JUN CHEN, PH.D. (Last updated on June 5, 2020; Do Not Redistribute)

CONTACT

Next Gen Controls (Vehicle Motion Embedded Controls) jchenisu2015@gmail.com
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EDUCATION & CERTIFICATES

Ph.D. in Electrical Engineering (minor in CS), Iowa State University, Ames IA, 4.0/4.0	12/2014
B. S. in Automation, Zhejiang University, Hangzhou China	06/2009
Design for Six Sigma (DFSS) Black Belt Certification, General Motors	11/2018
Accomplishment Certificate for Machine Learning, Coursera	12/2014

RESEARCH INTERESTS

Systems and Control: Model predictive control, stochastic processes, automatic tuning, extremum seeking
Optimization: Quadratic programming, convex optimization, stochastic optimization, implicit constraints
Automotive Systems: Vehicle dynamics, propulsion control, model based control, active thermal management
Power and Energy: Hybrid energy systems, renewable integration, electricity market, economic analysis
Machine Learning: Clustering, time series, statistical verification, surrogate modeling, scenario generation
Discrete Event and Hybrid Systems: failure diagnosis and prognosis, resiliency analysis, verification
Formal Methods: Model-based verification and design, statistical verification, linear-time temporal logic

EMPLOYMENT

Senior Control Systems Engineer, General Motors, Milford MI, USA	01/2017–present
R&D Scientist in *Power and Energy Systems*, Idaho National Laboratory, ID, USA	11/2014–12/2016
Summer Intern in *Software V&V*, General Motors R&D, MI, USA	04/2014–07/2014
Research Assistant in *Stochastic Hybrid Systems*, Iowa State University, IA, USA	01/2011–10/2014
Teaching Assistant in *Electrical Engineering*, Iowa State University, IA, USA	01/2011–12/2013

HONORS AND RECOGNITIONS

IEEE Best Paper Award, IEEE Transactions on Automation Science and Engineering	2016
Associate Editor, Energy Systems	2016–present
Associate Editor, Journal of Control and Decision	2016–2019
Associate Editor, Chinese Control & Decision Conference	2013–2020
INL Publication Achievement Award, Idaho National Laboratory	2016
INL Exceptional Contributions Program Award, Idaho National Laboratory	2015 & 2016
Research Excellence Award, Iowa State University	2014
Student Travel Award, American Control Conference	2014
Professional Development Grants (PAG), Iowa State University	2014
Provost Graduate Fellowship, University of Central Florida	2009–2010
Third Class Scholarship for Undergraduate Student, Zhejiang University	2008
Outstanding Student, Zhejiang University	2008

PUBLICATIONS

Book Chapter

[1] Mariam Ibrahim, **Jun Chen** and Ratnesh Kumar, "Quantification of Centralized/Distributed Secrecy in Stochastic Discrete Event Systems," in *Recent Advances in Systems Safety and Security*, Editors: Emil Pricop and Grigore Stamatescu, Springer, May 2016, ISBN: 978-3-319-32523-1.

Journal Articles

[1] Xiang Yin, **Jun Chen**, Zhaojian Li and Shaoyuan Li, "Robust Fault Diagnosis of Stochastic Discrete Event Systems," *IEEE Transactions on Automatic Control*, volume 64, number 10, pages 4237–4244, October 2019.

[2] **Jun Chen**, Qin Wang, Jianming Lian and Wanning Li, "Guest Editorial: Advances in Control and Decision for Power and Energy Systems," *Journal of Control and Decision*, volume 5, number 2, pages 115–116, February 2018.

[3] **Jun Chen**, Christoforos Keroglou, Christoforos N. Hadjicostis and Ratnesh Kumar, "Revised Test for Stochastic Diagnosability of Discrete-Event Systems," *IEEE Transactions on Automation Science and Engineering*, volume 15, number 1, pages 404–408, January 2018.

[4] **Jun Chen**, Peter Molnar and Aman Behal, "Identification of a Stochastic Resonate-and-Fire Neuronal Model via Nonlinear Least Squares and Maximum Likelihood Estimation," *International Journal of Modeling, Identification and Control*, volume 28, number 3, pages 221–231, October 2017.

[5] **Jun Chen** and Cristian Rabiti, "Synthetic Wind Speed Scenarios Generation for Probabilistic Analysis of Hybrid Energy Systems," *Energy*, volume 120, pages 507-517, February 2017.

[6] **Jun Chen**, Mariam Ibrahim and Ratnesh Kumar, "Quantification of Secrecy in Partially Observed Stochastic Discrete Event Systems," *IEEE Transactions on Automation Science and Engineering*, volume 14, number 1, pages 185–195, January 2017.

[7] Jong S. Kim, **Jun Chen** and Humberto E. Garcia, "Modeling, Control, and Dynamic Performance Analysis of a Reverse Osmosis Desalination Plant Integrated within Hybrid Energy Systems," *Energy*, volume 112, pages 52–66, October 2016.

[8] **Jun Chen** and Humberto E. Garcia, "Economic Optimization of Operations for Hybrid Energy Systems under Variable Markets," *Applied Energy*, volume 177, pages 11–24, September 2016.

[9] **Jun Chen**, Humberto E. Garcia, Jong S. Kim and Shannon M. Bragg-Sitton, "Operations Optimization of Nuclear Hybrid Energy Systems," *Nuclear Technology*, volume 195, number 2, pages 143–156, August 2016.

[10] Humberto E. Garcia, **Jun Chen**, Jong S. Kim, Richard B. Vilim, William R. Binder, Shannon M. Bragg-Sitton, Richard D. Boardman, Michael G. McKellar and Christiaan J. J. Paredis, "Dynamic Performance Analysis of Two Regional Nuclear Hybrid Energy Systems," *Energy*, volume 107, pages 234–258, July 2016.

[11] **Jun Chen** and Ratnesh Kumar, "Fault Detection of Discrete-Time Stochastic Systems Subject to Temporal Logic Correctness Requirements," *IEEE Transactions on Automation Science and Engineering*, volume 12, number 4, pages 1369–1379, October 2015. (**Best Paper Award**)

[12] **Jun Chen** and Ratnesh Kumar, "Stochastic Failure Prognosability of Discrete Event Systems," *IEEE Transactions on Automatic Control*, volume 60, number 6, pages 1570–1581, June 2015.

[13] **Jun Chen** and Ratnesh Kumar, "Failure Detection Framework for Stochastic Discrete Event Systems with Guaranteed Error Bounds," *IEEE Transactions on Automatic Control*, volume 60, number 6, pages 1542–1553, June 2015.

[14] **Jun Chen** and Ratnesh Kumar, "Polynomial Test for Stochastic Diagnosability of Discrete Event Systems," *IEEE Transactions on Automation Science and Engineering*, volume 10, number 4, pages 969–979, October 2013.

[15] Lingfei Zhi, **Jun Chen**, Peter Molnar and Aman Behal, "Weighted Least-Squares Approach for Identification of a Reduced-Order Adaptive Neuronal Model," *IEEE Transactions on Neural Networks and Learning Systems*, volume 23, number 5, pages 834–840, May 2012.

Conference Articles

[1] Aaron S. Epiney, Andrea Alfonsi, Cristian Rabiti and **Jun Chen**, "Economic Assessment of Nuclear Hybrid Energy Systems: Optimization using RAVEN," *2017 ANS Annual Meeting*, San Francisco, CA, June 11–15, 2017.

[2] **Jun Chen**, Jong S. Kim and Cristian Rabiti, "Probabilistic Analysis of Hybrid Energy Systems Using Synthetic Renewable and Load Data," *2017 American Control Conference*, Seattle, WA, May 24–26, 2017.

[3] **Jun Chen** and Humberto E. Garcia, "Operations Optimization of Hybrid Energy Systems under Variable Markets," *2016 American Control Conference*, Boston, MA, July 6–8, 2016.

[4] Mariam Ibrahim, **Jun Chen** and Ratnesh Kumar, "A Resiliency Measure for Electrical Power Systems," *2016 IFAC/IEEE International Workshop on Discrete Event Systems*, Xi'an, China, May 30 – June 1, 2016.

[5] Mariam Ibrahim, **Jun Chen** and Ratnesh Kumar, "Quantification of Distributed Secrecy Loss in Stochastic Discrete Event Systems under Bounded-Delay Communications," *2016 IFAC/IEEE International Workshop on Discrete Event Systems*, Xi'an, China, May 30 – June 1, 2016.

[6] Mariam Ibrahim, **Jun Chen** and Ratnesh Kumar, "An Information Theoretic Measure for Secrecy Loss in Stochastic Discrete Event Systems," *2015 International Conference on Electronics, Computers and Artificial Intelligence – International Workshop on Systems, Safety and Security*, Bucharest, Romania, June 25–27, 2015.

[7] **Jun Chen** and Ratnesh Kumar, "Failure Prognosability of Stochastic Discrete Event Systems," *2014 American Control Conference*, Portland, OR, June 4–6, 2014.

[8] **Jun Chen** and Ratnesh Kumar, "Pattern Mining for Predicting Critical Events from Sequential Event Data Log," *2014 IFAC/IEEE International Workshop on Discrete Event Systems*, Paris-Cachan, France, May 14–16, 2014.

[9] Mariam Ibrahim, **Jun Chen** and Ratnesh Kumar, "Secrecy in Stochastic Discrete Event Systems," *2014 IEEE International Conference on Networking, Sensing and Control*, Miami, FL, April 7–9, 2014.

[10] **Jun Chen** and Ratnesh Kumar, "Failure Diagnosis of Discrete-Time Stochastic Systems Subject to Temporal Logic Correctness Requirements," *2014 IEEE International Conference on Networking, Sensing and Control*, Miami, FL, April 7–9, 2014.

[11] **Jun Chen** and Ratnesh Kumar, "Online Failure Diagnosis of Stochastic Discrete Event Systems," *2013 IEEE Multi-Conference on Systems and Control – IEEE Conference on Computer Aided Control System Design*, Hyderabad, India, August 28–30, 2013.

[12] **Jun Chen** and Ratnesh Kumar, "Decentralized Failure Diagnosis of Stochastic Discrete Event Systems," *2013 IEEE Conference on Automation Science and Engineering*, Madison, WI, August 17–21, 2013.

[13] **Jun Chen** and Ratnesh Kumar, "Polynomial Test for Stochastic Diagnosability of Discrete Event Systems," *2012 IEEE Conference on Automation Science and Engineering*, Seoul, Korea, August 20–24, 2012.

[14] **Jun Chen**, Jose Suarez, Peter Molnar and Aman Behal, "Maximum Likelihood Parameter Estimation in a Stochastic Resonate-and-Fire Neuronal Model," *2011 IEEE International Conference on Computational Advances in Bio and medical Sciences (ICCABS)*, Orlando, FL, February 3–5, 2011.