

YAN CHEN

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EXPERTISE Intelligent data analysis and signal processing techniques; experiences in designing and deploying data-driven diagnostic and prognostic system solutions; particularly proficient at enhancing Condition Based Monitoring (CBM) by data mining techniques

EDUCATION **PhD University of Cincinnati** 09/2006~03/2012
Research Assistant: NSF I/UCRC Center for Intelligent Maintenance System (IMS)
Dissertation: "Data Quality Assessment Methodology for Improved Prognostics Modeling"

MS Shanghai Jiao Tong University, China 09/2003~03/2006
Mechanical Engineering

PROFESSIONAL EXPERIENCE **Internship at GE Global Research Center, NY, US** 06/2010-09/2010

- ◆ Applied data mining techniques on jet engine component diagnosis
- ◆ Investigated alarm event management techniques for manufacturing process
- ◆ Developed senseless solutions for process health management in engine manufacturing

Internship at GE China Technology Center, Shanghai, China 08/2009-10/2009

- ◆ Data acquisition system design and installation
- ◆ Developed Condition Based Monitoring (CBM) solution for large-scale machine tools in wind-turbine manufacturing

Product Engineer at Ingersoll Rand Machinery Co., Ltd., China 03/2006-09/2006

RESEARCH EXPERIENCE **Data-driven Prognostic and Health Management for Engineering System**

1. Project with **GE Aviation** 10/2010-08/2011

Delivered validated Intelligent Prognostic System in factory environment

- ◆ Developed an anomaly detection system for CNC machine tool health monitoring
- ◆ Developed a health assessment method for laser drilling process to assure turbine airfoil quality

2. Project with **Goodyear** 03/2010-05/2010

- ◆ Initialize a project for Tire Smart Service & Intelligent Maintenance (Patented)

3. Project with **TechSolve .Inc** 03/2008-01/2009

Delivered and demonstrated predictive monitoring system on horizontal milling machine tool

- ◆ Designed the test-bed and experiments for spindle bearing degradation testing
- ◆ Developed signal processing, failure detection and prediction data modeling methods for CNC machine tool components degradation
- 4. Project with **Industrial Technology Research Institute** .Taiwan 03/2010-01/2010
- ◆ Developing a data modeling method to predict Li-ion battery degradation

Applied Research on Data Mining Techniques

1. Project with **Procter & Gamble** 09/2006-09/2009

Delivered a software system for process autonomous monitoring; the system are validated in global facilities

- ◆ Designed and developed an autonomous Data Mining &Prognostic Engine for complex manufacturing process
- ◆ Benchmark online signal processing and anomaly detection techniques in Allen-Bradley ControlLogix automation system

PUBLICATIONS

- ◆ Y Chen, F Zhu, J Lee, “Data Quality for Manufacturing Prognostics using Spectral Analysis based Randomness Tests”, Computers in Industry (under review,)
- ◆ Y Chen, J Lee, “Autonomous Mining for Alarm Correlation Patterns based on Time-shift Similarity Clustering in Manufacturing System”, 2011 IEEE International Conference on Prognostics and Health Management
- ◆ Y Chen, H Wang, J Lee, “A new method for Feature Selection and gear defect Detection”, Proceedings of the ASME Conference on Manufacturing Science and Engineering (MSEC2007), SYMP 9 Diagnostics, Performance Prediction and Decision Making for Intelligent Maintenance of Manufacturing Systems (first author)
- ◆ J Lee, Y Chen, “A systematic approach for predictive maintenance service design: methodology and applications”. International Journal of Internet Manufacturing and Services 2009 - Vol. 2, No.1 pp. 76 - 94
- ◆ W Li, Y Chen, “Spectral Clustering and Its application in Machine Failure Prognosis” Book Chapter: Graph Theory, ISBN 979-953-307-303-2
- ◆ S Wang, A Mathew, Y Chen, “Empirical analysis of support vector machine ensemble classifiers”. Expert Systems with Applications, vol. 36, pp. 6466-6476, 2009.

COMPUTER SKILLS

Programming: MATLAB, SAS/JMP, LabVIEW, Visual C++, Java, UGS, AutoCAD, ANSYS, ProE,SQL; **Applications:** Excel, Word, PowerPoint, Access, Project Management, Adobe Acrobat;