Zhixia **Fan**

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EDUCATION

North China Electric Power University | *MEng* **2019 – 2022**
Major: Power Engineering China

- Dissertation: Research on State Recognition Method of Centrifugal Fan Based on Deep Learning
- Cumulative GPA: 3.16/4.0
- Related Coursework: Engineering Mathematics (Matrix theory, Numerical analysis and Mathematical Programming); Combined heat and power efficient and intelligent heating technology; High-efficiency energy supply technology for buildings etc.

Inner Mongolia University of Technology | *BEng* **2013 – 2017**
Major: Traffic and Transportation China

- Dissertation: A Study of Intelligent Parking Solutions Based on Business Cluster
- Related Coursework: Advanced mathematics; Linear Algebra; Probability theory; Advanced Computer Programming; Automotive Electronic Control Technology; Vehicle Detection and Diagnosis Technology; Fundamentals of Control Theory; Interchangeability and Technical Measurements etc.

WORK EXPERIENCE

Inner Mongolia Zhongkai Construction Engineering Co., Ltd. **2022 – Present**
Employee Engineer

Jiangsu Fangtian Power Technology Co., Ltd. **2020-2021**
Practice Student Assistant

Dazhongdianping, Micro Life Co., Ltd. **2017-2019**
Employee Data Analyst

ACADEMIC PAPER

Published

- **Z. Fan(corresponding author)**, X. Xu(supervisor), R. Wang and H. Wang, " Fan Fault Diagnosis Based on Lightweight Multiscale Multiattention Feature Fusion Network. " *IEEE Transactions on Industrial Informatics*, vol. 18, no. 7, pp. 4542-4554, 2022. (Journal Articles, IF=11.7, Q1)
- **Z. Fan(corresponding author)**, X. Xu(supervisor), R. Wang and H. Wang, " CF-HSACNN: A Joint Anti-noise Learning Framework for Centrifugal Fan State Recognition. " *Measurement*, vol. 202, Art.no.111902. (Journal Articles, IF=5.2, Q1)
- X. Xu(supervisor), R. Wang, **Z. Fan(corresponding author)**, X. Ma, Z. Zhao and H. Wang, " MS-DRT: A Multi-level and Multi-scale Branch Learning Scheme for Fault Diagnosis of Rotating Machinery. " *IEEE Transactions on Industrial Informatics*, vol. 20, no. 2, pp. 2799-2811, 2024. (Journal Articles, IF=11.7, Q1)
- R. Wang, Y. Liu, **Z. Fan(corresponding author)**, " Application of a Dense Fusion Attention Network in Fault Diagnosis of Centrifugal Fan. " *arXiv preprint* arXiv:2311.07614. (Applied Intelligence, IF=3.4, Q2, Journal Articles. (Accepted))
- X. Zhu(supervisor), R. Wang, **Z. Fan**, D. Xia, Z. Liu and Z. Li, " Gearbox Fault Identification Based on Lightweight Multivariate Multidirectional Induction Network. " *Measurement*, vol. 193, Art.no.110977. (Journal Articles, IF=5.2, Q1)

Under review

- **Z. Fan***, R. Wang, Y. Liu, " Application of a Multi Learning Domain Model in Fault Identification of Centrifugal Fan. " *Measurement Science and Technology*
- **Z. Fan**, R. Wang*, Y. Liu, X. Xu, H. Wang, " A dynamically balanced wavelet coefficient matching transient energy operator for state identification of rotating machinery. " *Measurement*
- **Z. Fan**, R. Wang*, Y. Liu, X. Xu, H. Wang, " A decoupled learning with reduced convergence domain applied to fault diagnosis of rotating machinery. " *Structural Health Monitoring*
- **Z. Fan***, R. Wang, Y. Liu, X. Xu, H. Wang, " A Method of Joint Time-Frequency Threshold Refinement Applied in Fault Diagnosis of Power Equipment in Thermal Power Plants. " *Applied Thermal Engineering*
- R. Wang, **Z. Fan* (co-first author)**, Y. Liu, X. Xu, " MDFLF: A Multi-Distributed Feature Learning Framework for Gearbox Fault Diagnosis. " *IEEE Transactions on Industrial Cyber-Physical Systems*
- R. Wang, **Z. Fan* (co-first author)**, Y. Liu, X. Xu, H. Wang, " Application of Multi Operation Joint Measurement Method Based on Pyramid Structure in Gearbox Fault Diagnosis. " *IEEE Sensors Journal*
- R. Wang, **Z. Fan* (co-first author)**, Y. Liu, X. Xu, H. Wang, " From Frequency Domain to Time Domain: A joint refinement threshold interactive fusion method applied to gearbox fault diagnosis. " *IEEE Internet of Things Journal*
- R. Wang, **Z. Fan* (co-first author)**, Y. Liu, X. Xu, H. Wang, " A Time-Frequency Dynamic Threshold Self-Attention and Energy Self-Learning Strategy Applied to Gearbox Fault Diagnosis in Noisy Environments. " *IEEE Transactions on Instrumentation and Measurement*

ACADEMIC AND RESEARCH EXPERIENCE

Peer reviews | *As reviewer of journals*

- Information Fusion, IF = 14.7
- IEEE Internet of Things Journal, IF = 8.2
- Knowledge-Based Systems, IF = 7.2

Participated in research projects | *Writing project application and project paper; Providing project algorithm program*

- Development of thermal system performance evaluation system based on big data and artificial intelligence algorithm
- Module development of intelligent analysis of energy consumption characteristics of steam turbine units and intelligent early warning of key equipment based on big data analysis
- Development of intelligent detection and management system for wind turbine

Participated academic conferences

- 2022 IEEE Authorship and Open Access Symposium
- 2022 Hebei Vibration Engineering Society Conference
- 2021 Academic Annual Meeting of Dynamic Testing Professional Committee of Chinese Society of Vibration Engineering
- 2020 Chongqing Wind Energy Annual Conference

Software copyrights

- Software for wind turbine blade defect detection system

Guidance experience

- Supervised a total of 5 undergraduate design students

SKILL AND LANGUAGE

Skills

Details: Able to use software such as Python, Matlab, Photoshop and Visio

Languages

Details: English - Fluent (TOEFL: 102, GRE: 334), Mandarin - Native speaker

ALGORITHM TRAINING ON AI

Hunan Gupao Network Technology Co., Ltd. | *Trainee* **2022 – 2023**

- **Machine Learning:** Linear Regression; Logistic Regression; Clustering Algorithm; Decision Tree; Ensemble learning; Support Vector Machine; Bayesian Algorithm; Association Rule Algorithm - Apripri; Word Vector Model - Word2Vec; Linear Discriminant Analysis; Principal Component Analysis; Hidden Markov Model etc.
- **Deep Learning:** Core Algorithms - Neural Network, CNN, RNN, Transformer, VIT etc.; Object Detection - MaskRCNN, YOLO series, Detr, Semi Supervised Learning, EfficientNet etc.; Image Segmentation - Unet, U2Net, DeepLab etc.; Behavior Recognition - SlowFast; GNN; PointNet; GAN; RL etc.