Keyu Li

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Research Interest

My research interests include artificial intelligence and its application in medical robotic systems. I am currently working on reinforcement learning algorithms for robot-assisted medical imaging.

Education

- **The Chinese University of Hong Kong**, Hong Kong, China **August 2019 – Present**
  Ph.D., Department of Electronic Engineering
  Advisor: Prof. Max Q.-H. Meng
- **Harbin Institute of Technology at Weihai**, Weihai, China **September 2015 – July 2019**
  B.Eng. Department of Information Science and Engineering
  GPA: 95.15 / 100 Rank: 1 / 106

Employment

- **Tencent**, Shenzhen, China **July 2018 – August 2018**
  Intern in Tencent Youtu Lab. Participated in research on deep learning algorithms for commodity identification and retrieval from videos.

Honors & Awards

- **Hong Kong Ph.D. Fellowship** **2019 – Present**
  Awarded to 250 Ph.D. students that study in Hong Kong by the Research Grants Council (RGC) of Hong Kong. Eligibility: outstanding qualities of academic performance, research ability / potential, communication and interpersonal skills, and leadership abilities.
- **MIIT Innovation and Entrepreneurship Scholarship (Third-class)** **2019**
  Awarded to 210 students nationwide by the Ministry of Industry and Information Technology (MIIT), China.
- **Outstanding Graduate of Shandong Province** **2019**
  Awarded to 5% of graduates in Shandong Province.
- **Outstanding Student of Shandong Province** **2018**
  Awarded to 0.1% of undergraduate students in Shandong Province.
- **Top Ten Undergraduates Award & Ma Zuguang Scholarship** **2018**
  Awarded to 10 undergraduate students at Harbin Institute of Technology at Weihai.
- **National Scholarship** **2018, 2017, 2016**
  Awarded to 2% of undergraduate students in China by the Ministry of Education, China.

- **Top Prize in National English Competition for College Students (NECCS)** **2018, 2016**
  Awarded to 0.1% of participants.
- **Honorable Mention in Interdisciplinary Contest in Modeling (ICM) for American College Students** **2017**
  Awarded to 25% of teams.
- **First Prize in the Chinese Mathematics Competitions (CMC)** **2016**
  Awarded to 5% of participants.

Publications

(* indicates equal contribution)

- **Autonomous Navigation of an Ultrasound Probe Towards Standard Scan Planes with Deep Reinforcement Learning**
  Keyu Li, Jian Wang, Yangxin Xu, Hao Qin, Dongsheng Liu, Li Liu, Max Qing-Hu Meng
  *IEEE International Conference on Robotics and Automation (**ICRA**), 2021*
- **Reciprocally Rotating Magnetic Actuation and Automatic Trajectory Following for Wireless Capsule endoscopy**
  Yangxin Xu*, **Keyu Li***, Ziqi Zhao, Fei Meng, Li Liu, Max Qing-Hu Meng
  *IEEE International Conference on Robotics and Automation (**ICRA**), 2021*
- **A Novel System for Closed-loop Simultaneous Magnetic Actuation and Localization of WCE based on External Sensors and Rotating Actuation**
  Yangxin Xu, **Keyu Li**, Ziqi Zhao, Max Qing-Hu Meng
  *IEEE Transactions on Automation Science and Engineering (**T-ASE**), 2020*
- **Improved Multiple Objects Tracking based Autonomous Simultaneous Magnetic Actuation & Localization for WCE**
  Yangxin Xu, **Keyu Li**, Ziqi Zhao, Max Qing-Hu Meng
  *IEEE International Conference on Robotics and Automation (**ICRA**), 2020*
- **A Novel Approach for Automatic State Detection of A Magnetically Actuated Capsule**
  Yangxin Xu, **Keyu Li**, Max Qing-Hu Meng
  *International Engineering in Medicine and Biology Conference (**EMBC**), 2020*
- **Towards External Sensor based Simultaneous Magnetic Actuation and Localization for WCE**
  Yangxin Xu, Ziqi Zhao, **Keyu Li**, Max Qing-Hu Meng
  *IEEE International Conference on Robotics and Biomimetics (**ROBIO**), 2019*
- **SARL*: Deep Reinforcement Learning based Human-Aware Navigation for Mobile Robot in Indoor Environments**
  Keyu Li, Yangxin Xu, Jiankun Wang, Max Qing-Hu Meng
  *IEEE International Conference on Robotics and Biomimetics (**ROBIO**), 2019*
- **An Identification Algorithm for Underwater Vehicle Infrared Wake Based on GLCM Minimum Difference of Entropy**
  Haoxian Wang, Heng Dong, **Keyu Li**, Zhiquan Zhou

*IEEE International Conference on Instrumentation & Measurement, Computer, Communication and Control (**IMCCC**), 2018.*

- **Estimation Method for Microbial Count Based on Image Processing**
  Keyu Li, Haoxian Wang
  Journal of Harbin University of Commerce (Natural Sciences Edition), 2018

Patents

- **CN107644210B Microbe quantity estimation method based on image processing**
  Wang Haoxian, Zhou Zhiquan, **Li Keyu**. Publication date: 2020.05.12

Professional Activities & Service

- **Reviewer** **2021**
  *IEEE International Conference on Robotics and Automation (**ICRA**)*
- **Delegate reviewer** **2020**
  *IEEE International Conference on Intelligent Robots and Systems (**IROS**)*
- **Session Chair** **2019**
  *IEEE International Conference on Robotics and Biomimetics (**ROBIO**)*
- **Reviewer** **2019**
  *IEEE International Conference on Robotics and Biomimetics (**ROBIO**)*

Teaching Experience

- **Teaching Assistant at CUHK** **2020 – 2021, Term 2**
  Tutorial on course ELEG3103: Robotic Perception & Intelligence
- **Teaching Assistant at CUHK** **2020 – 2021, Term 1**
  Tutorial on course ELEG4701: Intelligent Interactive Robot
- **Teaching Assistant at CUHK** **2019 – 2020, Term 2**
  Tutorial on course ELEG3103: Robotic Perception & Intelligence
- **Teaching Assistant at CUHK** **2019 – 2020, Term 1**
  Tutorial on course ELEG4701: Intelligent Interactive Robot

Professional Skills

- **Programming skills:** Python, MATLAB, C, Assembly, LaTeX, HTML.
- **Tools:** Tensorflow, PyTorch, ROS, Multisim, HFSS, Protel, Auto CAD, etc.
- **Language:** TOEFL 104.