admission Exam** (top 2.9% out of 810).

Activities

2023 Presented my work on "Sim-to-Real Deep Reinforcement Learning for Bimanual Tactile Robotic System" at the 4th UK Robot Manipulation Workshop in Bristol, UK.

2021 Presented my work on "Dexterous Robot Control Using Deep Learning and Biomimetic Touch" at the 5th Conference on Robot Learning (CoRL) in London, UK.

2019 Gave a international tutorial on "Introduction to Deep Reinforcement Learning" in IEEE International Conference on Real-time Computing and Robotics (RCAR), Irkutsk, Russia.

2019 Invited to visit University of Michigan – Shanghai Jiao Tong University Joint Institute where I performed research collaboration with Prof. Paul Weng's team in Deep Reinforcement Learning and Invariant Transforms, Shanghai, China.

Advising

2022 Shipeng Xiong: Data-Efficient Imitation Learning for Dexterous Manipulation

2022 Pengyuan Wei: Dual-arm Insertion with Tactile Sensing via Deep Reinforcement Learning

2021 Di Wu: Tactile Manipulation Using Deep Reinforcement Learning on an Educational Robotics Platform

2021 Jiangfeng Fan: Towards more Learning Efficiency with Educational Robot in Tactile Gym

Patent and Software Copyright

2019 **Yijiong Lin**, Juan Rojas, Yisheng Guan, Hongmin Wu, Shuangqi Luo, "A Method and Device of Robotics Manipulation Task Recovering", Chinese Invention Patent, 201910671929.X, Aug. 22, 2019.

2018 Haifei Zhu (Advisor), **Yijiong Lin**, Jian Li, Yisheng Guan, "A Method and System for Dynamic Visualization of Plane Machining Path", Chinese Invention Patent, 107885159A, May 1, 2018.

2018 Yisheng Guan (Advisor), **Yijiong Lin**, Jian Li, Haifei Zhu, Yihui Li, Yifeng Yang, Guobiao Li, "Intelligent Control Software for Ultra-high Pressure Water Jet Cutting.