Chuande LIU (刘传德), Lecturer

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FIELD OF INTERESTS

My research interests are directed toward the interdisciplinary study of Robotics, Electrical Engineering and Computer Science, including robotic motion planning and control, robotic dexterous manipulation, and artificial intelligence applied in robotics and electrical engineering.

EDUCATIONS

Ph.D. Southeast University, China Robotics 03/2022

Dissertation: Dexterous cabinet door-opening teleoperation in a mobile manipulator for non-

 $attended\ substation$

Advisor: Prof. Bingtuan Gao

Joint Ph.D. student ENSTA-IP Paris, France Robotics 08/2019-08/2020

Project: Dexterous door-opening operation in a mobile manipulator based on vision servo

Advisor: Prof. Adriana Tapus

M.S. **Southeast University, China** Electrical Engineering 12/2016 Thesis: *Stabilizing tracking control for dynamic periodic orbit of underactuated TORA systems* Advisor: Prof. Bingtuan Gao

B.S. Northeast Electric Power University, China Electrical Engineering 06/2014 Rank: 23/127 (major) TOP 20%

HONORS & AWARDS (SELECTED)

• Best Student Paper Finalist

2019

9th Annual International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (IEEE-CYBER 2019), Suzhou, China

• Excellent Master Thesis Finalist

2018

the highest honor of Master thesis in Jiangsu Province, Nanjing, China

• Best Master Thesis Finalist

2018

three out of more than 130 submissions, the highest honor of Master thesis in Southeast University, Nanjing, China

• China Scholarship Council (CSC) Fellowship, China

2019

• First Class Marathon Runner, China

2019

Athletic Association of the People's Republic of China (Mass level)

Chuande LIU Curriculum Vitae

PROFESSIONAL REVIEWERS

Member of the following institutes

- Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Robotics and Automation Society (IEEE-RAS)

Peer-reviewer of the following conferences and journals

- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- Complex & Intelligent Systems
- Industrial Robot

PROJECT EXPERIENCES

• Robotic Dexterous Manipulation

09/2020-07/2021

To develop and apply one-arm mobile manipulator to open power-cabinet doors and task work inside, Nanjing, China

• Meka-Robot Manipulation

09/2019-08/2020

To utilize deep learning on Meka-Robot for door-opening, Paris, France

• Edge Detection

04/2019-06/2019

To deal with the power cabinet door-opening state recognition based on edge feature extraction, Nanjing, China

• High-voltage Insulator Defect Detection

12/2018-07/2019

Developed a mobile vehicle that can automatically detect the defect of high-voltage insulators in live-line working, Kunming, China

• Bionic Robot 01/2017-12/2017

Developed a bionic robot to replace manual tour inspection for power transmission lines, Nanjing

• Power Insulator Defect Detection

03/2017-07/2017

Developed a device that can automatically detect the defect and damage in different types of power insulators, Shenzhen, China

• Under-actuated Machine Control

09/2014-12/2016

To apply under-actuated technology to stabilize the oscillation of offshore wind turbine and slove control problems in oscillating screen machine, Nanjing, China

PATENTS

- 1 Granted, in China
 - 1. 高丙团, **刘传德**, 谢吉华. 一种具有旋转激励的平移振荡装置的周期性轨迹控制方法 [P], 2018, **已授权**, *CN201610004396.6*

PUBLICATIONS

Journal Publications

Chuande LIU Curriculum Vitae

Chuande Liu, Chuang Yu, Bingtuan Gao, Syed Awais Ali Shah, Adriana Tapus. Towards a balancing safety against performance approach in human-robot co-manipulation for door-closing emergencies[J]. Complex & Intelligent Systems, 2021, DOI: 10.1007/s40747-021-00420-y. (JCR:Q1/IF:5.277/SCI)

- 8. <u>Chuande Liu</u>, Bingtuan Gao, Chuang Yu, Adriana Tapus. Self-protective motion planning for mobile manipulators in a dynamic door-closing workspace[J]. *Industrial Robot*, 2021, 48(6): 803–811. (SCI)
- 7. <u>Chuande Liu</u>, Bingtuan Gao, Jianguo Zhao, and Syed Awais Ali Shah. Orbitally stabilizing control for the underactuated translational oscillator with rotational actuator system: Design and experimentation, *Proceedings of the Institution of Mechanical Engineers*, Part I: Journal of Systems and Control Engineering[J]. 2018, 233(5): 491–500.
- Bingtuan Gao, <u>Chuande Liu</u>, and Hongtai Cheng. Virtual constraints based control design of an inclined translational oscillator with rotational actuator system, *Shock and Vibration*[J]. 2015, DOI: 10.1155/2015/769151.
- 5. <u>Chuande Liu</u>, Bingtuan Gao, Gongbei Zheng, Guobing Sun, Fuzzy control design of oscillating trajectory tracking for underactuated TORA, *Electric Machines and Control*[J]. 2018, 22(5):117–122.
- 4. Jing Xu, Bingtuan Gao, <u>Chuande Liu</u>, and Shuanglei Gao. An omnidirectional 3D sensor with line laser scanning, *Optics and Lasers in Engineering*[J]. 2016, 84: 96–104.
- 3. Leijie Jiang, Bingtuan Gao, <u>Chuande Liu</u>, Zhenyu Zhu. Trajectory tracking control of a 2-DOF cable-driven parallel mechanism, *Control and Decision*[J]. 2017, 34(5): 1103–1108.
- Gongbei Zheng, Bingtuan Gao, <u>Chuande Liu</u>, Jihua Xie. Fuzzy Control Design for Periodic Dynamic Trajectory of Underactuated TORA System, *Control Engineering of China*[J]. 2019, 26(6): 1029–1034.
- Syed Awais Ali Shah, Bingtuan Gao, Nigar Ahmed, and <u>Chuande Liu</u>. Advanced robust control techniques for the stabilization of translational oscillator with rotational actuator based barge-type OFWT, Proceedings of the Institution of Mechanical Engineers, Part M: Journal of Engineering for the Maritime Environment[J]. 2021, 235(2): 327–343.

Peer Reviewed Conference Proceedings

- 4. <u>Chuande Liu</u>, Jiahong He, and Bingtuan Gao, "Movement Planning and Control of an Overhead Power Transmission Line Inspection Bionic-Robot," in Proceedings of 9th Annual International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (IEEE-CYBER 2019), Suzhou, China, 29 July-2 Aug, 2019: 25-29.
- 3. Jianbao Zhu, <u>Chuande Liu</u>, Yuwei Sun, and Bingtuan Gao, "Power Cabinet Dooropening State Recognition Technology Based on Edge Feature Extraction of Monocular Vision," In: *IEEE-CYBER 2019*, Suzhou, China, 29 July–2 Aug, 2019: 1617–1620.
- Syed Awais Ali Shah, Bingtuan Gao, Nigar Ahmed, <u>Chuande Liu</u>, and Arshad Rauf, "Disturbance Observer-Based Sliding Mode Control of TORA System for Floating Wind Turbines," In: *IEEE-CYBER 2019*, Suzhou, China, 29 July–2 Aug, 2019: 418–423.

Chuande LIU Curriculum Vitae

1. Junjie Ye, Bingtuan Gao, Hao Chen, Weilun Xu, Linlin Zhong, <u>Chuande Liu</u>, "A Self-Constructed CNN Classifier for Keyhole Detection and Location," In: 2020 IEEE Sustainable Power and Energy Conference (iSPEC 2020), Chengdu, China, 2020: 2479–2484.

Updated on March 30, 2022

Homepage https://chuande-liu.github.io/