Jiahui "Jason" GUO

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SUMMARY

EDUCATION

Doctor of Philosophy, Electrical Engineering and Computer Science
University of Tennessee, Knoxville, TN, US — Expected Aug. 2016
Advisor: Dr. Yilu Liu (*IEEE Fellow*), GPA 3.97

Master of Science, Electrical Engineering and Computer Science
Major in Power System, Minor in Computer Science
University of Tennessee, Knoxville, TN, US — May 2014
Advisor: Dr. Yilu Liu (*IEEE Fellow*), GPA 4.00

Bachelor of Science, Electrical Engineering
Tsinghua University, Beijing, China — Jul. 2011
Advisor: Dr. Chongqing Kang (*IET Fellow*), GPA 3.87

PROFESSIONAL EXPERIENCE

Graduate Research Assistant/Software Engineer — Aug. 2011 – present
CURENT (NSF/DOE funded Engineering Research Center), University of Tennessee, Knoxville, TN

- Developed real-time situational awareness applications for Wide Area Measurement System and data analytics tools for synchrophasor measurements in electric grid
  - Development and maintenance of the FNET software applications (including real-time applications, near-real-time disturbance analysis and alert programs, web service and synchrophasor measurement storage) (C++,C#)
  - Developed real-time applications (frequency-based event trigger, off-grid operation trigger) using openPDC (C#)
  - Designed database architecture for Frequency Digital Recorders information (SQL)
- Events and Oscillation Data Analysis
  - Utilized matrix pencil method for event oscillation analysis (MATLAB)
  - Proposed empirical mode decomposition and Yuler Walker algorithm for ambient frequency signal analysis (MATLAB)
  - Implemented web client to visualize the results in real-time (Javascript, CSS, AJAX)
- Photovoltaic Output Prediction
  - Proposed an ARMA forecasting model considering weather and radiation information (R)
  - Evaluated the prediction performace

Electric Transmission Operations Research Intern — Jul. 2014 – Jun. 2015
Dominion Virginia Power, Richmond, VA

- Enterprise Data Historian Project

  - Built asset data model Asset Framework (AF)
  - Integrated SAP with PI AF
  - Developed interactive data management tools based on PI AFSDK using C#.
  - Synchrophasor integration with PI system using OpenPDC PI Adaptor.

Technical Training Oct. 2014

OSIsoft, Philadelphia, PA

- Analyzing PI System Data
- Building PI Assets and Analytics with PI AF

Graduate Teaching Assistant Jan. 2012 – Jan. 2013

University of Tennessee, Knoxville, TN

- Courses: Introduction to Computers and Computing; Circuits I

Undergraduate Research Assistant Oct. 2010 – Jul. 2011

Lab of Electrical Economics and Information, Tsinghua University, Beijing, China.

- Bus Load Forecasting Considering the Interactive Nature of Smart Grid
  - Modeled bus load considering demand response of consumers
  - Proposed bus load forecasting approaches for different occasions in smart grid
  - Analyzed main factors in a bus load and consumers' behavior patterns

Quality Intern Jun. 2010 – Jul. 2010

Schneider Electric, Beijing, China.

- Worked on Incoming Quality Inspection(IQI), Quality Control(QC) and Quality Assurance(QA)
- Summarized supplier performance

Team Leader Jul. 2010 – Aug. 2010

Topics on Experimental Projects on Electronics, Tsinghua University, Beijing, China.

- Optimization of Power Flow with Interior Point Optimizer
  - Modeled a power flow problem based on C++
  - Implemented an interface with IPOPT to minimize network losses
  - Tested algorithm performance based on IEEE standard cases

TECHNICAL SKILLS

- Languages: C, C++, C#, Java, SQL, Matlab, R, Python
- Tools: Hadoop, Spark, Photoshop
- Operating System: Windows, Mac OSX, CentOS

HONORS

- Min H. Kao Fellowship, University of Tennessee, Knoxville, TN, US 2011
- Excellent Social Work Scholarship, Tsinghua University, China 2010
- Excellent Academic Scholarship, Tsinghua University, China 2009
- Second Price, Electronic Technology Practice, Tsinghua University, China 2009
- Excellent Academic Scholarship, Tsinghua University, China 2008
- Award for Student Excellence, Inner Mongolia, China 2006

PROFESSIONAL AFFILIATIONS AND SERVICES

- IEEE Power & Energy Society Member — Since 2014
- IEEE Student Member — Since 2014
- Reviewer for Journal IEEE Transaction on Power Systems
- Reviewer for Journal IEEE Transaction on Smart Grid
- Reviewer for Journal IEEE Transaction on Power Delivery
- Reviewer for Journal Electric Power Systems Research
- Reviewer for IEEE PES General Meeting, 2014 & 2015
- Reviewer for IEEE International Conference on Smart Grid Communications, 2015
- Reviewer for IEEE Global Communications Conference, Exhibition & Industry Forum, 2015
- Reviewer for IEEE PES Power Africa Conference, 2015
- Reviewer for IEEE Electric Utility Deregulation and Restructuring and Power Technologies International Conference, 2015
- Reviewer for IEEE PES Transmission & Distribution Conference & Exposition, 2016

PUBLICATIONS

Journal

[J1] **J. Guo**, Y. Zhang, M. A. Young, M. J. Till, A. Dimitrovski, Y. Liu, and P. Willliging, "Design and Implementation of a Real-Time Off-Grid Operation Detection Tool from a Wide-Area Measurements Perspective", *IEEE Trans. Smart Grid*, vol.6, no.4, pp. 2080-2087, 2015.

[J2] Y. Liu, L. Zhan, Y. Zhang, P.N. Markham, D. Zhou, **J. Guo**, Y. Lei, G. Kou, W. Yao, J. Chai and Y. Liu, "Wide-area Measurement System Development at the Distribution Level: a FNET/GridEye Example", *IEEE Trans. Power Delivery*, In Press.

[J3] C. Huang, F. Li, T. Ding, **J. Guo**, and Y. Liu, "A Bounded Model of the Communication Delay for System Integrity Protection Schemes", *IEEE Trans. Power Delivery*, under 2nd round review.

[J4] C. Huang, F. Li, **J. Guo**, J. Xu, and Y. Liu, "A Method to Mitigate the Effects of Communication Failure and Data Missing in WAMS", *Journal of Modern Power Systems and Clean Energy (MPCE)*, under review.

[J5] D. Zhou, **J. Guo**, Y. Zhang, J. Chai, H. Liu, X. Gui, and Y. Liu, "Distributed Data Analytics Platform for Wide-Area Synchrophasor Measurement Systems", *IEEE Trans. Smart Grid*, under review.

Conference

[C1] P. Markham, Y. Zhang, **J. Guo**, Y. Liu, T. Bilke, and D. Bertagnolli, "Analysis of frequency extrema in the Eastern and Western Interconnections, 2010 – 2011", in *Proc. IEEE 2014 Power and Energy Society General Meeting*, July 2012.

[C2] D. He, **J. Guo**, and W. Lin, "The impact of trading wind power in both energy and regulation reserve market on system operation", in *Proc. North American Power Symposium (NAPS)*, 2012.

[C3] **J. Guo**, Y. Zhang, T. King, Y. Liu, B. David, F. Nuroglu, F. Bai, and X. Wang, "Worldwide Power System Oscillations Observed by Distribution Level Phasor Measurements", in *CIGRE/EPRI Grid of the Future Symposium*, 2013.

[C4] **J. Guo**, Y. Ye, Y. Zhang, Y. Lei, and Y. Liu, "Events Associated Power System Oscillations Observation Based on Distribution-level Phasor Measurements", in *Proc. 2014 IEEE PES Transmission and Distribution Conference and Exposition*, April 2014.

[C5] Y. Zhang, Y. Liu, L. Chen, **J. Guo**, and Y. Liu, "Visualization of distribution level voltage magnitude pattern trend in EI system using FNET data", in *Proc. 2014 IEEE PES Transmission and Distribution Conference and Exposition*, April 2014.

[C6] Y. Lei, G. Kou, **J. Guo**, Y. Liu, and R. Nuqui, "Eastern Interconnection model reduction based on phasor measurements", in *Proc. 2014 IEEE PES Transmission and Distribution Conference and Exposition*, April 2014.

[C7] Y. Lei, Y. Zhang, **J. Guo**, D. Zhou, J. Culliss, P. Irminger, and Y. Liu, "The impact of synchronized human activities on power system frequency", in *Proc. IEEE 2014 Power and Energy Society General Meeting*, July 2014.

[C8] **J. Guo**, Y. Zhang, M. A. Young, M. J. Till, A. Dimitrovski, Y. Liu, and P. Williging, "Design and implementation of real-time off-grid detection tool based on FNET/GridEye", in *Proc. IEEE 2014 Power and Energy Society General Meeting*, July 2014.

[C9] **J. Guo**, H. Liu, D. Zhou, J. Chai, Y. Zhang, and Y. Liu, "Real-time Power System Electromechanical Mode Estimation Implementation and Visualization Utilizing Synchrophasor Data", in *Proc. 2016 IEEE PES Transmission and Distribution Conference and Exposition*, In Press.

[C10] H. Liu, **J. Guo**, W. Yu, T. Xia, R. Sun, M. Gardner, L. Zhu, and Y. Liu, "Design and Implementation of Enterprise-level Data Platform and Big Data Driven Applications", in *Proc. 2016 IEEE PES Transmission and Distribution Conference and Exposition*, under review.

[C11] J. Chai, J. Zhao, W. Yao, **J. Guo**, and Y. Liu, "Application of Wide Area Power System Measurement for Digital Authentication", in *Proc. 2016 IEEE PES Transmission and Distribution Conference and Exposition*, under review.

[C12] J. Chai, Y. Liu, **J. Guo**, L. Wu, D. Zhou, Y. Liu, T. King, M. A. Young and J. R. Gracia, "FNET/GridEye-based Wide-area Measurement Data Analytics", in *Proc. 2016 IEEE PES Power Systems Computation Conference (PSCC)*, under review.

Book Chapter

[B1] Y. Liu, Y. Liu, Y. Zhang, **J. Guo**, D. Zhou, "Wide Area Monitoring Through Synchrophasor Measurement", "Handbook of Smart Grid Development", Wiley, 2015, In Press.

PUBLIC SERVICES AND VOLUNTEER ACTIVITIES

- **Mentoring Undergraduate** Jan. 2014 – Jun. 2014
  University of Tennessee, Knoxville, TN, US
- **CURENT Educational Outreach** Sep. 2014
  Sequoyah Elementary School, Knoxville, TN, US
- **Publication Committee in Student Leadership Council** Jul. 2013 – Jun. 2014
  Center for Ultra-Wide-Area Resilient Electric Energy Transmission Networks, US
- **Vice President** Jul. 2009 – Jun. 2010
  Student Association of Science and Technology of EEA Department
  Tsinghua University, Beijing, China
- **Transportation Operation Assistant** Aug. 2008
  International Paralympic Committee, Beijing, China

- **Voluntary Teaching Team** Jul. 2008
  Guanping Elementary School, Yunnan Province, China