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| <i>Education</i> | MASSACHUSETTS INSTITUTE OF TECHNOLOGY Ph.D. in Electrical Engineering and Computer Science, June 2007. Major fields of study: Reliability Theory; Dynamic Systems and Control. | Cambridge, MA |
| | UNIVERSITY OF OVIEDO Ingeniero Industrial, June 2001 (Class 2001 Valedictorian). Major fields of study: Electric Power and Energy Systems. | Gijón, Spain |
| <i>Academic Positions</i> | UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING <i>Associate Professor</i> , August 2014 - Present. <i>Assistant Professor</i> , April 2008 - August 2014. COORDINATED SCIENCE LABORATORY <i>Associate Professor</i> , August 2014 - Present. <i>Assistant Professor</i> , October 2011 - August 2014. INFORMATION TRUST INSTITUTE <i>Associate Professor</i> , August 2014 - Present. <i>Assistant Professor</i> , October 2008 - August 2014. | Urbana, IL |
| | UNIVERSITY OF OVIEDO DEPARTMENT OF ELECTRICAL ENGINEERING <i>Assistant Professor</i> , September 2001 - August 2002. | Gijón, Spain |
| <i>Research Positions</i> | MASSACHUSETTS INSTITUTE OF TECHNOLOGY LABORATORY FOR ELECTROMAGNETIC AND ELECTRONIC SYSTEMS; AND SPACE EXPLORATION GROUP <i>Postdoctoral Research Associate</i> , June 2007 - March 2008. LABORATORY FOR ELECTROMAGNETIC AND ELECTRONIC SYSTEMS <i>Research Assistant</i> , October 2002 - May 2007. | Cambridge, MA |
| | RICARDO UK CAMBRIDGE TECHNICAL CENTRE <i>Research Intern</i> , Summer 2005. | Cambridge, UK |
| | ROBERT BOSCH GMBH CORPORATE RESEARCH AND DEVELOPMENT <i>Research Intern</i> , Summer 2004. | Stuttgart, Germany |

Awards and Honors

RESEARCH

Dean's Award for Excellence in Research (Formerly Xerox Award for Faculty Research), College of Engineering, University of Illinois at Urbana-Champaign, 2015.

Second Best Student Paper Award (with X. Jiang), North American Power Symposium, 2014.

Outstanding Young Engineer Award, IEEE Power and Energy Society, 2012.

Best Student Paper Award (with Y. C. Chen and X. Jiang), North American Power Symposium, 2011.

CAREER Award, National Science Foundation, 2010.

Best Student Paper Award, IEEE/AIAA Digital Avionics Systems Conference, 2006.

TEACHING

List of Teachers Ranked as Excellent by Their Students for ECE 554/ME 544: Dynamic System Reliability, University of Illinois at Urbana-Champaign, Spring 2015.

List of Teachers Ranked as Excellent by Their Students for ECE 476: Power System Analysis, University of Illinois at Urbana-Champaign, Fall 2014.

List of Teachers Ranked as Excellent by Their Students for ECE 598 ADG: Dynamic System Reliability, University of Illinois at Urbana-Champaign, Spring 2013.

List of Teachers Ranked as Excellent by Their Students for ECE 476: Power System Analysis, University of Illinois at Urbana-Champaign, Fall 2012.

List of Teachers Ranked as Excellent by Their Students for ECE 598 ADG: Dynamic System Reliability, University of Illinois at Urbana-Champaign, Spring 2011.

List of Teachers Ranked as Excellent by Their Students for ECE 330: Power Circuits and Electromechanics, University of Illinois at Urbana-Champaign, Fall 2008.

OTHER

William L. Everitt Scholar, University of Illinois at Urbana-Champaign, 2017 - Present.

Campus Distinguished Promotion Award, University of Illinois at Urbana-Champaign, 2014.

Participant (by invitation only), US Frontiers of Engineering Symposium, National Academy of Engineering, 2014.

Grainger Associate, Grainger Foundation, August 2011 - Present.

Presidential Fellow, MIT, 2002 - 2003.

Class 2001 Valedictorian, Escuela Técnica Superior de Ingenieros Industriales, University of Oviedo, 2001.

Journal Publications

[J44] J. Zhang, and A. D. Domínguez-García, "Evaluation of Demand Response Resource Aggregation System Capacity Under Uncertainty," *IEEE Transactions on Smart Grid*, to appear.

[J43] M. Zholbaryssov, and A. D. Domínguez-García, "Distributed Enforcement of Phase-Cohesiveness for Frequency Control of Islanded Inverter-Based Microgrids," *IEEE Transactions on Control of Network Systems*, to appear.

[J42] S. T. Cady, M. Zholbaryssov, A. D. Domínguez-García, C. N. Hadjicostis, "A Distributed Frequency Regulation Architecture for Islanded Inertia-Less AC Microgrids," *IEEE Transactions on Control Systems Technology*, to appear.

[J41] J. Zhang, and A. D. Domínguez-García, "On the Impact of Measurement Errors on Power System Automatic Generation Control," *IEEE Transactions on Smart Grid*, to appear.

[J40] Y. C. Chen, S. Dhople, A. D. Domínguez-García, and P. W. Sauer, "Generalized Injection Shift Factors," *IEEE Transactions on Smart Grid*, to appear.

- [J39] G. Rovatsos, X. Jiang, A. D. Domínguez-García, and V. V. Veeravalli, “Statistical Power System Line Outage Detection Under Transient Dynamics,” *IEEE Transactions on Signal Processing*, vol. 65, no. 11, 2787-2797, June 2017.
- [J38] J. T. Hughes, A. D. Domínguez-García, and K. Poolla, “Identification of Virtual Battery Models for Flexible Loads,” *IEEE Transactions on Power Systems*, vol. 31, no. 6, 4660-4669, November 2016.
- [J37] D. Apostolopoulou, A. D. Domínguez-García, and P. W. Sauer, “Balancing Authority Area Model and its Application to the Design of Adaptive AGC Systems,” *IEEE Transactions on Power Systems*, vol. 31, no. 5, 3756-3764, September 2016.
- [J36] B. Gharesifard, T. Başar, and A. D. Domínguez-García, “Price-Based Coordination of Networked Distributed Energy Resources,” *IEEE Transactions on Automatic Control*, vol. 61, no. 10, 2936-2946, October 2016.
- [J35] Y. C. Chen, J. Wang, A. D. Domínguez-García, and P. W. Sauer, “Measurement-Based Estimation of the Power Flow Jacobian Matrix,” *IEEE Transactions on Smart Grid*, vol. 7, no. 5, 2507-2515, September 2016.
- [J34] K. E. Van Horn, A. D. Domínguez-García, and P. W. Sauer, “Measurement-Based Real-Time Security-Constrained Economic Dispatch,” *IEEE Transactions on Power Systems*, vol. 31, no. 5, 3548-3560, September 2016.
- [J33] B. A. Robbins and A. D. Domínguez-García, “Optimal Reactive Power Dispatch for Voltage Regulation in Unbalanced Distribution Systems,” *IEEE Transactions on Power Systems*, vol. 61, no. 4, 2903-2913, July 2016.
- [J32] D. Apostolopoulou, A. D. Domínguez-García, and P. W. Sauer, “An Assessment of the Impact of Uncertainty on Automatic Generation Control Systems,” *IEEE Transactions on Power Systems*, vol. 61, no. 4, 2657-2665, July 2016.
- [J31] C. N. Hadjicostis, N. H. Vaidya, and A. D. Domínguez-García, “Robust Distributed Average Consensus via Exchange of Running Sums,” *IEEE Transactions on Automatic Control*, vol. 31, no. 6, 1492-1507, June 2016.
- [J30] L. DeVille, S. Dhople, A. D. Domínguez-García, and J. Zhang, “Moment Closure and Finite-Time Blowup for Piecewise Deterministic Markov Processes,” *SIAM Journal on Applied Dynamical Systems*, vol. 15, no. 1, pp. 526-556, January 2016.
- [J29] Y. C. Chen, T. Banerjee, A. D. Domínguez-García, and V. V. Veeravalli, “Quickest Line Outage Detection and Identification,” *IEEE Transactions on Power Systems*, vol. 31, no. 1, pp. 749-758, January 2016.
- [J28] B. A. Robbins, H. Zhu, and A. D. Domínguez-García, “Optimal Tap Setting of Voltage Regulation Transformers in Unbalanced Distribution Systems,” *IEEE Transactions on Power Systems*, vol. 31, no. 1, pp. 256-267, January 2016.
- [J27] S. T. Cady, A. D. Domínguez-García, and C. N. Hadjicostis, “A Distributed Generation Control Architecture for Islanded AC Microgrids,” *IEEE Transactions on Control Systems Technology*, vol. 23, no. 5, pp. 1717-1735, September 2015.
- [J26] A. D. Domínguez-García and C. N. Hadjicostis, “Distributed Resource Coordination in Networked Systems Described by Digraphs,” *Systems & Control Letters*, vol. 82, pp. 33-39, August 2015.
- [J25] Y. C. Chen, A. D. Domínguez-García, and P. W. Sauer, “A Sparse Representation Approach to Online Estimation of Power System Distribution Factors,” *IEEE Transactions on Power Systems*, vol. 30, no. 4, pp. 1727-1738, July 2015.
- [J24] A. Y.S. Lam, B. Zhang, A. D. Domínguez-García, and D. Tse, “An Optimal and Distributed Method for Voltage Regulation in Power Distribution Systems,” *IEEE Transactions on Power Systems*, vol. 30, no. 4, pp. 1714-1726, July 2015.
- [J23] S. Qin, S. T. Cady, A. D. Domínguez-García, and R. Pilawa-Podgurski, “A Distributed Approach to MPPT for PV Sub-Module Differential Power Processing,” *IEEE Transactions on Power Electronics*, vol. 30, no. 4, pp. 2024-2040, April 2015.

- [J22] Y. C. Chen, A. D. Domínguez-García, and P. W. Sauer, “Measurement-Based Estimation of Linear Sensitivity Distribution Factors and Applications,” *IEEE Transactions on Power Systems*, vol. 29, no. 3, pp.1372-1382, May 2014.
- [J21] S. V. Dhople, L. DeVille, and A. D. Domínguez-García, “A Stochastic Hybrid Systems Framework for Analysis of Markov Reward Models,” *Journal of Reliability Engineering and System Safety*, vol. 123, pp. 158-170, Mar. 2014.
- [J20] S. V. Dhople, Y. C. Chen, L. DeVille, and A. D. Domínguez-García, “Analysis of Power System Dynamics Subject to Stochastic Power Injections,” *IEEE Transactions on Circuits and Systems—I: Regular Papers*, vol. 60, no. 12, pp. 3341-3353, Dec. 2013.
- [J19] S. V. Dhople, Y. C. Chen, and A. D. Domínguez-García, “A Set-Theoretic Method for Parametric Uncertainty Analysis in Markov Reliability and Reward Models,” *IEEE Transactions on Reliability*, vol. 62, no. 3, pp. 658-669, Sep. 2013.
- [J18] X. Jiang, J. Zhang, B. Harding, J. Makela, and A. D. Domínguez-García, “Spoofing GPS Receiver Clock Offset of Phasor Measurement Units,” *IEEE Transactions on Power Systems*, vol. 28, no. 3, pp. 3253-3262, Aug. 2013.
- [J17] B. A. Robbins, C. N. Hadjicostis, and A. D. Domínguez-García “A Two-Stage Distributed Architecture for Voltage Control in Power Distribution Systems,” *IEEE Transactions on Power Systems*, vol. 28, no. 2, pp. 1470-1482, May 2013.
- [J16] X. Jiang, Y. C. Chen, and A. D. Domínguez-García, “A Set-Theoretic Framework to Assess the Impact of Variable Generation on the Power Flow,” *IEEE Transactions on Power Systems*, vol. 28, no. 2, pp. 855-867, May 2013.
- [J15] X. Ding, J. Poon, I. Celanovic, and A. D. Domínguez-García, “Fault Detection and Isolation Filters for Three-Phase Power Electronics Systems,” *IEEE Transactions on Circuits and Systems—I: Regular Papers*, vol. 60, no. 4, pp. 1038-1051, Apr. 2013.
- [J14] A. D. Domínguez-García and C. N. Hadjicostis, “Distributed Matrix Scaling and Application to Average Consensus in Directed Graphs,” *IEEE Transactions on Automatic Control*, vol. 58, no. 3, pp. 667-681, Mar. 2013.
- [J13] Y. C. Chen and A. D. Domínguez-García, “A Method to Study the Effect of Renewable Resource Variability on Power System Dynamics,” *IEEE Transactions on Power Systems*, vol. 27, no. 4, pp. 1978-1989, Nov. 2012.
- [J12] S. V. Dhople and A. D. Domínguez-García, “A Parametric Uncertainty Analysis Method for Markov Reliability and Reward Models,” *IEEE Transactions on Reliability*, vol. 61, no. 3, pp. 634-648, Sep. 2012.
- [J11] A. D. Domínguez-García, C. N. Hadjicostis, and N. H. Vaidya, “Resilient Networked Control of Distributed Energy Resources,” *IEEE Journal on Selected Areas in Communications: Smart Grid Communications Series*, vol. 30, no. 6, pp. 1137-1148, Jul. 2012.
- [J10] M. A. Müller and A. D. Domínguez-García, “Fault Coverage Modeling in Nonlinear Dynamical Systems,” *Automatica*, vol. 48, no. 7, pp. 1372-1379, Jul. 2012.
- [J9] S. V. Dhople and A. D. Domínguez-García, “Estimation of Photovoltaic System Reliability and Performance Metrics,” *IEEE Transactions on Power Systems*, vol. 27, no. 1, pp. 554-566, Feb. 2012.
- [J8] S. V. Dhople, A. Davoudi, P. L. Chapman and A. D. Domínguez-García, “A Unified Approach to Reliability Assessment of DC-DC Converters in Photovoltaic Energy-Conversion Systems,” *IEEE Transactions on Power Electronics*, vol. 27, no. 2, pp. 739-751, Feb. 2012.
- [J7] A. Bazzi, A. D. Domínguez-García, and P. T. Krein, “Markov Reliability Model of an Induction Motor Drive under Field-Oriented Control,” *IEEE Transactions on Power Electronics*, vol. 27 no. 2, pp. 534-546, Feb. 2012.
- [J6] E. Hope, X. Jiang, and A. D. Domínguez-García, “A Reachability-Based Method for Large-Signal Verification of DC-DC Converters,” *IEEE Transactions on Circuits and Systems—I: Regular Papers*, vol. 58, no. 12, pp. 2944-2955, Dec. 2011.

- [J5] S. Smater and A. D. Domínguez-García, “A Framework for Reliability of and Performance Assessment of Wind Energy Conversion Systems,” *IEEE Transactions on Power Systems*, vol. 26, no. 4, pp. 2235-2245, Nov. 2011.
- [J4] A. Tanwani, A. D. Domínguez-García, and D. Liberzon, “An Inversion-Based Approach to Fault Detection and Isolation in Switching Electrical Networks,” *IEEE Transactions on Control Systems Technology*, vol. 19, no. 5, pp. 1059-1074, Sep. 2011.
- [J3] A. D. Domínguez-García, J. G. Kassakian, J. E. Schindall, “A Generalized Fault Coverage Model for Linear Time-Invariant Systems,” *IEEE Transactions on Reliability*, vol. 58, no. 3, pp. 553-567, Sep. 2009.
- [J2] A. D. Domínguez-García, J. G. Kassakian, J. E. Schindall, and J. J. Zinchuk, “An Integrated Methodology for the Dynamic Performance and Reliability Evaluation of Fault-Tolerant Systems,” *Journal of Reliability Engineering and System Safety*, vol. 93, no. 11, pp. 1628-1649, Nov. 2008.
- [J1] A. D. Domínguez-García, J. G. Kassakian, and J. E. Schindall, “Reliability Evaluation of the Power Supply of an Electrical Power Net for Safety-Relevant Applications,” *Journal of Reliability Engineering and System Safety*, vol. 91, no. 5, pp. 505-514, May 2006.

Pending Journals

- [P2] D. Fooladivanda, M. Zholbaryssov, A. D. Domínguez-García, “Control of Networked Distributed Energy Resources in Grid-Connected AC Microgrids,” in review, submitted in January 2017.
- [P1] C. N. Hadjicostis, and A. D. Domínguez-García, “Distributed Balancing of Commodity Networks Under Flow Interval Constraints,” in review, submitted in December 2016.

Book Chapters

- [B5] O. O. Ajala, A. D. Domínguez-García, and P. W. Sauer, “A Hierarchy of Models for Inverter-Based Microgrids,” in *Energy Markets and Responsive Grids: Modeling, Control and Optimization*, S. Meyn, T. Samad, S. Glavaski, I. Hiskens, and J. Stoustrup (Eds.), Springer-Verlag, Berlin, 2017.
- [B4] S. V. Dhople, A. D. Domínguez-García, and P. T. Krein, “Stochastic Hybrid Systems Models for Performance and Reliability Evaluation of Power Electronic Systems,” in *Reliability of Power Electronic Converter Systems*, H. Shu-hung Chung, F. Blaabjerg, H. Wang, and M. G. Pecht (Eds.), The Institution of Engineering and Technology, 2015.
- [B3] A. D. Domínguez-García and C. N. Hadjicostis, “Coordination of Distributed Energy Resources for Provision of Ancillary Services: Architectures and Algorithms,” in *Encyclopedia of Systems and Control*, J. Baillieul, and T. Samad (Eds.) Springer-Verlag, London, 2015.
- [B2] C. N. Hadjicostis and A. D. Domínguez-García, “Distributed Average Consensus in Digraphs,” In *C4CBook Coordination Control of Distributed Systems*, J. H. van Schuppen, and T. Villa (Eds.), Springer-Verlag, Berlin, 2014.
- [B1] A. D. Domínguez-García, “Models for Impact Assessment of Wind-Based Power Generation on Frequency Control,” in *Control and Optimization Theory for Electric Smart Grids*, A. Chakraborty, and M. D. Ilić (Eds.), Springer-Verlag, Berlin, 2011.

Conference Publications

- [C72] X. Jiang, Y. C. Chen, A. D. Domínguez-García, V. V. Veeravalli, “Quickest Line Outage Detection and Identification: Measurement Placement and System Partitioning,” in *Proc. of the North American Power Symposium*, Morgantown, WV, September 2017.
- [C71] H. Xu, S. C. Utomi, A. D. Domínguez-García, and P. W. Sauer, “Coordination of Distributed Energy Resources in Lossy Networks for Providing Frequency Regulation,” in *Proc. of the IREP Bulk Power System Dynamics and Control Symposium*, Espinho, Portugal, August 2017.
- [C70] O. O. Ajala, M. Almeida, I. Celanovic, P. W. Sauer, and A. D. Domínguez-García, “A Hierarchy of Models for Microgrids With Grid-Feeding Inverters,” in *Proc. of the IREP Bulk Power System Dynamics and Control Symposium* Espinho, Portugal, August 2017.

- [C69] A. Cherukuri, A. D. Domínguez-García, and J. Cortes, “Distributed Coordination of Power Generators for a Linearized Optimal Power Flow Problem,” in Proc. of the IEEE American Control Conference, Seattle, WA, May 2017.
- [C68] J. T. Hughes, A. D. Domínguez-García, and K. Poolla, “Coordinating Heterogeneous Distributed Energy Resources for Provision of Frequency Regulation Services,” in Proc. of the Hawaii International Conference on System Sciences, Big Island, HI, January 2017.
- [C67] M. Zholbaryssov and A. D. Domínguez-García, “Exploiting Phase Cohesiveness for Frequency Control of Islanded Inverter-Based Microgrids,” in Proc. of the IEEE Control and Decision Conference, Las Vegas, NV, December 2016.
- [C66] C. N. Hadjicostis and A. D. Domínguez-García, “Distributed Balancing in Digraphs under Interval Constraints,” in Proc. of the IEEE Control and Decision Conference, Las Vegas, NV, December 2016.
- [C65] J. Zhang and A. D. Domínguez-García, “Augmenting the Power System Toolbox: Enabling Automatic Generation Control and Providing a Platform for Cyber Security Analysis,” in Proc. of the North American Power Symposium, Denver, CO, September 2016.
- [C64] G. Rovatsos, X. Jiang, A. D. Domínguez-García, and V. V. Veeravalli, “Comparison of Statistical Algorithms for Power System Line Outage Detection,” in Proc. of the IEEE International Conference on Acoustics, Speech, and Signal Processing, Shanghai, China, March 2016.
- [C63] S. T. Cady, A. D. Domínguez-García, and C. N. Hadjicostis, “Distributed Frequency Control of Inertia-Less AC Microgrids,” in Proc. of the IEEE Control and Decision Conference, Osaka, Japan, December 2015.
- [C62] D. Apostolopoulou, P. W. Sauer, and A. D. Domínguez-García, “Distributed Optimal Load Frequency Control and Balancing Authority Area Coordination,” in Proc. of the North American Power Symposium, Charlotte, NC, October 2015.
- [C61] K. E. Van Horn, A. D. Domínguez-García, and P. W. Sauer, “Sensitivity-Based Line Outage Angle Factors,” in Proc. of the North American Power Symposium, Charlotte, NC, October 2015.
- [C60] D. Apostolopoulou, P. W. Sauer, and A. D. Domínguez-García, “Balancing Authority Area Coordination with Limited Exchange of Information,” in Proc. of the IEEE Power and Energy Society General Meeting, Denver, CO, July 2015.
- [C59] K. E. Van Horn, A. D. Domínguez-García, and P. W. Sauer, “Measurement-Based Real-Time Economic Dispatch,” in Proc. of the IEEE Power and Energy Society General Meeting, Denver, CO, July 2015.
- [C58] J. T. Hughes, A. D. Domínguez-García, and K. Poolla, “Virtual Battery Models for Load Flexibility from Commercial Buildings,” in Proc. of the Hawaii International Conference on System Sciences, Kauai, HI, January 2015.
- [C57] S. T. Cady, A. D. Domínguez-García, and C. N. Hadjicostis, “Finite-Time Approximate Consensus and its Application to Distributed Frequency Regulation in Islanded AC Microgrids,” in Proc. of the Hawaii International Conference on System Sciences, Kauai, HI, January 2015.
- [C56] C. N. Hadjicostis and A. D. Domínguez-García, “Convergence Rate of a Distributed Algorithm for Matrix Scaling to Doubly Stochastic Form,” in Proc. of the IEEE Control and Decision Conference, Los Angeles, CA, December 2014.
- [C55] J. Zhang, L. DeVille, S. V. Dhople, A. D. Domínguez-García, “A Maximum Entropy Approach to the Moment Closure Problem for Stochastic Hybrid Systems at Equilibrium,” in Proc. of the IEEE Control and Decision Conference, Los Angeles, CA, December 2014.
- [C54] Y. C. Chen, A. D. Domínguez-García, and P. W. Sauer, “Generalized Injection Shift Factors and Application to Estimation of Power Flow Transients,” in Proc. of the North American Power Symposium, Pullman, WA, September 2014.
- [C53] X. Jiang and A. D. Domínguez-García, “A Zonotope-Based Method for Uncertainty Analysis in Power Systems with Renewable Generation,” in Proc. of the North American Power Symposium, Pullman, WA, September 2014. **Second Best Student Paper Award.**

- [C52] J. Zhang and A. D. Domínguez-García, “On the Impact of Communication Delays on Power System Automatic Generation Control Performance,” in Proc. of the North American Power Symposium, Pullman, WA, September 2014.
- [C51] B. Gharesifard, T. Başar, and A. D. Domínguez-García, “Designing pricing strategies for coordination of networked distributed energy resources,” in Proc. of IFAC World Congress, Cape Town, South Africa, August 2014.
- [C50] D. Apostolopoulou, A. D. Domínguez-García, and P. W. Sauer, “Online Estimation of Power System Actual Frequency Response Characteristic,” in Proc. of the IEEE Power and Energy Society General Meeting, Washington, DC, July 2014.
- [C49] J. Zhang and A. D. Domínguez-García “On the Failure of Power System Automatic Generation Control due to Measurement Noise,” in Proc. of the IEEE Power and Energy Society General Meeting, Washington, DC, July 2014.
- [C48] T. Banerjee, Y. C. Chen, A. D. Domínguez-García, and V. Veeravalli, “Power System Line Outage Detection and Identification—A Quickest Change Detection Approach, in Proc. of the IEEE International Conference on Acoustics, Speech, and Signal Processing, Florence, Italy, May 2014.
- [C47] S. V. Dhople, K. A. Kim, and A. D. Domínguez-García, “Time-Optimal Control in Dc-Dc Converters: a Maximum Principle Perspective,” in Proc. of the IEEE Applied Power Electronics Conference and Exposition, Forth Worth, TX, March 2014.
- [C46] L. Heng, J. Makela, A. D. Domínguez-García, R. Bobba, W. Sanders, and G. Xingxin Gao, “Reliable GPS-Based Timing for Power Systems: A Multi-Layered Multi-Receiver Architecture,” in Proc. of the Power and Energy Conference at Illinois, Urbana, IL, February 2014.
- [C45] D. Apostolopoulou, P. W. Sauer, and A. D. Domínguez-García, “Automatic Generation Control and its Implementation in Real Time,” in Proc. of the Hawaii International Conference on System Sciences, Big Island, HI, January 2014.
- [C44] Y. C. Chen, A. D. Domínguez-García, and P. W. Sauer, “Online Estimation of Power System Distribution Factors—A Sparse Representation Approach,” in Proc. of the North American Power Symposium, Manhattan, KS, September 2013.
- [C43] B. A. Robbins, H. Zhu, and A. D. Domínguez-García, “Optimal Tap Settings for Voltage Regulation Transformers in Distribution Networks,” in Proc. of the North American Power Symposium, Manhattan, KS, September 2013.
- [C42] J. Zhang, A. D. Domínguez-García, and P. W. Sauer, “Online Transmission Line Loadability Assessment Using Synchrophasor Measurements,” in Proc. of the North American Power Symposium, Manhattan, KS, September 2013.
- [C41] B. Zhang, A. D. Domínguez-García, and D. Tse, “A Local Control Approach to Voltage Regulation in Distribution Networks,” in Proc. of the North American Power Symposium, Manhattan, KS, September 2013.
- [C40] S. Qin, S. T. Cady, A. D. Domínguez-García, and R. Pilawa-Podgurski, “A Distributed Approach to MPPT for PV Sub-Module Differential Power Processing,” in Proc. of the IEEE Energy Conversion Congress and Exposition, Denver, CO, September 2013.
- [C39] Y. C. Chen, P. Sauer and A. D. Domínguez-García, “Online Computation of Power System Linear Sensitivity Distribution Factors,” in Proc. of the IREP Bulk Power System Dynamics and Control Symposium, Crete, Greece, August 2013.
- [C38] D. Apostolopoulou, Y. C. Chen, J. Zhang, A. D. Domínguez-García, and P. Sauer, “Effects of Various Uncertainty Sources on Automatic Generation Control Systems,” in Proc. of the IREP Bulk Power System Dynamics and Control Symposium, Crete, Greece, August 2013.
- [C37] B. Gharesifard, T. Başar, and A. D. Domínguez-García, “Price-Based Distributed Control for Networked Plug-in Electric Vehicles,” in Proc. of the IEEE American Control Conference, Washington, DC, June 2013.

- [C36] K. E. Reinhard, P. W. Sauer, and A. D. Domínguez-García, “On Computing Power System Steady-State Stability via Synchrophasor Data,” in Proc. of the Hawaii International Conference on System Sciences, Maui, HI, January 2013.
- [C35] A. D. Domínguez-García, S. T. Cady, and C. N. Hadjicostis, “Decentralized Optimal Dispatch of Distributed Energy Resources,” in Proc. of the IEEE Control and Decision Conference, Maui, HI, December 2012. **Invited**
- [C34] C. N. Hadjicostis, A. D. Domínguez-García, and N. H. Vaidya, “Resilient Average Consensus in the Presence of Heterogeneous Packet Dropping Links,” in Proc. of the IEEE Control and Decision Conference, Maui, HI, December 2012.
- [C33] N. H. Vaidya, C. N. Hadjicostis, and A. D. Domínguez-García, “Robust Average Consensus over Packet Dropping Links: Analysis via Coefficients of Ergodicity,” in Proc. of the IEEE Control and Decision Conference, Maui, HI, December 2012.
- [C32] S. Dhople, R. Bell, J. Ehlmann, A. Davoudi, P. Chapman and A. D. Domínguez-García, “A Global Maximum Power Point Tracking Method for Photovoltaic Module Integrated Converters,” in Proc. of the IEEE Energy Conversion Congress and Exposition, Raleigh, SC, September 2012.
- [C31] S. T. Cady and A. D. Domínguez-García, “Distributed Generation Control of Small-Footprint Power Systems,” in Proc. of the North American Power Symposium, Champaign, IL, September 2012.
- [C30] S. Dhople and A. D. Domínguez-García, “A Framework to Determine the Probability Density Function for the Output Power of Wind Farms,” in Proc. of the North American Power Symposium, Champaign, IL, September 2012.
- [C29] J. Poon, A. Genic, X. Ding, A. D. Domínguez-García, and I. Celanovic, “A Linear-Switched Observer for Large-Signal State Estimation on Power Electronics,” in Proc. of the IEEE Energy Conversion Congress and Exposition—Europe, Novi Sad, Serbia, September 2012.
- [C28] A. D. Domínguez-García, “Reliability Modeling of Cyber-Physical Electric Power Systems: A System-Theoretic Framework” in Proc. of the IEEE Power and Energy Society General Meeting, San Diego, CA, July 2012. **Invited**.
- [C27] Q. Zhu, J. Zhang, P. Sauer, A. D. Domínguez-García, and T. Başar, “A Game-Theoretic Framework for Distributed Generation of Renewable Energies in Smart Grids,” in Proc. of the IEEE American Control Conference, Montreal, Canada, June 2012.
- [C26] A. Subramanian, M. Garcia, A. D. Domínguez-García, D. Callaway, K. Poolla, and P. Varaiya, “Real-time Scheduling of Deferrable Electric Loads,” in Proc. of the IEEE American Control Conference, Montreal, Canada, June 2012.
- [C25] A. D. Domínguez-García and C. N. Hadjicostis, “Distributed Strategies for Average Consensus in Directed Graphs,” in Proc. of the IEEE Control and Decision Conference, Orlando, FL, December 2011.
- [C24] A. D. Domínguez-García and C. N. Hadjicostis, “Distributed Algorithms for Control of Demand Response and Distributed Energy Resources,” in Proc. of the IEEE Control and Decision Conference, Orlando, FL, December 2011. **Invited**
- [C23] B. A. Robbins, A. D. Domínguez-García, and C. N. Hadjicostis, “Control of Distributed Energy Resources for Reactive Power Support,” in Proc. of the North American Power Symposium, Boston, MA, August 2011.
- [C22] S. T. Cady, A. D. Domínguez-García, and C. N. Hadjicostis, “Robust Implementation of Distributed Algorithms for Control of Distributed Energy Resources,” in Proc. of the North American Power Symposium, Boston, MA, August 2011.
- [C21] Y. C. Chen, X. Jiang, and A. D. Domínguez-García, “Impact of Power Generation Uncertainty on Power System Static Performance,” in Proc. of the North American Power Symposium, Boston, MA, August 2011. **Best Student Paper Award**.
- [C20] A. D. Domínguez-García, C. N. Hadjicostis, P. T. Krein, and S. T. Cady, “Small Inverter-Interfaced Distributed Energy Resources for Reactive Power Support,” in Proc. of the IEEE Applied Power Electronics Conference and Exposition, Fort Worth, TX, February 2011.

- [C19] A. M. Bazzi, X. Ding, A. D. Domínguez-García, and P. T. Krein, “Circuit-Based Induction Motor Drive Reliability under Different Control Schemes and Safe-Mode Operation,” in Proc. of the IEEE Applied Power Electronics Conference and Exposition, Fort Worth, TX, February 2011.
- [C18] A. M. Bazzi, K. A. Kim, B. B. Johnson, P. T. Krein, and A. D. Domínguez-García, “Fault Impacts on Solar Power Unit Reliability,” in Proc. of the IEEE Applied Power Electronics Conference and Exposition, Fort Worth, TX, February 2011.
- [C17] C. Chen and A. D. Domínguez-García “Assessing the Impact of Wind Variability on Power System Small-Signal Reachability,” in Proc. of the Hawaii International Conference on System Sciences, Kuauai, HI, January 2011.
- [C16] A. D. Domínguez-García and S. Trenn, “Detection to Impulsive Effects in Switched DAEs with Application to Power Electronics Reliability Analysis,” in Proc. of the IEEE Control and Decision Conference, Atlanta, GA, December 2010.
- [C15] A. D. Domínguez-García and C. N. Hadjicostis, “Coordination and Control of Distributed Energy Resources for Provision of Ancillary Services,” in Proc. of IEEE International Conference on Smart Grid Communication, Gaithersburg, MD, October 2010.
- [C14] K. Levin, E. Hope, and A. D. Domínguez-García, “Observer-Based Fault Diagnosis of Power Electronics Systems,” in Proc. of the IEEE Energy Conversion Congress and Exposition, Atlanta, GA, September 2010.
- [C13] S. Smater and A. D. Domínguez-García, “A Unified Framework for Reliability Assessment of Wind Energy Conversion Systems,” in Proc. of the IEEE Power and Energy Society General Meeting, Minneapolis, MN, July 2010.
- [C12] S. V. Dhople, A. Davoudi, P. L. Chapman, and A. D. Domínguez-García, “Integrating Photovoltaic Inverter Reliability into Energy Yield Estimation with Markov Models,” in Proc. of the IEEE Workshop on Control and Modeling for Power Electronics, Boulder, CO, June 2010.
- [C11] M. Müller and A. D. Domínguez-García, “On Input-to-State Stability Notions for Reachability Analysis of Power Systems,” in Proc. of the IEEE International Symposium on Circuits and Systems, Paris, France, June 2010.
- [C10] A. Bazzi, A. D. Domínguez-García, and P. T. Krein, “A Method for Impact Assessment of Faults on the Performance of Field-Oriented Control Drives: A First Step to Reliability Modeling,” in Proc. of the IEEE Applied Power Electronics Conference and Exposition, Palm Springs, CA, February 2010.
- [C9] S. C. Chang, F. M. Yaul, A. D. Domínguez-García, F. O’Sullivan, D. M. Otten, and J. H. Lang, “Harvesting Energy from Moth Vibrations During Flight,” in Proc. of the International Workshop on Micro and Nanotechnologies for Power Generation and Energy Conversion Applications, Washington, DC, December 2009.
- [C8] E. Hope and and A. D. Domínguez-García, “Design Verification of Power Electronics Systems Subject to Uncertainty,” in Proc. of the IEEE Energy Conversion Congress and Exposition, San Jose, CA, September 2009.
- [C7] S. V. Dhople, A. Davoudi, P. L. Chapman, and A. D. Domínguez-García, “Reliability Assessment of Fault-Tolerant DC-DC Converters for Photovoltaic Applications,” in Proc. of the IEEE Energy Conversion Congress and Exposition, San Jose, CA, September 2009.
- [C6] G. Hanuschak, N. Harrison, E. Crawley, S. Hall, A. D. Domínguez-García, J. West, and N. Dennehy, “A Comparison of Fault-Tolerant GN&C System Architectures Using the Object Process Network (OPN) Modeling Language,” in Proc. of the AIAA Guidance, Navigation and Control Conference and Exhibit, Chicago, IL, August 2009.
- [C5] A. D. Domínguez-García and P. T. Krein, “A Framework for Multi-Level Reliability Evaluation of Electrical Energy Systems,” in Proc. of the IEEE Conference on Global Sustainable Energy Infrastructure, Atlanta, GA, November 2008.
- [C4] A. D. Domínguez-García and P. T. Krein, “Integrating Reliability into the Design of Fault-Tolerant Power Electronic Systems,” in Proc. of the IEEE Power Electronics Specialist Conference, Rhodes, Greece, June 2008.

[C3] A. D. Domínguez-García, G. Z. Hanuschak, S. R. Hall, and E. F. Crawley, “A Comparison of Guidance, Navigation and Control Architectural Approaches for Robotic and Human-Rated Spacecraft,” in Proc. of the AIAA Guidance, Navigation and Control Conference and Exhibit, Hilton Head, SC, August 2007.

[C2] A. D. Domínguez-García, J. G. Kassakian, J. E. Schindall, and J. J. Zinchuk, “On the Use of Behavioral Models for the Integrated Performance and Reliability Performance Evaluation of Fault-Tolerant Avionics Systems,” in Proc. of the IEEE/AIAA Digital Avionics Systems Conference, Portland, OR, October 2006. **Best Student Paper Award.**

[C1] A. D. Domínguez-García, J. G. Kassakian, and J. E. Schindall, “A Backup System for Automotive Steer-by-Wire, Actuated by Selective Braking,” in Proc. of the IEEE Power Electronics Specialist Conference, Aachen, Germany, June 2004.

Technical Reports

[R10] O. O. Ajala, A. D. Domínguez-García, and P. W. Sauer, *A Hierarchy of Models for Inverter-Based Microgrids*, Coordinated Science Laboratory Technical Report UILU-ENG-17-2201, University of Illinois at Urbana-Champaign, May 2017.

[R9] S. T. Cady, A. D. Domínguez-García, C. N. Hadjicostis, *A Distributed Generation Control Architecture for Small-Footprint Power Systems*, Coordinated Science Laboratory Technical Report UILU-ENG-13-2206, University of Illinois at Urbana-Champaign, July 2013.

[R8] S. V. Dhople, L. DeVile, and A. D. Domínguez-García, *A stochastic hybrid systems framework for analysis of Markov reward models*, Coordinated Science Laboratory Technical Report UILU-ENG-13-2205, University of Illinois at Urbana-Champaign, June 2013.

[R7] Author, *IEEE Vision for Smart Grid Controls: 2030 and Beyond*, IEEE Control Systems Society and IEEE Standards Association, July 2013.

[R6] X. Jiang, B. Harding, J. Makela, and A. D. Domínguez-García, *Spoofing GPS Receiver Clock Offset of Phasor Measurement Units*, Coordinated Science Laboratory Technical Report UILU-ENG-12-2205, University of Illinois at Urbana-Champaign, June 2012.

[R5] A. D. Domínguez-García, C. N. Hadjicostis, and N. H. Vaidya, *Distributed Algorithms for Consensus and Coordination in the Presence of Packet-Dropping Communication Links, Part I: Statistical Moments Analysis Approach*, Coordinated Science Laboratory Technical Report UILU-ENG-11-2207, University of Illinois at Urbana-Champaign, September 2011.

[R4] N. H. Vaidya, C. N. Hadjicostis, and A. D. Domínguez-García, *Distributed Algorithms for Consensus and Coordination in the Presence of Packet-Dropping Communication Links Part II: Coefficients of Ergodicity Analysis Approach*, Coordinated Science Laboratory Technical Report UILU-ENG-11-2208, University of Illinois at Urbana-Champaign, September 2011.

[R3] Contributor, *Reliability Considerations from Integration of Smart Grid*, North American Reliability Corporation, December 2010.

[R2] Contributor, *Grainger Center for Electric Machinery and Electromechanics Annual Report*, University of Illinois at Urbana-Champaign, 2009, 2010, 2011, 2012, 2013, and 2014.

[R1] Contributor, *Power Affiliates Program Annual Report*, University of Illinois at Urbana-Champaign, 2009, 2010, 2011, 2012, 2013, and 2014.

Theses

A. D. Domínguez-García, *An Integrated Methodology for the Performance and Reliability Evaluation of Fault-Tolerant Systems*, Ph.D. Thesis, Massachusetts Institute of Technology, Cambridge, MA, June 2007.

A. D. Domínguez-García, *Refurbishment and Improvement of a 27/5 kV - 10 MVA Power Substation for a Coal Mine*, M.S. Thesis, University of Oviedo, Spain, September 2001.

Other Publications

S. Purandare, S. Qin, S.-V. Dhople, A. D. Domínguez-García, R. Pilawa-Podgurski, and L. L. Goddard, *Harnessing Energy*, L. L. Goddard, Editor.

- Invited Talks* *Assessing the impact of uncertainty on Demand Response Aggregation System*, IEEE Power and Energy Society General Meeting, Chicago, IL, July 2017.
- Distributed Enforcement of Phase-Cohesiveness for Frequency Control of Islanded Inverter-Based Microgrids*, IEEE Power and Energy Society General Meeting, Chicago, IL, July 2017.
- Architectures and Algorithms for Distributed Generation Control of Inertia-Less AC Microgrids*, Renewable Energy Analysis Laboratory Seminar, University of Washington, Seattle, WA, May 2017.
- Architectures and Algorithms for Distributed Generation Control of Inertia-Less AC Microgrids*, IEEE Smart Grid, Webinar, February 2017.
- Architectures and Algorithms for Distributed Generation Control of Inertia-Less AC Microgrids*, Power Systems Engineering Research Center, Webinar, November 2016.
- Architectures and Algorithms for Distributed Generation Control of Inertia-Less AC Microgrids*, Rigorous Systems Research Group Seminar, California Institute of Technology, Pasadena, CA, October 2016.
- Architectures and Algorithms for Distributed Generation Control of Inertia-Less AC Microgrids*, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN, May 2016.
- Decentralized Control of Distributed Resources for Emerging Applications in Electric Power Systems*, Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, November 2015.
- Decentralized Control and Coordination of Distributed Resources and its Application in Emerging Electrical Energy Systems*, Department of Electrical and Computer Engineering, University of Cyprus, Nicosia, Cyprus, November 2014.
- Decentralized Control and Coordination of Distributed Resources and its Application in Emerging Electrical Energy Systems*, Automatic Control Laboratory, ETH, Zurich, Switzerland, November 2014.
- Decentralized Control of Distributed Energy Resources and its Application to Microgrid Generation Control*, Department of Electrical Engineering and Computer Science, Missouri University of Science and Technology, Rolla, MO, October 2014.
- Decentralized Approaches to Control and Coordination of Distributed Resources*, Department of Mechanical and Aerospace Engineering, University of California San Diego, La Jolla, CA, May 2014.
- Measurement-Based Estimation of Linear Sensitivity Distribution Factors and Applications*, Department of Electrical Engineering and Computer Science, University of Tennessee, Knoxville, TN, March 2014.
- Decentralized Approaches to Control and Coordination of Distributed Energy Resources*, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, January 2014.
- Distributed Algorithms for Resource Coordination in Networked Systems Described by Directed Graphs*, Applied Math Seminar, University of Illinois at Urbana-Champaign, Urbana, IL, November 2013.
- Decentralized Approaches to Control and Coordination of Distributed Energy Resources*, NSF Workshop on Computing, Control, and Signal Processing Challenges in Future Power Systems, Washington, DC, November 2013.
- Decentralized Approaches to Control and Coordination of Distributed Energy Resources*, Central Illinois Section IEEE Chapter, Urbana, IL, October 2013.
- Decentralized Approaches to Control and Coordination of Distributed Energy Resources*, Northeastern University, Boston, MA, August 2013.
- Decentralized Approaches to Control and Coordination of Distributed Energy Resources*, Google, Mountain View, CA, July 2013.
- Decentralized Approaches to Control and Coordination of Distributed Energy Resources*, Systems Sciences Seminar, University of Michigan, Ann Arbor, MI, April 2013.

A Price-Based Approach to Control of Networked DERs, Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Rutgers University, Piscataway, NJ, February 2013.

Decentralized Optimal Coordination of Distributed Energy Resources, Department of Industrial and Enterprise Systems Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, November 2012.

Decentralized Optimal Coordination of Distributed Energy Resources, Symposium on Critical Challenges at the Interface of Mathematics and Engineering, Initiative for Mathematical Sciences and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, September 2012.

Reliability Modeling of Cyber-Physical Electric Power Systems: A System-Theoretic Framework, IEEE Power and Energy Society General Meeting, San Diego, CA, July 2012.

Engineering Reliable Electrical Energy Systems: Smart Grid Applications for 2020 and Beyond, University of Illinois ECE Department Alumni Event, Austin TX, April 2012.

Decentralized Optimal Coordination of Distributed Energy Resources, Energy Systems Seminar, University of Texas at Austin, Austin, TX, April 2012.

Reliability Engineering for Electrical Energy Systems 2020: Smart Grid Applications and Beyond, University of Castilla – La Mancha, Toledo, Spain, December, 2011.

Distributed Algorithms for Control of Demand Response and Distributed Energy Resources, Energy Group Seminar, Stanford University, Stanford, CA, December 2011.

Reliability Engineering for Electrical Energy Systems 2020: Smart Grid Applications and Beyond, Foundations of Information Engineering Seminar, Cornell University, New York, NY, November 2011.

Reliability Engineering for Electrical Energy Systems 2020: Smart Grid Applications and Beyond, Center for Sustainable Energy, Notre Dame University, South Bend, IN, October 2011.

Reliability Engineering for Electrical Energy Systems 2020: Smart Grid Applications and Beyond, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, October 2011.

Reliability Engineering for Electrical Energy Systems 2020: Smart Grid Applications and Beyond, Laboratory for Information and Decision Systems, MIT, Cambridge, MA, August 2011.

Coordination and Control of Distributed Energy Resources for Provision of Ancillary Services, Center for Nonlinear Studies, Los Alamos National Laboratory, NM, June 2011.

Reliability Engineering for Electrical Energy Systems 2020: Smart Grid Applications and Beyond, Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, Berkeley, CA, April 2011.

Coordination and Control of Distributed Energy Resources for Provision of Ancillary Services, Center for Information Systems and Engineering, Boston University, Boston, MA, April 2011.

Coordination and Control of Distributed Energy Resources for Provision of Ancillary Services, Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, April 2011.

Coordination and Control of Distributed Energy Resources for Provision of Ancillary Services, Power Systems Seminar, University of Wisconsin – Madison, January 2011.

Coordination and Control of Distributed Energy Resources for Reactive Power Support, TRUST Security Seminar, University of California, Berkeley, Berkeley, CA, November 2010.

Coordination and Control of Distributed Energy Resources for Reactive Power Support, Power Systems Control and Automation Laboratory, Georgia Tech., Atlanta, GA, September 2010.

Reliability Engineering: From Aerospace and Automotive Applications to Electric Power Systems, School of Engineering, University of Oviedo, Spain, May 2010.

Impact of Wind Variability on Power System Small-Signal Reachability, Electric Power and Energy Systems Seminar, Iowa State University, Ames, IA, April 2010.

Impact of Wind Variability on Power System Small-Signal Reachability, Department of Electrical and Computer Engineering, University of Iowa, Iowa City, IA, April 2010.

Reliability Engineering for Next Generation Electrical Energy Systems, Electric Power Systems Seminar, Arizona State University, Tempe, AZ, October 2009.

Reliability Engineering for Next Generation Electrical Energy Systems, Central Illinois Section IEEE Chapter, Urbana, IL, September 2009.

Advanced Methods for Reliability Evaluation and Design Validation, Hamilton Sundstrand, Rockford, IL, January 2009.

Design for Reliability of Energy Processing Systems, Rock Valley Section IEEE Chapter, Rockford, IL, January 2009.

Integrating Reliability into the Design of Energy Processing Systems, Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, January 2009.

Design for Reliability of Energy Processing Systems, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, October 2008.

Integrating Reliability into the Design of Fault-Tolerant Power Electronics Systems, Laboratory for Electromagnetic and Electronic Systems, MIT, Cambridge, MA, July 2008.

New Frontiers in the Analysis, Design and Optimization of Ultra-Reliable Electronic Systems, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, May 2007.

A Comparison of Conceptually Different Approaches to Achieve Fault-Tolerance in Steer-by-Wire Systems, MIT/Industry Consortium on Advance Automotive Electrical/Electronic Components and Systems, Seattle, WA, April 2007.

An Integrated Methodology for the Performance and Reliability Evaluation of Fault-Tolerant Systems, Mechanical Engineering Department, Oregon State University, Corvallis, OR, October 2006.

Modeling for Reliability of Electrical Power Net Architectures for X-by-Wire Systems, MIT/Industry Consortium on Advance Automotive Electrical/Electronic Components and Systems, Barcelona, Spain, October 2004.

Use of Differentiated Backup Mechanisms to Improve X-by-Wire Reliability, MIT/Industry Consortium on Advance Automotive Electrical/Electronic Components and Systems, San Diego, CA, April 2004.

A Study of Fault-Tolerant approaches to X-by-Wire systems, MIT/Industry Consortium on Advanced Automotive Electrical/Electronic Components and Systems, Tokyo, Japan, October 2003.

*Invited
Workshops*

Analytic Research Foundations for the Next Generation Electric Grid, National Research Council, Beckman Center, February 2015.

Energy Infrastructure: Designing for Stability and Resilience, Center for Discrete Mathematics and Computer Science, Rutgers University, February 2013.

Computational Needs for the Next Generation Electric Grid, Department of Energy, Cornell University, April 2011.

Energy and Power Educational Programs Development, NSF/Electrical and Computer Engineering Department Heads Association, October 2010.

New Research Directions for Future Cyber-Physical Energy Systems, NSF, June 2009.

Service

PROFESSIONAL ORGANIZATIONS

Chair, University Education Subcommittee, Power and Energy Education Committee, IEEE Power and Energy Society, July 2013 - July 2015.

Vice-chair, University Education Subcommittee, Power and Energy Education Committee, IEEE Power and Energy Society, July 2012 - July 2013.

Secretary, University Education Subcommittee, Power and Energy Education Committee, IEEE Power and Energy Society, July 2011 - July 2012.

Chair, Reliability Engineering of Cyber-Physical Electrical Energy Systems Task Force, Reliability, Risk and Probability Applications Subcommittee, IEEE Power and Energy Society; July 2010 - July 2014.

Chair, Distinguished Lecturer Program Committee, IEEE Power Electronics Society, March 2011 - December 2012.

Member, IEEE Control Systems Society, January 2012 - Present.

Member, IEEE Communications Society, Member, January 2011 - December 2011.

Member, IEEE Reliability Society, Member, January 2008 - December 2012.

Member, Reliability, Risk and Probability Applications Subcommittee, IEEE Power and Energy Society, July 2008 - Present.

Member, IEEE Power and Energy Society, January 2008 - Present.

Member, IEEE Power Electronics Society, January 2008 - Present.

Member, IEEE, October 2002 - Present.

EDITORSHIPS

Editor, IEEE Transactions on Power Systems, July 2011 - Present.

Editor, IEEE Power Engineering Letters, June 2012 - Present.

Guest Editor, IEEE Journal on Selected Areas in Communications, Series on Smart Grid Communications, 2014.

Guest Editor, Guest Editor, IEEE Transactions on Energy Conversion, Special Issue on Advanced Distributed Control of Energy Conversion Devices and Systems, 2014.

Guest Editor, IEEE Transactions on Power Electronics, Special Issue on Robust Design and Reliability in Power Electronics, 2014.

CONFERENCE ORGANIZATION

Technical Program Committee Member, “Control and Operation of Responsive Grids” IEEE International Conference on Smart Grid Communications, October 2017.

Session Organizer, “Mathematical Challenges in Electric Power System,” Allerton Conference on Communication, Control, and Computing, October 2017.

Webinar Organizer, Power Systems Engineering Research Center, January 2017 - Present.

Session Organizer, “Control and Optimization in Energy Systems,” Allerton Conference on Communication, Control, and Computing, October 2015.

Session Organizer, “Control and Optimization in Electrical Energy Systems: Smart Grid Applications and Beyond,” Allerton Conference on Communication, Control, and Computing, October 2014.

Symposium Co-Chair, “Support for Storage, Renewable Resources and Micro-grids,” IEEE International Conference on Smart Grid Communications, October 2013.

Session Organizer, “Control and Optimization Problems in Electrical Energy Systems,” Allerton Conference on Communication, Control, and Computing, October 2013.

General Chair, North American Power Symposium, September 2012.

Session Organizer, “Pricing and Control in Power Systems and Markets,” Allerton Conference on Communication, Control, and Computing, October 2012.

Session Organizer, “Emerging Paradigms for Control and Optimization in Power Grids,” Allerton Conference on Communication, Control, and Computing, October 2011.

Symposium Co-Chair, “Architectures and Models for the Smart Grid,” IEEE International Conference on Smart Grid Communications, October 2011.

Session Organizer, “Engineering Reliable and Trustworthy Cyber-Physical Electric Power Systems,” Allerton Conference on Communication, Control, and Computing, October 2010.

Panel Organizer, “Engineering Reliable Cyber-Physical Electrical Energy Systems,” IEEE Power and Energy Society General Meeting, July 2010.

JOURNAL REVIEWS

IEEE Transactions on Power Systems.

IEEE Transactions on Power Electronics.

IEEE Transactions on Energy Conversion.

IEEE Transactions on Automatic Control.

IEEE Transactions on Smart Grid.

IEEE Transactions on Control Systems Technology.

IEEE Transactions on Circuits and Systems.

Electric Power Systems Research.

PROPOSAL REVIEW AND PANELS

National Science Foundation, 2009 - Present.

Department of Energy, 2013 - Present.

UNIVERSITY COMMITTEES

Member, Energy and Sustainability Engineering Council, College of Engineering, 2017 - Present.

Member, Coordinator of Undergraduate Research Search Committee, College of Engineering, 2013 - 2014.

Member, ECE Department Head Search Committee, Department of Electrical and Computer Engineering, 2013 - 2014. *Member*, Coordinator of Undergraduate Research Search Committee, College of Engineering, 2013 - 2014.

Member (elected), Assistant Professor Rank, Advisory Committee Department of Electrical and Computer Engineering, August 2013 - August 2014.

Chair, Graduate Recruitment Committee, Department of Electrical and Computer Engineering, September 2013 - August 2015.

Member, Graduate Recruitment Committee, Department of Electrical and Computer Engineering, September 2011 - Present.

Member, Curriculum Committee, Department of Electrical and Computer Engineering, September 2010 - Present.

Member, Fellowships Committee, Department of Electrical and Computer Engineering, September 2010 - August 2011.

Member, Scholarships, Student Awards, and Honors Committee, Department of Electrical and Computer Engineering, September 2008 - August 2010.

Member, Graduate Committee, Department of Electrical and Computer Engineering, September 2008 - August 2010.

Advising

Ph.D. THESES

Olaoluwapo O. Ajala, TBD.

Madi Zholbaryssov, TBD.

Xichen Jiang, *Real-Time Power System Topology Change Detection and Identification*, University of Illinois at Urbana-Champaign, August 2016.

Jiangmeng Zhang, *A Unified Framework for Impact Evaluation of Cyber-Physical Events on Power Systems*, University of Illinois at Urbana-Champaign, August 2016.

Justin Hughes, *A Framework for Enabling the Utilization of Flexible Loads to Provide Frequency Regulation*, University of Illinois at Urbana-Champaign, May 2016.

Stanton Cady, *Architectures and Algorithms for Distributed Generation Control of Microgrids*, University of Illinois at Urbana-Champaign, May 2016.

Kai Van Horn, *Real-Time Power System Operational Reliability Tools*, University of Illinois at Urbana-Champaign, December 2015.

Brett Robbins, *Architectures and Algorithms for Voltage Control in Power Distribution Systems*, University of Illinois at Urbana-Champaign, May 2015.

Christine Chen, *Measurement-Based Tools for Power System Monitoring and Operations*, University of Illinois at Urbana-Champaign, December 2014.

Sairaj Dhople, *Renewable Electric Power Systems Energy Yield and Performance Evaluation*, University of Illinois at Urbana-Champaign, December 2012.

M.S. THESES

Samuel C. Utomi, TBD.

Madi Zholbaryssov, *Fault Detection and Isolation in Switched Linear Systems and Applications*, University of Illinois at Urbana-Champaign, May 2014.

Justin Hughes, *Type-C Wind Turbine Model Order Reduction and Parameter Identification*, University of Illinois at Urbana-Champaign, December 2012.

Jiangmeng Zhang, *On the Application of PMU Measurements to Power System Stability Analysis*, University of Illinois at Urbana-Champaign, December 2012.

Stanton Cady, *Robust Implementation of Algorithms for Distributed Generation Control of Small-Footprint Power Systems*, University of Illinois at Urbana-Champaign, December 2012.

Xiangyu Ding, *Observer-Based Fault Detection Filters for Three-Phase Inverters and STATCOMs*, University of Illinois at Urbana-Champaign, May 2012.

Xichen Jiang, *Spoofing GPS Receiver Clock Offset of Phasor Measurement Units*, University of Illinois at Urbana-Champaign, May 2012.

Kieran Levin, *Observer-Based Fault Detection in DC-DC Power Converters*, University of Illinois at Urbana-Champaign, May 2012.

Jarod Delhotal, *Observer-Based Fault Detection and Isolation for Motor Drive Inverters*, University of Illinois at Urbana-Champaign, December 2011.

Brett Robbins, *Distributed Algorithms for Voltage Control in Electrical Networks*, University of Illinois at Urbana-Champaign, May 2011.

Christine Chen, *Assessing Renewable Resource Penetration on Power System Small-Signal Reachability*, University of Illinois at Urbana-Champaign, May 2011.

Sebastian Smater, *A Framework for Assessing the Reliability of Wind Energy Conversion Systems*, University of Illinois at Urbana-Champaign, December 2009.

Frank Lam, *A tool for Reliability Analysis of Electrical Power Systems*, University of Illinois at Urbana-Champaign, December 2009.

Eric Hope, *Design Verification of Power Electronics Systems Subject to Bounded Uncertain Inputs*, University of Illinois at Urbana-Champaign, December 2009.

SENIOR THESES

Roy Bell, *A Global Maximum Power Point Tracking Method for PV Module Integrated Converters*, University of Illinois at Urbana-Champaign, December 2011.

Justin Hughes, *Predictive Model for Estimating Wind Farm Power Output*, University of Illinois at Urbana-Champaign, December 2010.

Xiangyu Ding, *Simulation Tool for Analyzing Reliability of Electrical Energy System*, University of Illinois at Urbana-Champaign, May 2010.

Xichen Jiang, *Experimental Verification of Ellipsoidal Bounding Techniques for Power Electronic Systems Subject to Uncertain Inputs*, University of Illinois at Urbana-Champaign, May 2010.

POSTDOCTORAL RESEARCH ASSOCIATES

Dariush Fooladivanda, March 2016 - Present.

Teaching

UNIVERSITY FORMAL CURRICULUM

ECE 554/ME 544: Dynamic System Reliability, University of Illinois at Urbana-Champaign, Spring 2015.

ECE 476: Power System Analysis, University of Illinois at Urbana-Champaign, Fall 2014.

ECE 313: Probability with Engineering Applications, University of Illinois at Urbana-Champaign, Spring 2014.

ECE 476: Power System Analysis, University of Illinois at Urbana-Champaign, Fall 2013.

ECE 598 ADG: Dynamic System Reliability, University of Illinois at Urbana-Champaign, Spring 2013 (included in the University of Illinois List of Teachers Ranked As Excellent).

ECE 476: Power System Analysis, University of Illinois at Urbana-Champaign, Fall 2012 (included in the University of Illinois List of Teachers Ranked As Excellent).

ECE 333: Green Electric Energy, University of Illinois at Urbana-Champaign, Spring 2012.

ECE 333: Green Electric Energy, University of Illinois at Urbana-Champaign, Fall 2012.

ECE 333: Green Electric Energy, University of Illinois at Urbana-Champaign, Spring 2011.

ECE 598 ADG: Dynamic System Reliability, University of Illinois at Urbana-Champaign, Spring 2011 (included in the University of Illinois List of Teachers Ranked As Excellent).

ECE 476: Power System Analysis, University of Illinois at Urbana-Champaign, Fall 2010.

ECE 333: Green Electric Energy, University of Illinois at Urbana-Champaign, Spring 2010.

ECE 476: Power System Analysis, University of Illinois at Urbana-Champaign, Fall 2009.

ECE 598 ADG: Dynamic System Reliability, University of Illinois at Urbana-Champaign, Spring 2009.

ECE 330: Power Circuits and Electromechanics, University of Illinois at Urbana-Champaign, Fall 2008 (included in the University of Illinois List of Teachers Ranked As Excellent).

Electric Circuit Theory, University of Oviedo, Spring 2002.

SHORT COURSES

Guest Lecturer, Sustainable Energy, University of Illinois Laboratory High School, Course Director: S. Denos, 2015, and 2017.

Coordinator and Instructor, Power and Energy Module, Cena y Ciencias Program: An NSF-sponsored scientific outreach program for the students in the English-Spanish language program at Urbana's Dr. Preston L. Williams and Leal Schools, Program Coordinators: R. Diaz, F. Menanteau, R. J. Whitaker, S. M. Wald, 2017.

Coordinator and Instructor, Girls Learning Electrical Engineering: A Summer Camp for Female High-School Students, University of Illinois at Urbana-Champaign, Camp Coordinator: L. L. Goddard, 2010, 2011, 2012, 2013, and 2014.

Instructor, Illini Summer Academies: A Summer Camp for High-School Students, University of Illinois at Urbana-Champaign, Camp Coordinator: L. L. Goddard, 2012, 2013, and 2014.

COURSE DEVELOPMENT

ECE 554/ME 544 (formerly ECE 598 ADG): Dynamic System Reliability, Electrical and Computer Engineering Department and Mechanical Science and Engineering Department, University of Illinois at Urbana-Champaign.

Doctoral Committees E. Candan, *Improving Data Center Power Delivery Efficiency with Differential Power Processing and Multi-Level Power Converters*, TBD, Advisor: R. Pilawa-Podgurski.

M. Liu, *Decentralized Optimization Approach for Power Distribution Network and Microgrid Controls*, TBD, Advisor: H. Zhu.

K. E. Reinhard, *Power System Dynamic Modeling and Synchrophasor Measurements*, May 2017, Advisor: P. W. Sauer.

T. Hutchins, Ph.D., *Modeling, Simulation, and Mitigation of the Impacts of the Late Time (E3) High-Altitude Electromagnetic Pulse on Power Systems*, December 2015, Advisor: T. J. Overbye.

R. Bhana, Ph.D., *Methods to Ensure the Adequate Primary Frequency Response of Low Inertia Power Systems*, May 2015, Advisor: T. J. Overbye.

D. Apostolopoulou, Ph.D., *Enhanced Automatic Generation Control with Uncertainty*, December 2014, Advisor: P. W. Sauer.

T. Banarjee, Ph.D. *Data-Efficient Quickest Change Detection*, August 2014, Advisor: V. V. Veeravalli.

K. A. Kim, Ph.D., *Hot Spot Detection and Protection Methods for Photovoltaic Systems*, August 2014, Advisor: P. T. Krein.

S. A. Kim, Ph.D., *Power System Analysis Criteria-Based Computational Efficiency Enhancement for Power Flow and Transient Stability*, August 2014, Advisor: T. J. Overbye

R. Chen, Ph.D., *Model-Based Fault Detection and Diagnosis of Selective Catalytic Reduction Systems for Diesel Engines*, August 2014, Advisor: X. Wang

V. T. Buyukdegirmenci, *A Framework for Dynamic Characterization and Short-term Thermal Capability Assessment of Electric Machines and Inverters in Motor Drives*, May 2014, Advisor: P. T. Krein.

Y. Degeilh, *Stochastic Simulation of Power Systems with Integrated Renewable and Utility-Scale Storage Resources*, May 2014, Advisor: G. Gross.

A. S. Kowli, *Reinforcement Learning Techniques for Controlling Resources in Power Networks*, University of Illinois at Urbana-Champaign, May 2013. Advisor: S. P. Meyn.

B. B. Johnson, *Control, Analysis, and Design of Distributed Inverter Systems*, University of Illinois at Urbana-Champaign, May 2013. Advisor: P. T. Krein.

N. Jain, *Thermodynamics-Based Optimization and Control of Integrated Energy Systems*, University of Illinois at Urbana-Champaign, May 2013. Advisor: A G. Alleyne.

S. Dutta, *Data Mining and Graph Theory Focused Solutions to Smart Grid Challenges*, University of Illinois at Urbana-Champaign, December 2012. Advisor: T. J. Overbye.

- M. A. Negrete-Pincetic, *Intelligence by Design in an Entropic Power Grid*, University of Illinois at Urbana-Champaign, December 2012. Advisor: S. P. Meyn.
- A. T. Becker, *Ensemble Control of Robotic Systems*, University of Illinois at Urbana-Champaign, August 2012. Advisor: T. W. Bretl.
- Y. Kuai, *Comprehensive Optimization and Practical Design of Power Electronic Systems Under Multiple Competing Performance Demands*, University of Illinois at Urbana-Champaign, August 2012. Advisor: P. L. Chapman.
- P. S. Shenoy, *Improving Performance, Efficiency, and Reliability of DC-DC Conversion Systems by Differential Power Processing*, University of Illinois at Urbana-Champaign, August 2012. Advisor: P. T. Krein.
- A. K. Tanwani, *Invertibility and Observability of Switched Systems with Inputs and Outputs*, University of Illinois at Urbana-Champaign, December 2011. Advisor: D. M. Liberzon.
- K. M. Rogers, *Data-Enhanced Applications for Power Systems Analysis*, University of Illinois at Urbana-Champaign, December 2011. Advisor: T. J. Overbye.
- H. A. Pulgar Painemal, *Wind Farm Model for Power System Stability Analysis*, University of Illinois at Urbana-Champaign, December 2010. Advisor: P. W. Sauer.
- A. A. Aquino-Lugo, *Distributed and Decentralized Control of the Power Grid*, University of Illinois at Urbana-Champaign, December 2010. Advisor: T. J. Overbye.
- A. M. Bazzi, *Designing Better Induction Motor Drive Systems from Efficiency, Reliability, and Power Electronics Perspectives*, University of Illinois at Urbana-Champaign, December 2010. Advisor: P. T. Krein.
- C. M. Davis, *Multiple Event Contingency Screening*, University of Illinois at Urbana-Champaign, May 2009. Advisor: T. J. Overbye.
- B. C. Rackowski, *Identification of Critical Lines for Power System Operational Reliability Assessment*, University of Illinois at Urbana-Champaign, December 2008. Advisor: P. W. Sauer.
- J. E. Tate, *Event Detection and Visualization Based on Phasor Measurement Units for Improved Situational Awareness*, University of Illinois at Urbana-Champaign, August 2008. Advisor: T. J. Overbye.