

# 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*

## ACADEMIC AND RESEARCH EXPERIENCE

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### 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

- Able to use software such as Python, Matlab, Photoshop and Visio; English - Fluent (TOEFL: 102, GRE: 334), Mandarin - Native speaker

## ALGORITHM TRAINING ON AI

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### 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 - Apriori; Word Vector Model - Word2Vec; 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.