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EDUCATION

- Ph.D.** Industrial and Systems Engineering, Texas A&M University, College Station August 2008
“*Bayesian Hierarchical Model for Integrating Multi-resolution Metrology Data*”
Advisor: Professor Yu Ding
- M.S.** Management Science and Engineering, Tianjin University, Tianjin, China July 2002
- B.S.** International Enterprise Management, Tianjin University, Tianjin, China July 2000

RESEARCH INTERESTS

- Multi-scale/Multi-resolution Modeling and Analysis
- Quality Engineering for Production and Service
- Bioinformatics
- Bayesian Hierarchical Modeling of Complex Systems
- Optimal Sensor Deployment and Operation strategy
- Bayesian Statistics for Decision Analysis
- Optimal Decision under Uncertainty

AWARDS & HONORS

- “Quality, Statistics and Reliability” Best Student Paper Award, the Institute for Operations Research and the Management Sciences (INFORMS) (2007).
- NSF Student Travel Grant, Division of Civil, Mechanical and Manufacturing Innovation, National Science Foundation (NSF) (2007).
- Graduate Student Research and Presentation Grant, Texas A&M University (2007).
- Doctoral Colloquium Participant, Future Academician Track, INFORMS (2006).
- Outstanding Undergraduate Academic Award, Tianjin University (1999-2000).
- Proctor & Gamble Scholarship, Motorola Scholarship, Tianjin University (1999, 1998).

PUBLICATIONS

1. **Xia, H.**, Ding, Y. and Wang, J. (2007) “Gaussian Process Method for Form Error Assessment Using Coordinate Measurements,” *IIE Transactions*, accepted.
2. **Xia, H.**, Ding, Y. and Mallick, B. (2007) “Bayesian Hierarchical Model for Integrating Multi-resolution Metrology Data,” winner of the 2007 INFORMS “Quality, Statistics and Reliability” Best Student Paper Award, revised to be submitted to *Technometrics* (after a positive review).
3. **Xia, H.**, Wang, F., Mao, J. and Raulefs, P. “Bayesian Physics-Driven Statistical Model for Predicting Transistor Performance,” to be submitted to *IEEE Transactions on Semiconductor Manufacturing*. (Manuscript completed but it is pending in INTEL’s internal proprietary review process as it is based on my internship at INTEL.)
4. **Xia, H.**, Huang, J. and Ding, Y. “Multi-resolution Modeling and Data Integration for Metrology

Applications," working paper, to be submitted to *The Annals of Applied Statistics*.

5. **Xia, H.**, Huang, J. and Ding, Y. "Error Analysis and Data Collection Strategy for Multi-resolution Data Integration," working paper.

PRESENTATIONS

1. "Bayesian Hierarchical Model for Integrating Multi-resolution Data", *Department of Mathematical Sciences, IBM Thomas J. Watson Research Center, Yorktown Heights, New York*, Jan. 24, 2008.
2. "Bayesian Hierarchical Model for Integrating Multi-resolution Data", *Final Competition for "Quality, Statistics and Reliability" Best Student Paper, INFORMS Annual Meeting, Seattle, Washington*, Nov. 5, 2007.
3. "Bayesian Spatial Model for Form Error Assessment Using Coordinate Measurements", *Joint Research Conference of the Spring Research Conference on Statistics in Industry and Technology and the Quality and Productivity Research Conference, Knoxville, Tennessee*, June 7-9, 2006.
4. "Form Error Assessment Using Bayesian Spatial Model for Multiple Coordinate Sensor Data", *Advanced Analytics Group, Intel Corporation, Santa Clara, California*, Nov. 18, 2005.
5. "Form Error Assessment Using Bayesian Spatial Model for Multiple Coordinate Sensor Data", *INFORMS Annual Meeting, San Francisco, California*, Nov. 13-16, 2005.

WORK EXPERIENCE

Research Intern, Intel Corporation, Santa Clara, CA June 2006-Aug. 2006

"Bayesian Physics-Driven Statistical Model for Predicting Transistor Performance"

- Received an outstanding rating for performance review: "paid attention to details and provided a competitive solution to manufacturing prediction problems"; "very proactive to learn new things".
- Built a Bayesian statistical model from device physics models to control transistor performance.
- Improved prediction accuracy by 30% on average over alternative methods.
- Developed and delivered three statistical analysis modules written in MATLAB: data clean and preliminary analysis, linear/nonlinear regression, Bayesian modeling and inference.

Research Assistant, Texas A&M Advanced Metrology Laboratory May 2004-present

"Dimensional Quality Control Using Multi-resolution Metrology Sensors"

- Designed a Bayesian hierarchical model to integrate sensor data at different scales and resolutions.
- Lowered prediction errors by 40% in comparison with using single-resolution sensors only.
- Developed new inspection methods and analysis algorithms; implemented in MATLAB.
- Managed and operated optical and mechanical coordinate measuring machines.

Research Assistant, Industrial Engineering Dept., Tianjin University Sep. 2001-July 2002

"Customer Guided Continuous Quality Improvement for Manufacturing Enterprises"

- Designed a customer feedback questionnaire and conducted the survey.
- Evaluated customer satisfaction and guided quality improvements.

TEACHING EXPERIENCE

Mentor for Undergraduate Research Project in ISEN 459 Senior Design Fall 2006
Department of Industrial and Systems Engineering, Texas A&M University

"Statistical Modeling of Tool Breakdowns" for Dallas Semiconductor/MAXIM Inc.

- Mentored three Industrial Engineering seniors on reliability theories, statistical methods and tools.

Teaching Assistant and Lab Instructor

Fall 2003, Spring 2004

Department of Industrial and Systems Engineering, Texas A&M University

ISEN 314 "Statistical Process Control" (3 credits)

ISEN 414 "Total Quality Engineering" (3 credits)

- Lectured lab sections and organized lab experiments for 39 undergraduates.
- Taught Excel and MATLAB for statistical data analysis.
- Offered help sessions to students; graded assignments and prepared worked-out solutions.

Teaching Assistant

Fall 2002, Spring 2003

Department of Industrial and Systems Engineering, Texas A&M University

ISEN 302 "Engineering Economics" (3 credits)

- Provided help sessions to students; graded assignments and prepared worked-out solutions.

GRADUATE COURSEWORK

- **Quality and Reliability Engineering:** Quality Engineering; Design by Reliability; Analysis and Prediction; Stochastic Dynamic Analysis of Systems; Applied Random Processes; Stochastic Processes; Simulation Method & Analysis;.
- **Operations Research and Mathematics:** Linear Programming; Non-linear and Dynamic Programming; Advanced Calculus; Management Mathematics.
- **Production Systems:** Operations Research; Production & Operations Management; Material Flow Systems Engineering; Industrial Engineering.
- **Statistics & Economics:** Theory of Statistics I, II, Methods of Statistics, Multivariate Analysis, Statistical Decision Theory, Spatial Statistics, Advanced Bayesian Modeling & Computation, Econometrics.

PROFESSIONAL ACTIVITIES

- Referee for *IIE Transactions* and the *third Annual IEEE Conference on Automation Science and Engineering* (IEEE CASE 2007).
- Session Chair, "Sensor System Design and Information Extraction", INFORMS Southwest Regional Conference (2008).
- Member, Institute for Operation Research and the Management Sciences (**INFORMS**).
- Member, American Statistical Association (**ASA**).
- Member, Institute of Industrial Engineers (**IIE**).

REFERENCES

Available upon request.