

# Jiankun Wang

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## Education

- **B.Eng., Shandong University** 09/2011 – 06/2015  
*School of Control Science & Engineering GPA: 91.19/100 Rank: 1/310*
- **Ph.D., The Chinese University of Hong Kong** 08/2015 – 07/2019  
*Advisor: Prof. Max Q.-H. Meng Dept. of Electronic Engineering  
Research field: Motion and Path Planning, Human Robot Interaction*
- **Visiting Student Researcher, Stanford University** 07/2018 – 12/2018  
*Advisor: Prof. Oussama Khatib Dept. of Computer Science  
Research field: Robotics, Motion Planning and Control*

## Work

- **Postdoc, The Chinese University of Hong Kong** 08/2019 – 08/2020  
*Advisor: Prof. Max Q.-H. Meng Dept. of Electronic Engineering  
Research field: Motion and Path Planning, Human Robot Interaction*
- **Research Assistant Professor, Southern University of Science and Technology** 09/2020 – present  
*Advisor: Prof. Max Q.-H. Meng Dept. of Electronic and Electrical Engineering  
Research field: Motion and Path Planning, Robot Perception, Artificial Intelligence*

## Journal Publications

† indicates equal contribution, and \* indicates corresponding author.

- 17. Tianyi Zhang†, **Jiankun Wang†**, Max Q.-H. Meng, "Generative Adversarial Network based Heuristics for Sampling-based Path Planning," *IEEE/CAA Journal of Automatica Sinica*, 2021, Early Access.
- 16. Wenzheng Chi, Zhiyu Ding, **Jiankun Wang\***, Guodong Chen\*, Lining Sun\*, "A Generalized Voronoi Diagram based Efficient Heuristic Path Planning Method for RRTs in Mobile Robots," *IEEE Transactions on Industrial Electronics*, 2021, Early Access.
- 15. **Jiankun Wang**, Tianyi Zhang, Nchuan Ma, Zhaoting Li, Han Ma, Fei Meng, Max Q.-H. Meng, "A Survey of Learning-based Robot Motion Planning," *IET Cyber-Systems and Robotics*, 2021, Early Access.
- 14. **Jiankun Wang†**, Weinan Chen†, Xiao Xiao†, Yangxin Xu†, Chenming Li, Xiao Jia, Max Q.-H. Meng, "A survey of the development of biomimetic intelligence and robotics," *Biomimetic Intelligence and Robotics*, 2021, Early Access. **EiC invited paper.**
- 13. Nachuan Ma†, **Jiankun Wang†**, Jianbang Liu, Max Q.-H. Meng, "Conditional Generative Adversarial Networks for Optimal Path Planning," *IEEE Transactions on Cognitive and Developmental Systems*, 2021, Early Access.
- 12. Wenzheng Chi†, **Jiankun Wang†**, Zhiyu Ding, Guodong Chen, Lining Sun, "A Reusable Generalized Voronoi Diagram Based Feature Tree for Fast Robot Motion Planning in Trapped Environments," *IEEE Sensors Journal*, 2021, Early Access.
- 11. **Jiankun Wang**, Max Q.-H. Meng, "Real-time Decision Making and Path Planning for Robotic Autonomous Luggage Trolley Collection at Airports," *IEEE Transactions on Systems, Man and Cybernetics: Systems*, 2021, Early Access.
- 10. **Jiankun Wang**, Baopu Li, Max Q.-H. Meng, "Kinematic Constrained Bi-directional RRT with Efficient Branch Pruning for Robot Path Planning," *Expert Systems with Applications*, 2021, 170(114511).
- 9. Jin Pan, Xiaochun Mai, Chaoqun Wang, Zhe Min, **Jiankun Wang**, et al., "A Searching Space Constrained Partial to Full Registration Approach with Applications in Airport Trolley Deployment Robot," 2020, *IEEE Sensors Journal*, Early Access.
- 8. **Jiankun Wang**, Max Q.-H. Meng, Oussama Khatib, "EB-RRT: Optimal Motion Planning for Mobile Robots," *IEEE Transactions on Automation Science and Engineering*, 2020, 17(4).
- 7. **Jiankun Wang**, Wenzheng Chi, Chenming Li, Chaoqun Wang, Max Q.-H. Meng, "Neural RRT\*: Learning-based Optimal Path Planning," *IEEE Transactions on Automation Science and Engineering*, 2020, 17(4).
- 6. **Jiankun Wang**, Max Q.-H. Meng, "Optimal Path Planning using Generalized Voronoi Graph and Multiple Potential

Functions," *IEEE Transactions on Industrial Electronics*, 2020, 67(12).

- 5. **Jiankun Wang**, Max Q.-H. Meng, "Socially Compliant Path Planning for Robotic Autonomous Luggage Trolley Collection at Airports," *Sensors*, 2019, 19(12).
- 4. Chaoqun Wang†, **Jiankun Wang**†, et al., "Safe and Robust Mobile Robot Navigation in Uneven Indoor Environments," *Sensors*, 2019, 19(13).
- 3. **Jiankun Wang**, Wenzheng Chi, Mingjie Shao and Max Q.-H. Meng, "Finding a High-Quality Initial Solution for the RRTs Algorithms in 2D Environments," *Robotica*, 2019, 37(10).
- 2. Wenzheng Chi, Chaoqun Wang, **Jiankun Wang**, Max Q.-H. Meng, "Risk-DTRRT-Based Optimal Motion Planning Algorithm for Mobile Robots," *IEEE Transactions on Automation Science and Engineering*, 2018, 16(3).
- 1. Chaoqun Wang, Jiyu Cheng, **Jiankun Wang**, Xintong Li and Max Q.-H. Meng, "Efficient Object Search With Belief Road Map Using Mobile Robot," *IEEE Robotics and Automation Letters*, 2018, 3(4).

## Conference Publications

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- 12. Chenming Li, Chaoqun Wang, **Jiankun Wang**, Yutian Shen, Max Q.-H. Meng, "Sliding-Window Informed RRT\*: A Method for Speeding Up the Optimization and Path Smoothing," *2021 IEEE International Conference on Real-time Computing and Robotics (RCAR)*.
- 11. Zhaoting Li†, **Jiankun Wang**†, Max Q.-H. Meng, "Efficient Heuristic Generation for Robot Path Planning with Recurrent Generative Model," *2021 IEEE International Conference on Robotics and Automation (ICRA)*.
- 10. Xiao Jia, Xiaochun Mai, Xiaohan Xing, Yutian Shen, **Jiankun Wang**, Max Q.-H. Meng, "Multibranch Learning for Angiodysplasia Segmentation with Attention-Guided Networks and Domain Adaptation," *2021 IEEE International Conference on Robotics and Automation (ICRA)*.
- 9. HaoChih LIN, Baopu Li, Xin Zhou, **Jiankun Wang**, Max Q.-H. Meng, "No Need for Interactions: Robust Model-Based Imitation Learning using Neural ODE," *2021 IEEE International Conference on Robotics and Automation (ICRA)*.
- 8. Yuan Yuan, Jie Liu, **Jiankun Wang**, Wenzheng Chi, Lining Sun, "A Knowledge-Based Fast Motion Planning Method Through Online Environmental Feature Learning," *2021 IEEE International Conference on Robotics and Automation (ICRA)*.
- 7. **Jiankun Wang**, Max Q.-H. Meng, "Path Planning for Nonholonomic Multiple Mobile Robot System with Applications to Robotic Autonomous Luggage Trolley Collection at Airports," *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*.
- 6. Keyu Li, Yangxin Xu, **Jiankun Wang**, Max Q.-H. Meng, "SARL: Deep Reinforcement Learning based Human-Aware Navigation for Mobile Robot in Indoor Environments," *2019 IEEE International Conference on Robotics and Biomimetics (ROBIO)*.
- 5. **Jiankun Wang**, Xintong Li, Wenzheng Chi, Max Q.-H. Meng, "Tropistic RRT\*: An Efficient Planning Algorithm via Adaptive Restricted Sampling Space," *2018 IEEE International Conference on Information and Automation (ICIA)*.
- 4. Wenzheng Chi, **Jiankun Wang**, Max Q.-H. Meng, "Risk-Informed-RRT\*: A Sampling-based Human-friendly Motion Planning Algorithm for Mobile Service Robots in Indoor Environments," *2018 IEEE International Conference on Information and Automation (ICIA)*.
- 3. Frank Powen Lo, Xintong Li, **Jiankun Wang**, Max Q.-H. Meng, "Motion Artifact Reduction in PPG Signals based on Periodic Component Factorization," *39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'2017)*.
- 2. Frank Powen Lo, Xintong Li, **Jiankun Wang**, Jiyu Cheng, Max Q.-H. Meng, "Continuous Systolic and Diastolic Blood Pressure Estimation utilizing Long Short-term Memory Network," *39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'2017)*.
- 1. **Jiankun Wang**, Xintong Li, Max Q.-H. Meng, "An Improved RRT Algorithm Incorporating Obstacle Boundary Information," *2016 IEEE International Conference on Robotics and Biomimetics (ROBIO)*.

## Honors And Awards

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- **Reaching Out Award of CUHK**  
Award for exchange student

2018 – 2019

- **Global Scholarship Programme for Research Excellence** 2018 – 2019  
Award for **Excellent** exchange student
- **Hong Kong Ph.D. Fellowship** 2015 – 2019  
**Highest** scholarship for students study in Hong Kong. Selection based on: academic excellence, research ability and potential, communication and interpersonal skills, as well as leadership abilities.
- **Outstanding Graduate of Shandong Province (top 0.5%)** 2015 – 2016  
**Highest** award for graduates in Shandong Province
- **The President Scholarship of Shandong University (top 0.2%)** 2014 – 2015  
**Highest** award for students in Shandong University
- **Outstanding Student of Shandong Province (top 0.5%)** 2014 – 2015  
**Highest** award for students in Shandong Province
- **First Prize – International Underwater Robot Competition** 2014 – 2015  
Award for winners in underwater robot competition
- **Champion – China Robot Competition** 2013 – 2014  
**Highest** award in Robot Competition, China
- **National Scholarship (top 2%)** 2012 – 2013  
**Highest** national wide scholarship for undergraduate students in China
- **First-class Scholarship of Shandong University (top 5%)** 2012 – 2014  
Award for outstanding students

## Selected Talks

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- Path Planning for Nonholonomic Multiple Mobile Robot System with Applications to Robotic Autonomous Luggage Trolley Collection at Airports  
at IROS 2020, Las Vegas, US (Virtual Meeting)
- Tropistic RRT\*: An Efficient Planning Algorithm via Adaptive Restricted Sampling Space  
at ICIA 2018, Wuyi Mountain, China
- Motion Artifact Reduction in PPG Signals based on Periodic Component Factorization  
at EMBC 2017, Jeju Island, South Korea
- Continuous Systolic and Diastolic Blood Pressure Estimation utilizing Long Short-term Memory Network  
at EMBC 2017, Jeju Island, South Korea
- An Improved RRT Algorithm Incorporating Obstacle Boundary Information  
at ROBIO 2016, Qingdao, China

## Professional Services

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- **Reviewer of Conferences**
  - SPC of ICRA 2021
  - Local Arrangement Chair of ICRA 2021
  - Session Chair of ICIA 2016, ICIA 2017
  - Reviewer of ICRA, IROS, ROBIO, ICIA, CASE, ICAR
- **Journal Reviews**
  - IEEE Robotics and Automation Letters
  - IEEE Transactions on Intelligent Transportation Systems
  - IEEE Transactions on Intelligent Vehicles
  - IEEE Transactions on Games
  - IEEE Transactions on Vehicular Technology
  - Intelligent Service Robotics
  - IEEE Transactions on Cybernetics
  - IEEE Transactions on Industrial Electronics
  - SCIENCE CHINA Information Science

- Applied Science
- IEEE Access
- **Teaching Assistant at CUHK**
  - BMEG4103: Biomedical Modeling. Fall 2015-2016
  - BMEG3420: Medical Robotics. Spring 2016-2017
  - Develop a new course integrating robot and vision. Fall 2016-2017
  - Special TA: Interview, Photographer and General Affairs. Spring 2017-2018
  - ENGG1100: Engineering Design. Spring 2018-2019

## Co-Supervised Students

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- **Ph.D. Students**
  - Ziqi Zhao, SUSTech 2020
  - Fei Meng, CUHK 2020
  - Jianbang Liu, CUHK 2020
  - Han Ma, CUHK 2019
  - Peng Xu, CUHK 2019
  - Keyu Li, CUHK 2019
  - Chenming Li, CUHK 2019
- **MSC Students**
  - Bingyi Xia, SUSTech 2020
  - Kaiwei Che, SUSTech 2020
  - Yue Hong, SUSTech 2020
- **Research Assistants**
  - Zhaoting Li, admitted to ETH 2021
  - Tianyi Zhang, admitted to ETH 2021
  - Nachuan Ma