Jingqi LI

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Education

Beihang University
M.S. of Engineering *September 2020 - Present*

- Supervisor: Prof Li Huifeng
- GPA: 3.62/4.0.

Northwestern Polytechnical University
B.S. in Engineering *September 2016 - July 2020*

- GPA: 3.7/4.0 (Ranking: 4/53)

Research Interests

Object: Robotics, Autonomous Vehicles.
Method: Decision,planning and control, Combinatorial optimization.

Publications

Patent
[1] Zhang Ran,Li Huifeng,**Li Jingqi**. A Learning-Based Real-Time Waypoint Decision-Trajectory Planning Method For Aircraft. (Already Published: CN115328196A).

Research Experience

Intelligent Method for Aircraft Autonomous Trajectory Generation
Advisor: Professor Li Huifeng *September 2020 - Present*

◇ **Effective Mixed-Integer Trajectory Planning Approach for Large Aircraft**

- Established a mixed-integer optimal control model to describe trajectory planning problem of large aircraft with waypoint selection considered.
- Developed an efficient iterative method that computes sub-problem of mixed-integer linear planning in each iteration.
- Achieved rapid trajectory planning with within 5 minutes given a wind forecast.

◇ **Online Aircraft Trajectory Re-planning Approach with Waypoint Decision**

- Established a bi-layer model in which waypoint decision process is formulated as a sequential classifying problem.
- Proposed a bi-layer decision-generation method, in which a small-scaled neural network is designed for waypoint decision, and trajectory is generated via iterative method underlying settled waypoints.
- Improved the speed of waypoint decision-trajectory planning of large aircraft to 3 seconds.
- Achieved re-planning aircraft trajectory on different irregular waypoint layouts.

Load-reduced Control of Launch Vehicle via Inverse Reinforcement Learning

Advisor: Professor Wang Rui *December 2019 - July 2020*

- Designed a load-reduced scheme, in which agent generate load-reduced trajectory learned from passive load-reduced control method (a current method in practice).
- Created a launch vehicle ascent phase training environment that has 24 different wind profiles for training.
- Achieved high proportion load reduction at 60%-70% and adaptability in 64 types of wind environment.

Volunteer Activities

Volunteer in Graduate Singer Competition

Organizer *October 2020 - January 2021*

- Discussed the procedure of graduate singer competition with other volunteers.
- In charge of photography group work, including script design, shooting and clip video.
- Completed a successful graduate singer competition.

Volunteer in Holding Tennis Competition

Organizer *March 2017 - May 2017*

- Discussed the rule of tennis competition with other volunteers.
- Invited nearby university tennis club to join the competition.
- Volunteered as a referee during the competition.

Volunteer in Library

Volunteer *August 2017 - September 2017*

- Provided library-related information for students.
- Put returned books in bookshelves.

Software Development Skills

Simulation	MATLAB&Simulink.
Programming	Python(including Tensorflow, Pytorch)
Presentation and Writing	Microsoft Office