Fei MENG

Postdoctoral Fellow @ HKCRC, Hong Kong University of Science and Technology

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Education

Ph.D., The Chinese University of Hong Kong　　　　　　　　　　08/2020 – 07/2024
Advisor: Prof. Max Qinghu MENG and Prof. Hongliang REN, Dept. of Electronic Engineering

Visting Student, Southern University of Science and Technology　　09/2023 – 07/2024
Advisor: Prof. Guangren DUAN, School of System Design and Intelligent Manufacturing

M.Eng., Harbin Institute of Technology　　　　　　　　　　　　09/2017 – 07/2019
Advisor: Prof. Guangfu MA, Dept. of Control Science and Engineering, School of Astronautics

B.Eng., Harbin Institute of Technology　　　　　　　　　　　　08/2012 – 07/2016
Dept. of Electrical Engineering and Automation, School of Information and Electrical Engineering

Work Experience

Postdoctoral Fellow Hong Kong University of Science and Technology, Hong Kong, China　08/2024 – Now
Supervisor: Prof. Zexiang LI

Research Assistant The Chinese University of Hong Kong, Hong Kong, China　07/2019 – 8/2020
Supervisor: Prof. Max Q.-H. MENG, Project: development of a robotic rollator-orthosis system

Research Interest

Construction Robotics, Motion Planning, Deep Reinforcement Learning-based Applications, Fully Actuated System Control

Publications (1st and 2nd author)

○ **Online Time-Informed Kinodynamic Motion Planning of Nonlinear Systems**
  <u>F. MENG</u>, J. LIU, H. SHI, H. MA, H. REN*, Max Q.-H. MENG*
  IEEE Robotics and Automation Letters, 2024

○ **SparseGTN: Human Trajectory Forecasting with Sparsely Represented Scene and Incomplete Trajectories**
  J. LIU, G. LI, X. MAO, <u>F. MENG</u>, J. MEI, Max Q.-H. MENG*
  2024 IEEE/RSJ International Conference on Intelligent Robots and Systems

○ **Learning-based Risk-Bounded Path Planning Under Environmental Uncertainty**
  <u>F. MENG</u>, L. CHEN, H. MA, J. WANG*, Max Q.-H. MENG*
  IEEE Transactions on Automation Science and Engineering, 2023 (with 2024 IEEE ICRA)

○ **NR-RRT: Neural Risk-Aware Near-Optimal Path Planning in Uncertain Nonconvex Environments**
  <u>F. MENG</u>, L. CHEN, H. MA, J. WANG*, Max Q.-H. MENG*
  IEEE Transactions on Automation Science and Engineering, 2022 (with 2023 IEEE CASE)

○ **RAMPAGE: Towards Whole-body, Real-Time and Agile Motion Planning in Unknown Cluttered Environments for Mobile Manipulators**
  Y. YANG, <u>F. MENG</u>, Z. MENG, C. YANG*
  IEEE Transactions on Industrial Electronics, 2024

○ **Fast Human-in-the-loop Control for HVAC Systems via Meta-learning and Model-based Offline Reinforcement Learning**
  L. CHEN, <u>F. MENG</u>, Y. ZHANG*
  IEEE Transactions on Sustainable Computing, 2023

○ **Relevant Region Sampling Strategy with Adaptive Heuristic for Asymptotically Optimal Path Planning**
  C. LI, <u>F. MENG</u>, H. MA, J. WANG*, Max Q.-H. MENG*
  Biomimetic Intelligence and Robotics, 2023

○ **An HVAC Control Approach via Combining Model-based Deep Reinforcement Learning and Model Predictive Control**

L. CHEN, <u>F. MENG</u>, Y. ZHANG*
IEEE Internet of Things Journal, 2022

- **Bi-Risk-RRT Based Efficient Motion Planning for Mobile Robots**
  H. MA, <u>F. MENG</u>, J. WANG*, Max Q.-H. MENG*
  IEEE Transactions on Intelligent Vehicles, 2022

- **Hierarchical Policy for Non-prehensile Multi-object Rearrangement with Deep Reinforcement Learning and Monte Carlo Tree Search**
  F. BAI, <u>F. MENG</u>, J. LIU, J. WANG, Max Q.-H. MENG*
  Biomimetic Intelligence and Robotics, 2022

Honors & Awards

- **Research Talent Hub Funding Support, ITF, The Government of the Hong Kong SAR**   2024
  Nurturing technology talent with a doctoral degree

- **CUHK Research Postgraduate Student Grants, The Chinese University of Hong Kong**   2023 − 2024
  Grants for PhD students attending overseas academic activities

- **Outstanding Student of Heilongjiang Province, Provincial Department of Education (top 1%)**   2018 − 2019
  Highest award for students in Heilongjiang Province

- **China Electronics Technology Group Corporation Glarun Scholarship, HIT (2/1223)**   2018 − 2019
  Scholarship for only one Ph.D. student out of all postgraduates of School of Astronautics

- **Outstanding Graduates, Harbin Institute of Technology (top 10%)**   2018 − 2019
  Award for graduates with overall outstanding performance

- **First-class Academic Postgraduate Students Scholarship, Harbin Institute of Technology**   2018 − 2019
  Scholarship for postgraduates with distinguished academic performance

- **Outstanding Student, Harbin Institute of Technology (top 4%)**   2017 − 2018
  Award for students with overall outstanding performance

Academic Service

- **Reviewer**
  IEEE RA-L/T-MECH/T-ITS/T-II/T-IE/IoT/T-ASE/T-VT/T-SMC, J-FR, NN, BIRob, Robotica, 2021 IEEE ROBIO, 2022 IEEE ICRA, 2024 IEEE ICRA/IROS/CASE
- **Conference**
  - Session chair of 2021 IEEE ICRA
- **Early Career Editorial Board Member**
  - Biomimetic Intelligence and Robotics (JCR Q1 in Robotics, IF:5.4)
- **Teaching Assistant**
  Introduction to Electric Power Systems (ELEG3601) for Undergraduates, Spring 2021 CUHK. Fundamentals of Electric Circuits (ELEG2202A) for Undergraduates, Fall 2020/21/22/23, CUHK.

Skills

- **Programming skills:** C/C++, Python, MATLAB/Simulink, Maple, Julia, R. **Robotic Software:** ROS, Gazebo, MoveIt, Vrep, Pybullet. **Languages:** Mandarin (Native), English (Fluent). **Sports:** Basketball, Badminton, Hiking, Running.