Liang Lu

Birthday: 1992-11 Gender: Male
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Research Topic

Mobile Robot motion planning, navigation and exploration

Work experience

Dec 2021 - Present
Istituto Italiano di Tecnologia, Genova, Italy **Postdoc**

- Design perception algorithm for a wheel-legged robotic system to work in a dynamic environment

May 2021 - Aug 2021
Universidad Politécnica de Madrid ,Computer Vision and Aerial Robotics Group, Madrid, Spain **Postdoc**

- Develop planning and vision algorithms for UAV
- Guide students participating in 2021 OPENCV AI competition
- Supervising students for their bachelor and master thesis

Education

Sept 2017 - May 2021
Universidad Politécnica de Madrid , Madrid, Spain **Automation and Robotics (Doctorate)**

- **2021 QS ranking in the subject of Engineering and Technology (Top 100)**
- **Ph.D thesis:** UAV motion planning and exploration using onboard sensors
- **Supervisor:** Prof. Pascual Campoy
- **Cum Laude mention** for the Ph.D thesis and defense

Sept 2014 - May 2017
Hefei University of Technology, China **Mechatronic Engineering (Master)**

- **Master thesis:** research on path planning technology of 3D space mobile robot
- **Supervisor:** Prof. Ping Zhao
- 3rd class graduate scholarship (2016 - 2017)
- 2nd class graduate scholarship (2014 - 2016)

Sept 2010 - Jun 2014
Northeast Forestry University, China **Forestry Engineering (Intelligent Equipment Engineering) (Bachelor)**

Project experience

Jan 2019 - Feb 2021
COMCISE: Coordinated Inspection and Security missions by UAVs in cooperation with UGV **Senior Researcher**

Funded by the Spanish Ministry of Science, Innovation and Universities RTI2018-100847-B-C21, MCIU/AEI/FEDER, UE (2019-2021, Finished, 130680 euros)

Sept 2017 - Dec 2017
Visual Autonomy for UAV in Dynamic environments **Senior Researcher**

Funded by the Spanish Ministry of Economy and Competitivity DPI2014-60139-R (2015-2017, Finished, 183920 euros)

Academic Service

Competition Committee, 2019 international micro air vehicle competition and conference (IMAV), 2019

Bachelor and Master Thesis Technical Supervisor, Universidad Politécnica de Madrid, 2020-2021

Reviewer, Robotica, frontiers in neurorobotics, ICUAS, IROS, ICRA et al

IEEE student member, IEEE Robotics and Automation Society student member.

Honors & Awards

- Ph.D scholarship funded by Chinese Scholarship Council (CSC), 2017-2021
- Third-place in the grand challenge in the 2020 Mohamed Bin Zayed International Robotics Challenge, 2020
- Third-place in the 2021 OPENCV AI Competition (Region Europe, Russia + Australasia), 2021
- Outstanding student in the Deep Blue Academy online course on motion planning for mobile robot, 2020

Publication

Journal（in English）

- **Lu, L.**, Carrio, A., Sampedro, C., & Campoy, P. (2021). A Robust and Fast Collision-Avoidance Approach for Micro Aerial Vehicles using a Depth Camera. *Remote Sensing*，13（9），1796（IF：4.848，Q2）
- Novo, Á. Martínez , **Lu, L*** & Campoy, P. (2021). Fast RRT* 3D-Sliced Planner for Autonomous Exploration using MAVs. Unmanned Systems. https://doi.org/10.1142/S2301385022500108（EI）
- **Lu, L.**, Redondo, C., & Campoy, P. (2020). Optimal Frontier-Based Autonomous Exploration in Unconstructed Environment Using RGBD Sensor. *Sensors*, 20 (22), 6507 （IF：3.576，Q3）
- **Lu, L.**, Yunda, A., Carrio, A., & Campoy, P. (2020). Robust Autonomous Flight in Cluttered Environment using a Depth Sensor. International Journal of Micro Air Vehicles. January 2020.（IF：1.222，Q4）
- Rodriguez-Ramos, A., Alvarez-Fernandez, A., Bavle, H., RodriguezVazquez, J., **Lu, L.**, Fernandez-Cortizas, M., Fernandez, R. A. S., Rodelgo, A., Santos, C., Molina, M., Merino, L., Caballero, F., & Campoy, P. (2020). Autonomous Aerial Robot for High-Speed Search and Intercept Applications. Field Robotics（Accepted）

Journal（in Chinese）

- 陈波芝, **陆亮**, 雷新宇, 赵萍. 基于改进快速随机树的双机械臂协同规划方法. 中国机械工程. 2018 (10).
- **陆亮,** 王佳琪, 宗成星, 赵萍. 基于A*算法的四轴飞行器三维路径规划仿真. 合肥工业大学学报(自然科学版). 2017 (03).
- 宗成星, **陆亮,** 雷新宇, 赵萍. 一种基于A*算法的空间多自由度机械臂路径规划方法. 合肥工业大学学报(自然科学版). 2017(02).

Conference

- R, Suarez Fernandez, Rodríguez Ramos A , Alvare, A , J, Rodríguez-Vázquez J, B, Hriday , **Lu, L**, et. al (2020, February). The Skyeye Team Participation in the 2020 Mohamed Bin Zayed International Robotics Challenge. Mohamed Bin Zayed International Robotics Competition (MBZIRC) Symposium. 2020.
- **Lu, L.**, Rodriguez-Vazquez, J., Carrio, A.,& Campoy, P. (2019, October). Autonomous Navigation in Dynamic Environments using Monocular Vision. 2019 International Micro Air Vehicle Conference and Flight Competition (IMAV), Madrid, Spain,(pp. 132-137).
- **Lu, L.**, Sampedro, C., Rodriguez-Vazquez, J., & Campoy, P. (2019, June). Laser-based Collision Avoidance and Reactive Navigation using RRT* and Signed Distance Field for Multirotor UAVs. In 2019 International Conference on Unmanned Aircraft Systems (ICUAS), Atlanta, GA, USA, (pp. 1209-1217). IEEE.

Book Chapter

- **Lu, L.** , Zong, C., Lei, X., Chen, B. & Zhao, P.(2016). Fixed-Wing UAV Path Planning In a Dynamic Environment Via Dynamic RRT Algorithm. Mechanism and Machine Science, pp. 271-282.

Skills

ROS — Expert

PYTHON — Good at

C/C++ — Expert

English — Expert

Reference

1. Dr. Pascual Campoy, Full Professor, Universidad Politécnica de Madrid, pascual.campoy@upm.es
2. Dr. Ping Zhao, Full Professor, Hefei University of Technology, ping.zhao@hfut.edu.cn