JUN CHEN, PH.D.

CONTACT (515) 708-6401 | jchenisu2015@gmail.com | Website U.S. Permanent Resident

EXPERTISE

Systems and Control: Supervisory control, failure diagnosis & prognosis, security, stochastic hybrid systems

Power and Energy: Hybrid energy systems, renewables, co-simulation, optimization, electrical power market

Modeling and Simulation: Acausal modeling, co-simulation, time series, reduced-order modeling

Optimization: Convex optimization, stochastic optimization, implicit constraints

Formal Methods: Model-based verification and design, statistical verification, linear-time temporal logic

Data Mining: Reduced order modeling, time series analysis, statistical verification, risk analysis

PROGRAMMING

Matlab (8 years experiences), C, Python, Modelica, HTML, XML, LaTeX
Simulink, Git, Dymola, FMI Toolbox, CVX, NuSMV, Spin, PSCAD, Visual Studio

EXPERIENCE

R&D Scientist in *Power and Energy Systems*, Idaho National Laboratory, ID, USA 08/2016–present
- Leading proposal development and technically supporting projects on power and energy systems.

Postdoctoral Researcher in *Energy Integration*, Idaho National Laboratory, ID, USA 11/2014–08/2016
- Leading proposal development and technically supporting projects on hybrid renewable energy systems;
- Apply expertise in control, optimization, statistics, time series, data mining, and economics.
- Receive awards for excellent contributions and significant publication achievements;

Summer Intern in *Software V&V*, General Motors R&D, MI, USA 04/2014–07/2014
- Model-based and data-based (statistical model checking) validation of diagnostic software requirement.

Research Assistant in *Stochastic Hybrid Systems*, Iowa State University, IA, USA 01/2011–10/2014
- Model-based diagnosis, prognosis, and resiliency analysis in stochastic discrete-event and hybrid systems;
- Property verification and parameter synthesis to meet desired error bounds;
- Hybrid state estimation based on Bayesian filter for LTL requirement violation monitoring.
- Metrics development for behavioral confidentiality and resiliency of (electric) cyber-physical systems.

Undergraduate Research Assistant in *Embedded Control*, Zhejiang University, China 07/2008–06/2009
- Embedded controller development on Freescale microprocessor for intelligent autonomous vehicle.

HONORS AND RECOGNITIONS

Best Paper Award, IEEE Transactions on Automation Science and Engineering 2016
Associate Editor, Energy Systems 2016–present
INL Peer Recognition Award for Publication Achievement, 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
Associate Editor, Chinese Control & Decision Conference 2013–present
Outstanding Student, Zhejiang University 2008

EDUCATION

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, 3.72/4.0 06/2009

SELECTED PUBLICATIONS

Full list

- J. Chen and H. E. Garcia, "Economic Optimization of Operations for Hybrid Energy Systems under Variable Markets," *Applied Energy*, vol. 177, pp. 11-24, September 2016.
- J. Chen and R. Kumar, "Fault Detection of Discrete-Time Stochastic Systems Subject to Temporal Logic Correctness Requirements," *IEEE Trans. Auto. Sci. Eng.*, vol. 12, no. 4, pp. 1369-1379, October 2015.
- J. Chen and R. Kumar, "Stochastic Failure Prognosability of Discrete Event Systems," *IEEE Trans. Automatic Control*, vol. 60, no. 6, pp. 1570-1581, June 2015.
- J. Chen and R. Kumar, "Failure Detection Framework for Stochastic Discrete Event Systems with Guaranteed Error Bounds," *IEEE Trans. Automatic Control*, vol. 60, no. 6, pp. 1542-1553, June 2015.

SUMMARY

- Ph.D. in electrical engineering (control systems track), with minor in computer science;
- Research experience in control and optimization, failure diagnosis and prognosis, and formal methods;
- Professional with Matlab/Simulink, Python, and temporal logic.