

Xiaoqin Ma

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EDUCATION

- Ph.D.:** 1998-2003
State Key Laboratory of Electrical Insulation for Power Equipment, Xi'an Jiaotong University
- Bachelor:** 1994-1998
Department of Electrical Engineering, Xi'an Jiaotong University
- Minor :** 1996-1998
Sino-British English Minor's program, Xi'an Jiaotong University

EMPLOYMENT

- Post-doc Fellow** 2004-present
Department of Mechanical, Industrial and Nuclear Engineering, University of Cincinnati
- Research Assistant** 1998-2004
State Key Laboratory of Electrical Insulation for Power Equipment, Xi'an Jiaotong University
- Intern** 2003
Real-Time/Power Controls Laboratory, Electronic and Photonic Systems Technology, GE Global Research Center, Shanghai

SCHOLARSHIPS and AWARDS

- The third-place award at GE Fund Edison Cup Technology Innovation Competition (2003)
- Scholarship of Xi'an Jiaotong University and Excellent Postgraduate every year, from 1998 to 2003
- Excellent Graduate of Xi'an Jiaotong University (1998)
- Excellent Graduate Thesis (1998)
- Scholarship of Xi'an Jiaotong University and Excellent Student every year, from 1994 to 1998

PROJECT EXPERIENCE

✧ **Analysis and Improvement of the Kroger Pharmacy Efficiency (UC)**

Project collaborated with College of Pharmacy, University of Cincinnati. Determined the existing system performance and potential areas for improvement in 8 Kroger Pharmacies; searched for effective improvement strategies and estimated the potential labor savings from those improvements.

✧ **Aircraft Engine Diagnosis - Allison & Rolls Royce (UC)**

Successfully researched and developed classification models to predict engine (aircraft) failures. Extracted features using Fourier and Wavelet techniques and achieved an accuracy of 97.2% using 2 diagnostic parameters instead of 7 parameters before. Developed diagnostic software based on MATLAB GUI with friendly interface.

❖ **Temperature Estimation from RGB Data (UC)**

Developed a neural-fuzzy model to estimate temperature given the RGB values of a thermal paint calibration strip. Denoise the original data with moving average and wavelet techniques. Average error was reduced from 57.1°C to 3.9°C

❖ **Compressor Diagnosis – GEAE (UC)**

Researched in compressor failure of power generator and extracted diagnostic parameters.

❖ **Lean Blowout Detection-Corrected Parameter Control Program (GE)**

Develop robust on-line precursor algorithm for full cans LBO event detection for 7SA GT combustion process and implement in the Mark VI controls. My duty is signal processing including developing wavelet based method for field dynamics data analysis and can-to-can variance assessment. Also I do research in finding out physical explanation for the precursors of the fault.

❖ **Study on the long-term dielectric strength of large generator ground wall insulation and evaluation of remaining lifetime (XJTU)**

Key project supported by National Natural Scientific Foundation. Project number is 59837260. In this project, my duty is to investigate the aging laws of insulation, and then find out the new diagnostic parameters including non-electrical parameters, such as acoustic, dynamic mechanics, thermoanalysis parameters, etc.

❖ **Diagnosis and remaining lifetime estimation of important electrical equipments insulation and development of diagnostic software (XJTU)**

Key technology R&D program supported by National Electrical Company. Project number is SP11-2001-01-12. In this project, my duty is to extract diagnostic parameters and establish measurement methods.

❖ **Study on the acoustic detection method for loose stator wedges and insulation defects. (XJTU)**

To develop a novel detecting method and system that can diagnose the tight degree of a wedge structure; to diagnose the defects in the insulation of generator with a simple and fast method. Project leader.

PROFESSIONAL SKILLS

- Proficient in developing diagnostic and monitor systems including design of hardware and software;
- Professional knowledge on theories of electrical engineering and acoustics;
- Knowledge and experiences on multi-disciplinary research including: electrical, mechanical, acoustical, industrial and healthcare areas.
- Proficient in signal processing methods, such as filter design, wavelet and wavelet packet analysis, joint time-frequency analysis and fractal;
- Familiar with data fusion techniques and statistical models;
- Familiar with neural network and fuzzy logic.
- Skilled in use of MATLAB and ANSYS;
- Familiarity with FORTRAN, C, C++, DELPHI and VB.

FIELD EXPERIENCE

- 1997.6, Xi'an Electrical Company
- 1998.3, Chengdu Cable Manufactory
- 1999.9, Pucheng Power Plant, detected the stator wedges in an electromotor;
- 2001.6, Jianbi Power Plant, took part in assessing the remaining life of 8# generator;
- 2001.9, Yaomeng Power Plant, detected the stator wedges in a 300MW generator;
- 2002.3, Yaomeng Power Plant, detected the stator insulation in a 300MW generator;
- 2002.6, Daba Power Plant

INSTRUCTIONAL EXPERIENCE

- Tutored 3 masters: Weisheng Lu and Qiming Bao (1999.9–2002.4)、
Tianchun Xiang (2000.9–2003.4)
- Tutored 4 bachelors: Tiecheng Cui (2000.1–2000.7)、Jin Li (2001.1–2001.7)、
Yuanqin Yu (2002.1–2002.7) Excellent Graduate Thesis
Guoqiang Wang (2002.1–2002.7)
- Gave lecture course on "Sensors and Signal Processing Techniques" for postgraduates (2002, 2003)

PATENTS

1. "Method for Assessing the Aging Condition of Stator Insulation in Large Motors Based on the Wavelet Transform", No. 02139425.3
2. "Method for Detecting Loose Wedges in Rotating Motors", No. 02139464.4

SELECT PUBLICATIONS

Xiaoqin Ma, etc., "Study on Acoustic Detection of Loose Stator Wedge in Electromotor", PROCEEDINGS OF THE CSEE, Vol.22 No.2, 2002 (Chinese) EI-02397110176

Xiaoqin Ma, etc., "Study on Acoustic Detection of Loose Stator Wedges in Large Generators ", Electric Power, Vol.36 No.1, 2003 (Chinese) EI-03137420892

Xiaoqin Ma, etc., "Study on Acoustic Characteristics of Aged Stator Insulation of Generators", Proceedings of The 6th International Conference on Properties and Application of Dielectric Materials, June 21-26, 2000 EI-00125446354

Xiaoqin Ma, etc., "Study on AC Current Parameter during multi-stress aging of Large Generator Stator Insulation", Transactions of China Electrotechnical Society, Vol.18 No.5, 2003. (Chinese) EI

Xiaoqin Ma, etc., "Study on Temperature Spectrum of Dielectric Dissipation Fact during Multi-Stress Aging of Large Generator Stator Insulation", Advanced Technology of Electrical Engineering and Energy, Vol.22 No.1, 2003 (Chinese)

Xiaoqin Ma, etc., "Acoustical Technology Applications in Large High Voltage Motors ", Proceedings of International Symposium on Electrical Insulating Materials, November, 2001 EI-02126890167

Tianchun Xiang, Xiaoqin Ma, etc. "Detection System for Wedge Looseness in Generator Based on Virtual Instrument", Proceedings of The 7th Chinese Society for Electrical Engineering, September, 2002 (Chinese)