Hao Zheng

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Research Interest

Video Understanding (Action Recognition&Segmentation); Multi-modal Large Language Model; Generative AI; Human-Robot Collaboration; Human-Centric Manufacturing.

Publications

Zheng, H., Lee, R., Liang, H., Lu, Y., Xu, X. 2024. 'DuCAS: a knowledge-enhanced dual-hand compositional action segmentation method for human-robot collaborative assembly', ***2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).***

Zheng, H., Lee, R., Lu, Y., Xu, X. 2024. 'DuHa: a dual-hand action segmentation method for human-robot collaborative assembly', ***2024 IEEE 20th International Conference on Automation Science and Engineering.***

Chand, S., **Zheng, H.**, Lu, Y. 2024. 'A Vision-Enabled Fatigue-Sensitive Human Digital Twin Towards Human-Centric Human-Robot Collaboration', ***Journal of Manufacturing Systems.***

Zheng, H., Lee, R., Lu, Y. 2023. 'HA-ViD: A Human Assembly Video Dataset for Comprehensive Assembly Knowledge Understanding', ***NeurIPS 2023***.

Lee, R., **Zheng, H.**, Lu, Y. 2023. 'Human-robot shared assembly taxonomy: A step toward seamless human-robot knowledge transfer', ***Robotics and Computer-Integrated Manufacturing***. (**Co-first Author**)

Zheng, H., Chand, S., Keshvarparast, A., Battini, D., Lu, Y. 2023. 'Video-Based Fatigue Estimation for Human-Robot Task Allocation Optimisation', ***2023 IEEE 19th International Conference on Automation Science and Engineering.***

Lu, Y., **Zheng, H.**, Chand, S., Xia, W., Liu, Z., Xu, X., ... & Bao, J. 2022. 'Outlook on human-centric manufacturing towards Industry 5.0', ***Journal of Manufacturing Systems***, *62*, 612-627.

Zheng, H., Cheng, G., … & Li, Y. 2021, ' A general fault diagnosis framework for rotating machinery and its flexible application example', ***Measurement***, *199*, 111497.

Wang, S., **Zheng, H.,** Tang, L., … & Aw, K. 2021, 'Vibration-based and computer vision-aided nondestructive health condition evaluation of rail track structures', ***Engineering structures***, 1-14. (**Co-first Author**)

Zheng, H., Cheng, G., Li, Y., & Liu, C. 2020, ' A fault diagnosis method for planetary gear under multi-operating conditions based on adaptive extended bag-of-words model', ***Measurement***, *156*.

Zheng, H., Cheng, G., Li, Y., & Liu, C. 2019, 'A new fault diagnosis method for planetary gear based on image feature extraction and bag-of-words model', ***Measurement***, *145*, 1-13.

Education

2020.10-2024.12	The University of Auckland	PhD Candidate
2017.09-20120.06	China University of Mining and Technology	Master of Engineering
2013.09-2017.06	Yancheng Institute of Technology	Bachelor of Engineering

Research Projects

Research on Dynamic Coupling Characteristics and Collaborative Control of Large Mirror Manufacturing Equipment with Co-fusion Multi Parallel Manipulators	National Natural Science Foundation of China	09/2017-06/2020	Researcher
Research on intelligent sensing technology based on distributed sensor array and the application in front-end protection system of crusher	School-enterprise Cooperation	01/2018-01/2019	PI
Intelligent monitoring and warning system for personnel in dangerous areas	School-enterprise Cooperation	02/2019-10/2019	PI

Patents

A front-end personnel protection system of mine crusher based on image recognition	CN201910915839.0	06/2021
A protection system and method for front end personnel of underground crusher	CN201811197496.0	04/2021
An optical mirror polishing equipment	CN107900838B	08/2019
A control system and method of optical machining testing machine driven by wire	CN107984333B	07/2019

Awards

Chinese government scholarship	05/2020
National scholarship for postgraduate student	10/2019
Excellent student at the University of Mining and Technology	10/2019
Second prize in the May Day Mathematical Contest in Modeling	05/2019