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RESEARCH INTEREST

- Deep Learning
- Digital Twin
- Diagnosis System

EDUCATION

Ph.D., Mechanical Engineering · Sep. 2022 - Now

Huazhong University of Science and Technology (HUST), Wuhan, Hubei, China

- Advisor: Prof. Qi Zhou

M.S., Mechatronic Engineering · Sep. 2016 - July 2019

Guangxi University (GXU), Nanning, Guangxi, China

- Thesis Title: "Deep Transfer Learning for Online Welding Quality Monitoring"

B.S., Mechanical Design Manufacturing and Automation · Sep. 2012 - July 2016

Huazhong University of Science and Technology (HUST), Wuhan, Hubei, China

WORK EXPERIENCE

Research Assistant · July 2019 - July 2022

Huazhong University of Science and Technology (HUST), Wuhan, Hubei, China

- Prof. Qi Zhou's Group

RESEARCH EXPERIENCE

- XXX under Grant No. XXX, Research on key technology of unmanned JT life force online identification system · Sep. 2022 - Feb. 2023

- The National Defense Basic-Research of China under Grant No. JZX-2022-061, Research on the framework of equipment failure prediction and health management standard system · July 2019 - Oct. 2022

- The National Defense Pre-Research Foundation of China under Grant No. 61400020401, "Research on Typical Product Fault Prediction Technology Based on Machine Learning" · July 2019 - Dec. 2021

- Guangxi Innovation Driven Development Project under Grant No. AA18118002 · Dec. 2018 - May 2019

- The National Natural Science Foundation of China (NSFC) under Grant No. 51465005 · Sep. 2016 - May 2019

PUBLICATIONS

Refereed Journal Publications (published or accepted, ***Corresponding author**)

[1] **Huang, X.**, Lei, Q., Xie, T., Zhang, Y., Hu, Z., & Zhou, Q.***** (2020). Deep transfer convolutional neural network and extreme learning machine for lung nodule diagnosis on CT images. *Knowledge-Based Systems*, *204*, 106230. (IF: 8.139, JCR Q1)

[2] **Huang, X.**, Xie, T., Wang, Z., Chen, L., Zhou, Q.*****, & Hu, Z.***** (2022). A Transfer Learning-Based Multi-Fidelity Point-Cloud Neural Network Approach for Melt Pool Modeling in Additive Manufacturing. *ASCE-ASME J Risk and Uncert in Engrg Sys Part B Mech Engrg*, *8*(1). (ESCI) (EI)

[3] Xie, T., **Huang, X.**, & Choi, S. K.***** (2022). Intelligent Mechanical Fault Diagnosis Using Multi-Sensor Fusion and Convolution Neural Network. *IEEE Transactions on Industrial Informatics*, *18*(5), 3213-3223. (IF: 11.648, JCR Q1)

[4] Luo, S., **Huang, X.**, Wang, Y., Luo, R., & Zhou, Q.***** (2022). Transfer learning based on improved stacked autoencoder for bearing fault diagnosis. *Knowledge-Based Systems*, 256, 109846. (IF: 8.139, JCR Q1)

[5] Xie, T., **Huang, X.**, & Choi, S. K.***** (2022). Data-Driven Framework for Intelligent Sensor Validation and Multisensory Systems Design. *Journal of Engineering Design*. (IF: 2.4, JCR Q2) (Accepted)

[6] Xie, T., **Huang, X.**, & Choi, S. K.***** (2022). Metric-based Meta-Learning for Cross-Domain Few-Shot Identification of Welding Defect. *Journal of Computing and Information Science in Engineering*. (IF: 2.3, JCR Q3) (Accepted)

[7] Chen, L., **Huang, X.**, Liu, M., Yuan, S., He, F., Yi, J, & Pan, H. H.***** (2019). Optimized continuous trajectory look-ahead algorithm with comprehensive multi-constraints [J]. *Journal of China Mechanical Engineering*, 55(13), 151-159. (In Chinese) (EI)

[8] Li, J., Zhou, Q., **Huang, X.**, Li, M., & Cao, L.***** (2021). In situ quality inspection with layer-wise visual images based on deep transfer learning during selective laser melting. *Journal of Intelligent Manufacturing*, 1-15. (IF: 7.136, JCR Q1)

[9] Zhang, Y., Zhou, T., **Huang, X.**, Cao, L., & Zhou, Q.***** (2021). Fault diagnosis of rotating machinery based on recurrent neural networks. *Measurement*, 171, 108774. (IF: 5.131, JCR Q1)

[10] Wu, J. H., Feng X. X., Cai X., **Huang, X.**, Zhou, Q.***** (2022). A deep learning-based multi-fidelity optimization method for the design of acoustic metasurface. *Engineering with Computers*. (IF: 8.083, JCR Q1) (Accepted)

[11] Li, C. M., Wang, G. H.*****, Song, H. P., **Huang, X.**, Zhou, Q. (2022). Angular Disturbance Prediction for Countermeasure Launcher in Active Protection System of Moving Armored Vehicle Based on An Ensemble Learning Method. *Defence Technology*. (IF: 4.035, JCR Q2) (Accepted)

Refereed Conference Publications

[12] **Huang, X.**, Hu, Z.*****, Xie, T., Wang, Z., Chen, L., & Zhou, Q. (2021, August). Point-Cloud Neural Network Using Transfer Learning-Based Multi-Fidelity Method for Thermal Field Prediction in Additive Manufacturing. In *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference* (Vol. 85383, p. V03AT03A038). American Society of Mechanical Engineers. (EI) (Online Oral)

[13] Xie, T., **Huang, X.**, & Choi, S. K.* (2022, August). Information Fusion-based Meta-Learning for Few-Shot Fault Diagnosis under Different Working Conditions. In International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (Vol. xxx, p. Vxxx). American Society of Mechanical Engineers. (Accepted)

[14] Xie, T., **Huang, X.**, & Choi, S. K.***** (2021, August). Multi-Sensor Data Fusion for Rotating Machinery Fault Diagnosis Using Residual Convolutional Neural Network. In *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference* (Vol. 85376, p. V002T02A023). American Society of Mechanical Engineers. (EI)

Refereed Patents (authorized)

[15] Zhou, Q., **Huang, X.**, et al. (2022). Temperature Field Prediction for Fuel Tank of Hypersonic Aircraft using Point-Cloud Neural Network. China Invention Patent, CN114722732B.

[16] Zhou, Q., Lin, Q., Hu, J. X., **Huang, X.**, et al. (2022). Verification method of solid engine simulation model under uncertainty. China Invention Patent, CN114722639A.

[17] Zhou, Q., Lin, Q., Jin P., **Huang, X.**, et al. (2022). Optimization method of layup sequence of conical reinforced

cabin based on fiber continuity model. China Invention Patent, CN114722509B.

[18] Zhou, Q., Wu, J., Lin, Q., Hu, J. X., Liu, H. P., **Huang, X.**, et al. (2022). Fast prediction method of acoustic metasurface sound field based on variable reliability neural network. China Invention Patent, CN114722690B.

[19] Zhou, Q., Jiang, P., Zhang, L. L., Liu, H. P., Cheng, Y. S., Hu, J. X., **Huang, X.**, et al. (2022). A Sequential Robust Optimization Design Method for Metamaterial Vibration Isolators. China Invention Patent, CN114792037B.

Under Review or Revision Required

[1] Cao, L., Li, J. C., Zhang, L. B., Luo, S. Y., Li, M. L., **Huang, X.*** (2022). Cross-attention-based multi-sensing signals fusion for penetration state monitoring during laser welding of aluminum alloy. _Knowledge-Based Systems, 204_, 106230. (IF: 8.139, JCR Q1) (Minor Revision)

[2] **Huang, X.**, Xie, T., Wu, J. H., Zhou, Q.*** (2022). Unsteady Temperature Field Prediction for Aircraft Fuel Tank using External Attention-Guided Point Neural Network. _Aerospace Science and Technology_. (IF: 5.457, JCR Q1) (Under review)

AWARDS AND HONORS

- **"Outstanding Academic Scholarship"** in HUST   2022
- **"Best Student Award (co-author)"**, PHM Asia Pacific 2021   2021
- **"Outstanding Academic Scholarship"** in GXU, every academic year   2016 - 2018
- **"Excellent Undergraduate"** in HUST   2016
- **"Individual Scholarship"** in HUST   2015

REVIEW ACTIVITIES

- Structural and Multidisciplinary Optimization
- Journal of Manufacturing Processes
- ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems Part B: Mechanical Engineering