

COMPLEX SYSTEMS & COMPUTING FRONTIERS



Qianmei (May) Feng

Ph.D. – University of Washington
Professor, Industrial Engineering

Director, Industrial Engineering Graduate Program
Brij and Sunita Agarwal Faculty Fellow

Selected Publications

1. Shu, Y., Feng, Q., Liu, H., Using Degradation-with-Jump Measures to Estimate Life Characteristics. *Reliability Engineering and System Safety*, 191:1-11, 2019.
2. Rafiee, K., Feng, Q., Coit, D.W., Reliability Assessment of Dependent Competing Risks with Generalized Mixed Shock Model. *Reliability Engineering & System Safety*, 159:1-11, 2017.
3. Shu, Y., Feng, Q., Kao, E., Liu, H., Levy Driven Non-Gaussian Ornstein-Uhlenbeck Processes for Degradation-Based Reliability Analysis. *IIE Transactions*, 48(11): 993-1003, 2016.
4. Shu, Y., Feng, Q., Coit, D.W., Life Distribution Analysis Based on Lévy Subordinators for Degradation with Random Jumps. *Naval Research Logistics*, 62(6): 483-492, 2015.
5. Rafiee, K., Feng, Q., Coit, D.W., Condition-Based Maintenance for Repairable Deteriorating Systems subject to Generalized Mixed Shock Model. *IEEE Transactions on Reliability*, 64(4): 1164-1174, 2015.
6. Feng, Q., Rafiee, K., Keedy, E., Arab, A., Coit, D.W., Song, S., Reliability and Condition-Based Maintenance for Multi-Stent Systems with Stochastic Dependent Competing Risk Processes. *International Journal of Advanced Manufacturing Technology*, 80(9): 2027-2040, 2015.
7. Rafiee, K., Feng, Q., Coit, D.W., Reliability Modeling for Dependent Competing Failure Processes with Changing Degradation Rate. *IIE Transactions*, 46(5): 483-496, 2014.
8. Keedy, E., Feng, Q., Reliability Analysis and Customized Preventive Maintenance Policies for Stents with Stochastic Dependent Competing Risk Processes. *IEEE Transactions on Reliability*, 62(4): 887-897, 2013.
9. Peng, H., Feng, Q. and Coit, D.W., Reliability and Maintenance Modeling for Systems Subject to Multiple Dependent Competing Failure Processes. *IIE Transactions*, 43(1): 12-22, 2011.

Dr. Feng has dedicated her research in the area of complex system modeling, analysis and optimization in quality and reliability engineering. Her research has applications in evolving technologies (e.g., micro-electromechanical systems (MEMS), biomedical implant devices), homeland security, and health-care. She received the Cullen College of Engineering Junior Faculty Research Excellence Award in 2011. Dr. Feng has published over 50 articles in peer-reviewed journals. Her research has been supported by the US National Science Foundation (NSF), Department of Homeland Security (DHS), Texas Department of Transportation (TxDOT), Texas Higher Education Coordinating Board (THECB), and Texas Norman Hackerman Advanced Research Program. Dr. Feng has also served as President of the Division of Quality Control & Reliability Engineering in the Institute of Industrial Engineers (IIE).

AIMING FOR HIGHER QUALITY AND RELIABILITY

Dr. Feng's research spans the domains of several fundamental research areas including quality and reliability engineering, probability and statistics, data analytics, and optimization. Her group conducts research on a variety of quality and reliability problems for complex systems. Her group develops integrated quality and reliability models and analysis tools that provide fundamental insights for the successful manufacturing, operation and maintenance of evolving and capital-intensive technologies in energy, homeland security, and healthcare systems. Dr. Feng's recent focus is on stochastic degradation modeling and prognostics (e.g., corrosion, fatigue crack, wear, damage) for reliability analysis and maintenance decision making in energy systems, where multiple failure processes exist in complex multi-component systems under dynamic environments.



A sample path of Markov-modulated two-dimensional Lévy process with random jumps when the environment status changes

