National Science Foundation (NSF)
Industry/University Collaborative Research Center for
Intelligent Maintenance Systems

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JIANSHE FENG

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RESEARCH FOCUS

Industrial data analysis for prognostics and health management (PHM) in mechatronics system, including machine learning algorithms, signal processing techniques, statistical analysis and data-driven modeling

EDUCATION

University of Cincinnati (UC), Cincinnati, OH., U.S. *Aug. 2015 - present*
- *Ph.D* in Mechanical Engineering. Advisor: Dr. Jay Lee
- Concentration: Prognostics and Health Management, GPA: 4.00/4.00
- Working at the NSF Industry/University Cooperative Research Center (I/UCRC) for Intelligent Maintenance Systems (IMS)

Zhejiang University (ZJU), Zhejiang, China *March 2015*
- *Master of Science* in Mechatronics Engineering
- Concentration: Prognosis of undersea mechatronics system, GPA: 3.91/4.00

Tongji University (TJU), Shanghai, China *July 2012*
- *Bachelor of Engineering* in Mechanical Engineering
- Concentration: Distributed communication system for machinery, GPA: 4.43/5.00

WORK EXPERIENCE

Eaton Co., Southfield, MI., U.S.
Data Scientist Intern *June 2017 - Sept. 2017*
- Fault detection and localization in low-voltage secondary power network
- Electrical Vehicle (EV) user behavior modeling and simulation

CyberInsight Co., Ltd, Beijing, China
Data Scientist *Feb. 2017 - May 2017*
- Wind turbine fault diagnosis and degradation prediction
- Wind farm operation and maintenance planning optimization

Precision Machinery R&D Center (PMC), Taiwan
Prognostic and Data Mining Engineer *Aug. 2017, March 2018*
- Training of machine learning algorithms in machinery prognostics
- Development of CNC machine tool-based predictive modeling algorithms

Shanghai Volkswagen Co., Ltd(SVW), Shanghai, China
Product Quality Management Intern *July 2014 - Aug. 2014*
- Assistance to design project plans and technical changes scheduling
- Modification of 3 handbooks to improve supply chain efficiency

Shanghai Automotive Industry Co.(SAIC), Shanghai, China
Quality Assurance Intern *July 2011 - Aug. 2011*
- Assistance to improve quality assurance system and engineering change system

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Research Experience

Online Degradation Prediction for Vibrating Motor on Plating Tank *Mar. 2016 - present*
- Online feature extraction and enhancement from motor noisy vibration data
- Failure prediction of vibration motor using time series techniques

Optimal Scheduling of Offshore Wind Farms Maintenance *Sept. 2016 - present*
- Establishment of a comprehensive mixed-integer programming formulation (MIP) to minimize loss
- Development an efficient approximation model and solved it using MATLAB and Gurobi
- Design of a dependable scheduling of wind farm maintenance based on evolutionary algorithms

Offshore Wind Farm Power Prediction Using Data-driven Approaches *Dec. 2015 - present*
- Adaptive Neuro Fuzzy Inference system (ANFIS) based short-term wind power prediction
- Autoregressive Moving Average (ARMA) and Kalman Filter based mid-term wind power prediction

CNC Feed System Degradation Monitoring and Health Assessment *Aug. 2015 - Sept. 2016*
- Experiment design and data acquisition system development
- Self-organizing Map (SOM) based ball screw condition evaluation using controller data

Smart-vessel Operation and Maintenance System(SOMS) with China State Shipbuilding Corporation (CSSC) *Aug. 2015 - May. 2015*
- Design of visualization tool with Tableau for vessel, engine and fuel health management
- Developmetn of temperature monitoring algorithms based on statistical process monitoring techniques

SANY Pump Truck Oil Leakage Health Assessment *Aug. 2015 - Dec. 2015*
- Development of an interactive data visualization tool using Tableau and MATLAB

Reliability Analysis of Undersea Observatory Networks *July 2013 - Sept. 2014*
- Development of a reliability simulation approach based on Monte-Carlo algorithm
- Development of a general reliability model for complex system based on fault tree

Monitoring and Fault Diagnosis of Undersea Observatory Networks *Sept. 2012 - Dec. 2013*
- Design of power monitor and protection schemes based on embedded PC/PLC/controller
- Design of hardware (signal acquisition, abnormal current/voltage protection) and interface

Computer skills

Matlab, Python, MySQL, Tensorflow, R, Tableau, Gurobi, C++/C#, LabVIEW, LaTeX

Honors, and Awards

Outstanding Graduate in Shanghai, Outstanding Student Leadership in TJU
1st Prize of Mathematical Contest in Modeling (MCM) in East China, 2nd Prize of MCM in China

Publications

- **Jianshe Feng**, Reliability Analysis of the Power System in a Junction Box Based on Monte Carlo Method and Importance, the 2nd Seafloor Observation Symposium, 2014, Xiamen, China
- Li, Dejun, Wang Jun, **Feng Jianshe**, et al. "Study and Design of a Heat Dissipation System in a Junction Box for Chinese Experimental Ocean Observatory Network." Marine Technology Society Journal 50.2 (2016): 63-74.
- Dejun Li, **Jianshe Feng**, et al., A Convenient Method to Request Reliability Parameters of the Printed Circuit Board, CH Patent, 2014, CN201410119251.1
- Dejun Li, Maowang Yu, **Jianshe Feng**, et al., A Power Feeding System in a Junction Box for Cabled Ocean Observatories, CH Patent, 2014, CN201410785767.X