# Fan Jialiang

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Master student majoring in Computer Technology, LZU. Passionate about advanced computer science and robotic technologies with lab work and project experiences.

## Education

- **Lanzhou University** — **Lanzhou, P.R. China**
  *Master of Engineering, Computer Technology* — *2020–2023 (expected)*
- **Shandong University** — **Jinan, P.R. China**
  *Bachelor of Engineering, Software Engineering* — *2015–2019*

## Research/Project Experience

- **Research at Lanzhou University** — **Lanzhou, P.R. China**
  ***Optimal Control Algorithm on Redundant Manipulators*** — *2020-5–now*
  - Developing a control strategy based on the quadratic programming (QP) problem for dual-arm robots
  - Proposing a motion-force control scheme based on kinematics for redundant manipulators with unknown structural information
  - Proposing a control scheme for redundant manipulators with unknown structural information by applying joint constraints of the acceleration level to control the manipulator at the joint velocity level
  - Doing ongoing research to extend the application of the Jacobian matrix learning scheme and motion-force control scheme to mobile robots with the effectiveness of the proposed scheme having been proved through theoretical analyses, simulations and physical experiments

- **Research Project at Shandong University** — **Jinan, P.R. China**
  ***Railroad inspection data transmission based on the Netty framework*** — *2017-11–2018.3*
  - Acting as the research assistant, participated in the development project of railroad inspection data transmission in cooperation with the Ministry of Railway
  - Responsible for the development of breakpoint continuous data transfer, integrated testing and maintenance, and development of data communication based on Django

## Publications

- **J. Fan**, L. Jin, Z. Xie, S. Li, and Y. Zheng, Data-Driven Motion-Force Control Scheme for Redundant Manipulators: A Kinematic Perspective, ***IEEE Trans. Ind. Informat.***, 2022.
- M. Liu, **J. Fan**, Y. Zheng, S. Li, and L. Jin, A Simultaneous Learning and Control Scheme for Redundant Manipulators With Physical Constraints on Decision Variable and Its Derivative, published in ***IEEE Trans. Ind. Electron.***, 2021.
- D. Fu, H. huang, Lin. Wei, X. Xiao, L. Jin, S. Liao, **J. Fan**, and Z. Xie, Modified Newton Integration Algorithm With Noise Tolerance Applied to Robotics, published in ***IEEE Trans. Syst., Man, Cybern., Syst.***, 2021.
- **J. Fan**, M. Liu, and S. Li, MKE Scheme for Planning and Control of Dual-arm Robotic System Aided with Recurrent Neural Networks, in ***Proc. Int. Joint Conf. Neural Netw. (IJCNN)***, 2021.

## Working Experiences

- **Tencent, Robotics X (Internship)** **Shenzhen, P.R. China**
  ***Integration of model-based and learning-based motion control for robots*** *2021-12–now*
  - Using artificial intelligence technology to control manipulators to execute throwing dexterous tasks: trowing bottle in the scenario of bartending
  - Research on holistic control of mobile robot: utilizing ROS to control a mobile robot consists of a self-developed differential-based wheeled robot and a Kinova Jaco manipulator

- **Asterfusion.com (Full-time Job)** **Xi'an, P.R. China**
  ***Integration of model-based and learning-based motion control for robots*** *2020-01–2020-06*
  - Responsible for the development of Software Define Network (SDN) based on Stratum operating system using Python and P4, including packet statistics/filtering/matching/forwarding/broadcasting and others

- **Shanbay.com (Internship)** **Nanjing, P.R. China**
  ***Integration of model-based and learning-based motion control for robots*** *2018-08–2019-02*
  - Responsible for backend development using Python language and frameworks such as Flask, Django and gRPC
  - Participated in the backend development of WeChat applets of Fennec English-learning series
  - Participated in the backend development for projects of the 2018 Nanjing English-speaking Contest for Primary School Students and the 2018 Yangzhou English Contest for Middle School Students, with a total number of users exceeding 100,000

## Selected Awards and Honors

- Received the second-class scholarship for academic excellence by Lanzhou University (2020)
- Awarded as the Outstanding Postgraduate Student by Lanzhou University (2021)
- First prize of the 9th Shandong University Energy Conservation and Emission Reduction Contest (2017)

## Skills

- **Programming Languages:** Python, MATLAB, ROS Programming, CPP Programming
- **Language Proficiency:** Chinese (native), English (IELTS – 6.5)

## Extra-curricular Activities

- **Volunteering at the Village School of Yangxin County** **Binzhou, P.R. China**
  *Teaching in physics for junior high school* *2016-7–2016-8*

- **Cycling Association of Shandong University** **Jinan, P.R. China**
  *Cycling from Jinan to Beijing during 3 days, over 600 kilometers* *2017-10*