Kelin Li

Flat 16, 39 Collingham Place, SW5 0QF, London, United Kingdom · +44-07410500006 ·kl2220@ic.ac.uk

EDUCATION BACKGROUND

Imperial College London – London, UK Nov. 2020-Now
*Ph.D., **Robotics***
- Scholarships: Fully Funded Ph.D. Student

Huazhong University of Science and Technology – Wuhan, China Sept. 2016-Jun. 2019
*Master of Science, **Mechanical Engineering***
Overall GPA: 87.4/100, 3.66/4.0
- Scholarships: First-class Academic Scholarship for 2016, 2017 and 2018

Hunan University – Changsha, China Sept. 2012-Jun. 2016
*Bachelor of Science, **Mechanical Design, Manufacturing, and Automation***
Overall GPA: 86.3/100, 3.60/4.0; Rank: 8/226
- Scholarships: First-class Scholarship for 2015, Second-class Scholarship for 2013 and 2014

RESEARCH EXPERIENCE

Imitation Learning-based Dexterous Manipulation of Household Objects with Robotic Hands
PhD Thesis Nov. 2020 - Present
- Develop a robotic system that equipped with multi-fingered robotic hands
- Leverage imitation learning algorithms for multi-fingered robotic hands to perform human-like dexterous manipulations, so that it can assist human to carry out household tasks
- Both visual and tactile sensing will be involved to collect human demonstrations for learning in this project

Autonomous Learning, Programming, and Self-discipline Tracking for Robot Compliant Machining
The National Natural Science Foundation of China Project Jan. 2018-Jun. 2019
- Developed a learning-based force controller, compiled programs and carried out experiments
- Grasped the knowledge of ROS, C++ and Python programming

Large-scale Complicated Components Robot Machining Theories and Technologies
The National Natural Science Foundation of China Project Mar. 2017-Dec. 2017
- Designed the belt polishing mechanism and wrote the robot's force control program to implement force control and polishing to the wind turbine blades
- Designed specific grinding device for robot manipulators
- Independently studied the Comau C5G Open system and improved my cognition towards the robot

Reconfigurable Public Transportation System
The Program of Partners for the Advancement of Collaborative Engineering Education (PACE) Center at Hunan University Dec. 2014-Jun. 2015
- Participated in the market survey, mechanism design and CAE analysis
- Headed team members to design the motor-drive circuit and wrote the control program as the leader of the electronic control team

Small-bore Aspheric Surface Nano-polishing Based on Negative Pressure Suction Current Void Effect
The National Natural Science Foundation of China Project Sept. 2013-Jan. 2014
- Consulted literature in the database of Elsevier and Springer, sorted out the existing literature and formed a review
- Learned the fundamental knowledge of fluid mechanics and mastered the application of ANSYS
- Performed analyses on the stress conditions concerning different shaped jet flow and adopted the straight pipe that can obtain the maximum jet force after an optimization

CONFERENCE EXPERIENCE

- Being invited as reviewer committee of 2019 IEEE International Conference on Robotics and Biomimetics
- Oral presentation in 2017 and 2018 IEEE International Conference on Robotics and Biomimetics
- Oral presentation in 2018 IEEE 14th International Conference on Automation Science and Engineering
- IEEE student member from January 2018 until now

PUBLICATIONS

- Kelin Li, Digby Chappell, Nicolas Rojas. *Immersive Demonstrations are the Key to Imitation Learning* under review by International Conference on Robotics and Automation (ICRA 2023).
- Kelin Li, Nicholas Baron, Xian Zhang, Nicolas Rojas. *Efficientgrasp: A unified data-efficient learning to grasp method for multi-fingered robot hands* published by IEEE Robotics and Automation Letters (RA-L), 2022.
- Kelin Li; Sudchai Boonto; Thanana Nuchkrua. *On-line Self Tuning of Contouring Control for High Accuracy Robot Manipulators under Various Operations* published by International Journal of Control, Automation and Systems (IJCAS), 2020.
- Kelin Li; Thanana Nuchkrua; Huan Zhao; Ye Yuan; Sudchai Boonto. *Learning-based Adaptive Robust Control of Manipulated Pneumatic Artificial Muscle Driven by H2-based Metal Hydride* published in 2018 IEEE 14th International Conference on Automation Science and Engineering (CASE), 2018.
- Kelin Li; Huan Zhao; Thanana Nuchkrua; Ye Yuan; Han Ding. *Sparse Bayesian Learning-Based Adaptive Impedance Control in Physical Human-Robot Interaction* published in 2018 IEEE International Conference on Robotics and Biomimetics (ROBIO), 2018.
- Kelin Li; Huan Zhao; Yangyang Mao; Han Ding. *Force Tracking on Unknown Surface Using Impedance Control with Force Sensor Filtering* published in 2017 IEEE International Conference on Robotics and Biomimetics (ROBIO), 2017.
- Ruishuang Chen; Kelin Li; Sudchai Boonto; Thanana Nuchkrua. *Contouring Control Consensus for Robot Manipulators* accepted by SICE Annual Conference 2019 (SICE 2019), 2019.
- Kelin Li; Ruishuang Chen; Thanana Nuchkrua; Sudchai Boonto. *Dual Loop Compliant Control Based on Human Prediction for Physical Human-Robot Interaction* accepted by SICE Annual Conference 2019 (SICE 2019), 2019.

HONORS

Outstanding Graduate of Huazhong University of Science and Technology (10%)	Jun. 2019
ICA-SYMP2019 Best paper Award, IEEE Control Systems Society, Thailand (1%)	Jan. 2019
Merit Graduate Student of Huazhong University of Science and Technology (8%)	Oct. 2018
First Prize in College Students Innovation and Entrepreneurship Training, Hunan University	Jun. 2016
Excellence Award in Lunar Rover Creative Design Competition, Chongqing Association for Sci. & Tech.	Oct. 2015
First Prize in UG Modeling and Secondary Development Competition, Hunan University	Jan. 2015

ADDITIONAL INFORMATION

- Computer Skills: C, C++, Matlab, Python, Auto CAD, UG, ADAMS, ANSYS Fluent, LaTex, Microsoft office
- Language: Native in Chinese, fluent in English
- Patents: National Invention Patent of China: A Demonstration-based Equipment and Method for Robot Force Controlled Turbine Blade Grinding, Patent No. : 109434843A; National Invention Patent of China: A Highly Compliant Method for Human-robot Interaction, Patent No. : 109848983A