Fei MENG

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Education

- **Ph.D. Student, The Chinese University of Hong Kong** **08/2020 – 07/2024**
  Supervisor: Prof. Max Qinghu MENG and Prof. Hongliang REN, Dept. of Electronic Engineering
- **Visting Student, Southern University of Science and Technology** **09/2023 – 07/2024**
  Host supervisor: Prof. Guangren Duan, School of System Design and Intelligent Manufacturing
- **M.Eng., Harbin Institute of Technology** **09/2017 – 07/2019**
  Supervisor: 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 Electrical Engineering

Research Interest

Motion Planning, Reachability Analysis, Koopman Operator, Deep Reinforcement Learning, Data-Driven Control

Publications

- **Online Time-Informed Kinodynamic Motion Planning of Nonlinear Systems.**
  F. MENG, J. LIU, H. SHI, H. MA, H. REN*, Max Q.-H. MENG*
  IEEE Robotics and Automation Letters (Revised and Resubmit)
- **RAMPAGE: Towards Whole-body, Real-Time and Agile Motion Planning in Unknown Cluttered Environments for Mobile Manipulators**
  Y. YANG, **F. MENG**, Z. MENG, C. YANG*
  IEEE Transactions on Industrial Electronics, 2024
- **Learning-based Risk-Bounded Path Planning Under Environmental Uncertainty**
  F. MENG, L. CHEN, H. MA, J. WANG*, Max Q.-H. MENG*
  IEEE Transactions on Automation Science and Engineering, 2023 (with 2024 IEEE ICRA)
- **Relevant Region Sampling Strategy with Adaptive Heuristic for Asymptotically Optimal Path Planning**
  C. LI, **F. MENG**, H. MA, J. WANG*, Max Q.-H. MENG*
  Biomimetic Intelligence and Robotics, 2023
- **NR-RRT: Neural Risk-Aware Near-Optimal Path Planning in Uncertain Nonconvex Environments**
  F. MENG, L. CHEN, H. MA, J. WANG*, Max Q.-H. MENG*
  IEEE Transactions on Automation Science and Engineering, 2022 (with 2023 IEEE CASE)
- **Bi-Risk-RRT Based Efficient Motion Planning for Mobile Robots**
  H. MA, **F. MENG**, 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, **F. MENG**, J. LIU, J. WANG, Max Q.-H. MENG*
  Biomimetic Intelligence and Robotics, 2022
- **Fast Human-in-the-loop Control for HVAC Systems via Meta-learning and Model-based Offline Reinforcement Learning**
  L. CHEN, **F. MENG**, Y. ZHANG*
  IEEE Transactions on Sustainable Computing, 2023
- **An HVAC Control Approach via Combining Model-based Deep Reinforcement Learning and Model Predictive Control**
  L. CHEN, **F. MENG**, Y. ZHANG*
  IEEE Internet of Things Journal, 2022
- **A Survey of Learning-based Robot Motion Planning**

J. WANG, T. ZHANG, N. MA, H. MA, **F. MENG**, Max Q.-H. MENG*
IET Cyber-Systems and Robotics, 2021 (The IET Premium Awards)

- **Reciprocally Rotating Magnetic Actuation and Automatic Trajectory Following for Wireless Capsule Endoscopy**
  Y. XU, K. LI, Z. ZHAO, **F. MENG**, Max Q.-H. MENG*
  2021 IEEE International Conference on Robotics and Automation (ICRA)
- **A Nonuniform Sampling Strategy for Path Planning Using Heuristic-based Certificate Set**
  H. MA, J. LIU, **F. MENG**, J. PAN, J. WANG*, Max Q.-H. MENG*
  2021 IEEE International Conference on Robotics and Biomimetics (ROBIO)
- **A Model-free Adaptive Controller for Biomimetic Pneumatically Actuated Continuum Manipulators**
  F. MENG, Y. Lyu, G. MA, Y. ZHU
  2018 IEEE International Conference on Robotics and Biomimetics (ROBIO).

Research Experience

- **Intern 2012 Lab, Huawei Technologies Co., Ltd., Shenzhen, China** **04/2021 – 09/2021**
  Real-time motion planning for the mobile manipulator in cluttered static/dynamic environments
- **Research Assistant Midstream Research Programme for University, ITC, Hong Kong** **07/2019 – 8/2020**
  Development of a robotic rollator-orthosis system for mobility augmentation and eldercare
- **Student Member Cross Task with China Academy of Space Technology, Beijing, China** **09/2017 – 07/2019**
  Design and implementation of control system for pneumatically actuated continuum manipulator

Honors & Awards

- **Outstanding Student of Heilongjiang Province, China (top 1%)** **2018 – 2019**
  Highest award for students in Heilongjiang Province
- **China Electronics Technology Group Corporation Glarun Scholarship (2/1223)** **2018 – 2019**
  Scholarship for only one Ph.D. student out of all postgraduates of School of Astronautics
- **Outstanding Graduates of Harbin Institute of Technology (top 10%)** **2018 – 2019**
  Award for graduates with overall outstanding performance
- **First-class Academic Postgraduate Students Scholarship of Harbin Institute of Technology** **2018 – 2019**
  Scholarship for postgraduates with distinguished academic performance
- **Outstanding Student of Harbin Institute of Technology (top 4%)** **2017 – 2018**
  Award for students with overall outstanding performance

Academic Service

- **Reviewer**
  IEEE RA-L/T-ITS/T-II/IoT/T-ASE/T-SMC, 2021 IEEE ROBIO, 2022 IEEE ICRA, 2024 IEEE ICRA/IROS/CASE
- **Conference Chair**
  - Session chair of 2021 IEEE ICRA
- **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.