Dongnan Hu

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EDUCATION

East China University of Science and Technology **Shanghai, China**
M.S. in Control Engineering *September,2021-Present*

Supervisor: Prof. Yang Tang (IEEE Fellow)
GPA: 84.75/100.00 (9th among 182 students)

Nanjing Tech University **Nanjing, China**
B.S. in Mechanical Engineering *September,2018-June,2020*

PUBLICATIONS

- **IECON2024** *"Trajectory Planning and Tracking of Hybrid Flying-Crawling Quadrotors"*
  Dongnan Hu, Ruihao Xia, Xin Jin, Yang Tang.
  Accepted by the 2024 Annual Conference of the IEEE Industrial Electronics Society

Preprint: https://arxiv.org/abs/2312.08718
Attached Video: https://youtu.be/nxFqLxel4c0

RESEARCH EXPERIENCE

"Trajectory Planning and Tracking of Hybrid Flying-Crawling Quadrotors"
Supervised by Prof. Yang Tang *June,2022-November,2023*

- I proposed a planner that generates hybrid terrestrial-aerial trajectories satisfying the kinematic and dynamic requirements of the multimodal quadrotors.
- Given the processing time on model transition, the quadrotor cannot track the trajectory during transitions between terrestrial and aerial phases. I developed a trajectory-tracking algorithm by avoiding the tracking of terrestrial-aerial junctions and re-planning the trajectory, compensating for the disadvantage of the extended deformation time required by the quadrotor.

RESEARCH INTEREST

Autonomous Navigation, Motion Planning and Control, Mobile Robotics

AWARDS AND ACHIEVEMENTS

- Second-class Scholarship for Master's Academic Achievement in the session of 2022-2023.
- First-class Scholarship for Master's Academic Achievement in the session of 2021-2022.
- Second Prize in the 18th "Huawei Cup" Chinese Graduate Mathematical Modeling Competition in December 2021.

KEY SKILLS

Programming Language	C/C++,Python
Research Tool	Matlab
Robot Tool	ROS,PX4
Mechanical software	Solidworks, Catia, Workbench

SELF EVALUATION

- Solid mathematical and physics foundation. I achieved high grades in courses such as Matrix Theory (87/100), and Principle and Application of Pattern Recognition (88/100).
- Proficient in C/C++, Python. Experienced with ROS and PX4. Possess 2 years of development experience in the Linux environment, capable of independently completing robotic task development.
- Strong spatial imagination and mechanical design skills. I adeptly utilize CAD software to transform intricate mechanical designs from conceptualization to reality.
- Proficient in the integration, testing, and maintenance of mechatronic systems. I have created a transformable hybrid flying-crawling quadcopter, completing all tasks independently, including mechanical structure design, manufacturing, electronic unit integration, functionality debugging, motion planning and control, as well as autonomous navigation system integration.