Yu Wang

(+86)19871579921 | yu_wang97@163.com
Wuhan, China

EDUCATION

Huazhong University of Science and Technology Sep 2019 - Jun 2024

Ph.D in Mechanical Engineering (GPA: 3.72/4.00) Wuhan

- Research Interests: Robotic Machining, Imitation Learning, Dynamic System, Reinforcement Learning, Optimal Control
- Advisor: Fangyu Peng

Huazhong University of Science and Technology Sep 2018 - Jun 2019

M.S in Mechanical Engineering Wuhan

Nanjing University of Aeronautics and Astronautics Sep 2014 - Jun 2018

B.S in Mechanical Engineering (GPA: 4.0/5.0, Top 5%) Nanjing

RESEARCH EXPERIENCE

Fusion representation of force position continuous skills and micro data search based skills generalization of robot machining (National Natural Science Foundation of China) Jan 2022 - Present

- Design and build a hardware platform for robot machining imitation learning and intelligent control research.
- Propose a robot polishing force-position coupling skill learning method based on expert demonstration.
- Propose a fast segmentation method for the machining stage
- Propose a contact position estimation method considering the contact torque

Theoretical and methodological study on process data-driven robotic milling of complex segments (National Natural Science Foundation of China) Jan 2021 - Present

- Propose B-spline dynamic movement primitives to improve trajectory learning accuracy
- Propose robot machining trajectory generalization method based on reinforcement learning and dynamic system

CNC machining technology and equipment (National Science Fund for Distinguished Young Scholars) Sep 2018 - Dec 2021

- Analyze the chattering phenomena and characteristics in robotic milling tasks, classify the vibration states into four categories
- Propose a chatter state identification method based on variational modal decomposition and information entropy

SKILLS

Hardware:

UR16e, ABB IRB 6660, ATI Gamma & Onrobot HEX Force/Torque Sensor, Onrobot Sander, NAKANISHI & Jager Spindle

Software:

ROS, MATLAB, Python, C++, MuJoCo, LabVIEW

HONORS & AWARDS

Outstanding Doctoral Scholarships Nov 2022

Merit Graduate Student Nov 2020

Undergraduate School-level Outstanding Graduation Design (Thesis) Jun 2018

PUBLICATIONS

Yu Wang, Chen Chen, Fangyu Peng, Zhouyi Zheng, Zhitao Gao, Rong Yan, Xiaowei Tang. "AL-ProMP: Force-relevant skills learning and generalization method for robotic polishing" [J]. Robotics and Computer-Integrated Manufacturing. 82, 2023, 102538. (IF=10.4, JCR: Q1)

Yu Wang, Mingkai Zhang, Xiaowei Tang, Fangyu Peng, Rong Yan. "A kMap optimized VMD-SVM model for milling chatter detection with an industrial robot"[J]. Journal of Intelligent Manufacturing. 2022, 33, 1483–1502. (IF=8.3, JCR: Q1, **ESI Highly Cited Paper**)

Yu Wang, Zhouyi Zheng, Chen Chen, Zezheng Wang, Zhitao Gao, Fangyu Peng, Xiaowei Tang, and Rong Yan. "Adaptive Tuning of Robotic Polishing Skills based on Force Feedback Model"[C]. 2023 IEEE International Conference on Robotics and Biomimetics (ROBIO).

Chen Chen, ***Yu Wang***, ZhiTao Gao, FangYu Peng, XiaoWei Tang, Rong Yan, YuKui Zhang. "Intelligent learning model-based skill learning and strategy optimization in robot grinding and polishing" [J]. Science China Technological Sciences. 2022, 65, 1957-1974. (IF=4.6, JCR: Q1)

Zhouyi Zheng, ***Yu Wang***, Chen Chen, Zhitao Gao, Fangyu Peng and Rong Yan. "Admittance Control for Robot Polishing Force Tracking Based on Reinforcement Learning"[C]. International Conference on Intelligent Robotics and Applications (ICIRA).