Name: Pan Jiabin

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EDUCATION

Wuhan Institute of Technology *Sept 2015 – Jun 2019*

Bachelor of Mechanical and Electronic Engineering *Wuhan*

Thesis: "Error Modeling and Analysis of Robot Milling Process"

Shanghai University *Sept 2019 – Jun 2022*

Master of Mechatronic Engineering and Automation *Shanghai*

Thesis: "Research on compliant parallel mechanism for ICF mirror"

PUBLICATIONS

[1] Fu, Z., **Pan, J.**, Spyrakos-Papastavridis, E., Chen, X., Li, M., 2020. A Dual Quaternion-Based Approach for Coordinate Calibration of Dual Robots in Collaborative Motion. IEEE Robotics and Automation Letters 5, 4086–4093.. doi:10.1109/lra.2020.2988407

[2] Fu, Z., **Pan, J.**, Spyrakos Papastavridis, E., Lin, Y.-H., Zhou, X., Chen, X., Dai, J.S., 2020. A Lie theory based dynamic parameter identification methodology for serial manipulators. IEEE/ASME Transactions on Mechatronics 1–1.. doi:10.1109/tmech.2020.3044758

[3] Xiong, J., Fu, Z., Chen, H., **Pan, J.**, Gao, X., Chen, X., 2020. Simulation and trajectory generation of dual-robot collaborative welding for intersecting pipes. The International Journal of Advanced Manufacturing Technology 111, 2231–2241.. doi:10.1007/s00170-020-06124-w

[4] **Pan, J.**, Fu, Z., et al, G-Code based off-line programming of robotic machining for trajectory generation. Robotics and Autonomous Systems, (Under review).

RESEARCH EXPERIENCES

Coordinate Calibration of Dual Robots *Jun 2019 – Dec 2019*

Item of Natural Science Foundation of China

- Analyzed the kinematic model of dual robots coordinate calibration, transformed the model into linear equation based on quaternion, and used SVD algorithm to complete the equation solving process.
- Wrote the MATLAB calibration program with tutor, and analyzed the error and robustness of the proposed algorithm by combining the existing two methodologies.

- Processed the collected experimental data (images) to generate calibration data sets, finished the calibration experiment verification, and related research were successfully published on IEEE RA-L.

Robot Off-line Programming *Aug 2019 – May 2020*

Item of Innovation Group Foundation of Hubei

- Internship at COBOT Company, developed offline programming software for robots in collaboration with a small team, and learned how to use dependent libraries (such as Qt, Eigen, RobWork, etc.) and the development in the Linux environment.
- Realized the robot machining simulation on the developed software, and generate the offline control programs, which were successfully verified in the real robot.
- Assisted the team in applying for an offline programming software patent, and independently wrote a paper based on the proposed methodology, which was being reviewed by related journals.

Identification of Robot Dynamic Parameter *Apr 2020 – Sept 2020*

Item of Natural Science Foundation of China

- On the basis of Lie theory, analyzed two robot dynamic models, Newton Euler and Lagrange, and completed the Matlab code verification combined with the software Adams simulation.
- Using LMI (Linear Matrix Inequality) and SDP (semi-definite programming) technology to solve the linear expression of the robot dynamic, and achieved the dynamic parameters calibration on the real robot.
- Worked with the tutor, completed the paper writing and submission, and successfully published the paper on IEEE-ASME T MECH.

Design and analysis of flexible replaceable module *Aug 2020 – May 2021*

Research on master thesis

- Designed a flexible replaceable module (FRM) for compliant parallel mechanism, and analyzed the closed equation of its compliance factors.
- Built an experimental platform to verify the performance of FRM, and related experiments and paper writing are being carried out.

SKILLS & INTERESTS:

- Computer Skills: Qt, Adams, Ansys Workbench, LaTex.
- Programming: MATLAB, C/C++, Python.
- Technology, Interests: Robot trajectory planning, Robotic interaction control, Machine learning and deep learning.