

JINHO KIM, Ph.D.

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ACADEMIC EMPLOYMENT AND AFFILIATIONS

Rutgers School of Business - Camden (RSBC), Rutgers University

- Instructor of Professional Practice (Area: Operations Management), September 2019 – present

Rutgers Business School – Newark and New Brunswick (RBS), Rutgers University

- Part-time Lecturer (Area: MSIS), September 2018 – July, 2019

Department of Industrial and Systems Engineering, Rutgers University

- Postdoctoral Researchers, October 2017 – July 2019

Mechanical and Industrial Engineering, Qatar University

- Postdoctoral Researcher and Part-time Faculty, September 2015 – October 2017

EDUCATION

2014 **Rutgers The State University of New Jersey, Ph.D.** in Industrial and Systems Engineering

– Advisor: Prof. Elsayed and Prof. M. K. Jeong

2008 **The University of Texas at Austin, M.S.** in Operations Research and Industrial Engineering

2002 Korea Advanced Institute of Science and Technology (**KAIST**), Korea, M.S. in Computer Science

2000 Pohang University of Science and Technology (**POSTECH**), B.A. in Mathematics, minor in Computer Science

JOURNAL PUBLICATIONS (PEER-REVIEWED)

Refereed Journal Papers

1. Tosyali, A., **Kim, J.**, Choi, J., Jeong, M. K., “Patent clustering and outlier ranking on patent citation networks using nonnegative matrix factorization.” *Annals of Operations Research*, Forthcoming.
2. Abdella, G., **Kim, J.**, Al-Khalifa, K. N., Jeong, M. K., Hamouda, A. M. S., Elsayed, E. A., “An Adaptive Thresholding-Based Process Variability Monitoring.” *Journal of Quality Technology*, 51(3), 242-256, 2019.
3. **Kim, J.**, Abdella, G. M., Al-Khalifa, K. N., Hamouda, A. M. S., “Control charts for variability monitoring in high-dimensional processes.” *Computers & Industrial Engineering*, 130, 309-316, 2019.
4. Tosyali, A., **Kim, J.**, Choi, J., Jeong, M. K., “Regularized asymmetric nonnegative matrix factorization for clustering in directed networks.” *Pattern Recognition Letter*, 125, 750-757, 2019.
5. Abdella, G., **Kim, J.**, Al-Khalifa, K. N., Hamouda, A. M. S., “Penalized Conway-Maxwell-Poisson Regression for Modelling Dispersed Discrete Data: The Case Study of Motor Vehicle Crash Frequency.” *Safety Science*, 120, 157-163, 2019.
6. Kim, S., **Kim, J.**, Jeong, M. K., Al-Khalifa, K. N., Hamouda, A. M. S., Elsayed, E. A., “Monitoring and control of beta-distributed multistage production processes.” *Quality Technology & Quantitative Management*, 16(1), 1-18, 2019.

7. **Kim, J.**, Jeong, M. K., Elsayed, E. A., “Monitoring multistage processes with autocorrelated observations.” *International Journal of Production Research*, 55(8), 2385-2396, 2017.
8. Abdella, G., **Kim, J.**, Hamouda, A. M. S., Al-Khalifa, K. N., “Double EWMA-Based Polynomial Quality Profiles Monitoring.” *Quality and Reliability Engineering International*, 32(8), 2639-2652, 2016.
9. **Kim, J.**, Al-Khalifa, K. N., Jeong, M. K., Hamouda, A. M. S., Elsayed, E. A., “An Adaptive Step-Down Procedure for Fault Variable Identification.” *International Journal of Production Research*, 54(11), 3187-3200, 2016.
10. **Kim, J.**, Al-Khalifa, K. N., Jeong, M. K., Hamouda, A. M. S., Elsayed, E. A., “Multivariate statistical process control charts based on the approximate sequential χ^2 test.” *International Journal of Production Research*, 52(18), 5514-5527, 2014.
11. **Kim, J.**, Al-Khalifa, K. N., Park, M., Jeong, M. K., Hamouda, A. M. S., Elsayed, E. A., “Adaptive cumulative sum charts with adaptive runs rule.” *International Journal of Production Research*, 51(15), 4556-4569, 2013.
12. Park, S., Oh, S., **Kim, J.**, Lee, E., Kim, S., “Band-based geocasting for mobile sink groups in wireless sensor networks.” *Wireless Networks*, 19(6), 1285-1298, 2013.
13. Park, M., **Kim, J.**, Jeong, M. K., Hamouda, A. M. S., Al-Khalifa, K. N., Elsayed, E. A., “Economic cost models of integrated APC controlled SPC charts.” *International Journal of Production Research*, 50(14), 3936–3955, 2012.
14. Lee, M., Ahn, G., **Kim, J.**, Park, J., Lee, B., Kim, K. and Lee, H., “Design and implementation of an efficient fair off-line e-cash system based on elliptic curve discrete logarithm problem.” *Journal of Communications and Networks*, 4(2), 81-89, 2002.

Work In Progress

1. **Kim, J.** and Kim, H.G., “Machine learning approaches: SMEs innovative activities, Internationalization, and firm performance.”
2. **Kim, J.** and Tosyali, A., “Penalized asymmetric nonnegative matrix factorization for clustering in weighted and directed networks.”
3. **Kim, J.** and Kim, S., “LASSO-based-Conway-Maxwell-Poisson Regression for Modelling Dispersed Discrete Data.”

Refereed Conference Papers

1. Park, M., **Kim, J.**, Jeong, M. K., Hamouda, A. M. S., Al-Khalifa, K. N. and Elsayed, E. A., “Integration of Statistical Process Control and Automatic Process Control,” *Qualita 2011*, Angers, France, March 23-25, 2011.
2. **Kim, J.**, Kim, K. and Lee, C., “December. An efficient and provably secure threshold blind signature,” In *International Conference on Information Security and Cryptology*, Springer Berlin Heidelberg, 2001.
3. Kim, K., **Kim, J.**, Lee, B., Ahn, G., “Experimental design of worldwide Internet voting system using PKI,” *SSGRR 2001*, L’Aquila, Italy, August 6-10, 2001.

4. Kim, H., Baek, J., Ahn, G., **Kim, J.**, Park, H., Song, B., Lee, M., Park, J. and Lee, B., “Design and implementation of revocable electronic cash system based on elliptic curve discrete logarithm problem,” *Proc. of Workshop on Information Security Application 2000 (WISA 2000)*, 2000.

TEACHING EXPERIENCE

Rutgers University, School of Business - Camden (RSBC)

- Optimization and Spreadsheet, Fall 2019.
- Operations Management (online), Fall 2019.
- Applied Business Statistics (online), Fall 2019.

Rutgers University, Rutgers Business School – Newark and New Brunswick (RBS)

- Production and Operation Management, Spring and Summer 2019.
- Computer Network Applications, Spring 2019.
- Management and Information Systems (2 sessions), Fall 2018.

Mechanical and Industrial Engineering, Qatar University

- Applied Business Statistics, 2015 - 2018

WORK EXPERIENCE

Post-Doctoral Researcher, Rutgers University and Qatar University, Jan. 2015 – Current

- Project: Multistage Quality Engineering with Multi-source Functional Data (Joint project with Rutgers and Qatar University).
 - Development of new algorithms and simulations for data reduction, feature selection, and monitoring and outlier detection with functional profile data.
 - Applying various machine learning techniques such as Random Forest, clustering using NMF, functional PCA, and regularization.

Manufacturing Execution Intern, UTC Aerospace Systems at Princeton, NJ, July 2013 – Dec. 2014

- Analyze semiconductor-processing data and develop a web-based monitoring and reporting system.
- Develop various quality control charts like SPC and Yield charts, bar, pie, speedometer charts to report process data.
- Have experience in statistical analysis like decision tree and liner regression for finding a root cause of dark noise in wafer using JUMP.

Graduate Research Assistant, Rutgers University, New Brunswick, NJ, Jan. 2010 – July 2013

- QNRF Project: A project of Qatar National Research Fund. Detect changes in the LNG processes as soon as they occur to minimize the variability in quality of the final product (LNG) while minimizing the rate of false alarm.
 - Shift detection for both processes with single and multiple parameters.
 - Develop optimum control strategies that consider the combined effects of both APC and SPC.
- MATLAB, R, SAS programming for Monte-Carlo simulations and statistical analysis.

Research Fellow, The University of Texas at Austin, TX, Feb. 2009 - Jun. 2009

Graduate Research Assistant, The University of Texas at Austin, TX, Feb. 2006 - Jan. 2009

- Developed a decision support system for cancer pain management with Dr. Chee, a research professor of Mechanical Engineering department, using Java, JSP, and MySQL, and then converted the system using Ruby on Rails, and AJAX under Linux. The project is funded by NIH/NINR/NCI.
- Implemented a survey management system for cancer survey using RoR, MySQL, and Linux.

Software Engineer, Advanced Financial Technologies (former AskCredit), CA, Feb. 2005 - Jul. 2005

- Developed web services for communicating with 5 other companies using Java, SOAP, and MS-SQL.

Software Engineer, LG CNS. Co., Ltd. (former LG-EDS), Korea, Oct. 2002 - Jul. 2004

- Design and implement a logistic system using Java, Oracle DB, and RFID as a pilot project to detect products with RFID sensor. Provided technical supports and documentations for the systems developed.

RESEARCH INTERESTS

My research interests focus on machine learning, statistical process control and monitoring for applications in advanced manufacturing. The goal of my research is to bridge a gap between the two fast-faced research areas: data science and advanced manufacturing with multistage processes.

AWARDS AND HONORS

- Level II award for rapid web-based MES implementation, UTC Aerospace systems, 2013
- Member of Institute of Industrial Engineers (IIE), Institute for Operations Research and Management Sciences (INFORMS)
- Ph.D. student RA Full scholarship (3 years), Rutgers University, 2010 - 2013
- Third best prize in WIPI mobile programming contest, Korea, Apr. 2004
- Second best paper in Conference on Information Security and Cryptology (CISC'01), Korea, Nov. 2001

GRADUATE-LEVEL COURSE WORKS

Data Mining, Linear Regression, Design of Experiments, Multivariate Analysis, System Reliability I/II, Analysis of Variance, Mathematical Statistics, Applied Stochastic Processes, Queueing Theory, Applied Probability, Simulations, Linear Programming, Nonlinear Programming, Integer Programming, Large-scale System Optimization, Meta-heuristics, Network Optimization, Advanced Algorithms, Network Theory, Graph Theory.

SKILLS

- Statistics Tools: R, MATLAB, Excel, JUMP, SAS, SPSS
- Program Languages: Python, JAVA, Ruby, C, C#, C++, JavaScript, VBA
- Data Visualization: Excel, Telerik Toolkit, jQuery, Datatables
- Database: SQL, PL/SQL, Oracle, MS Access, MySQL