



Washington University in St. Louis

JAMES MCKELVEY SCHOOL OF ENGINEERING

Preston M. Green Department of Electrical and Systems Engineering

Bruno Sinopoli

Das Family Distinguished Professor and Department Chair

One Brookings Drive | Campus Box 1042

Saint Louis, MO 63130

Ph: (510) 367-1848

bsinopoli@wustl.edu

Education

Degree	Discipline	University	Date
Laurea	Electrical Engineering	Università di Padova	1998
M.S.	Electrical Engineering	UC Berkeley	2003
Certificate	Management of Technology	UC Berkeley	2005
Ph.D.	Electrical Engineering	UC Berkeley	2005

Areas of expertise

Smart Infrastructures (e.g. energy, transportation, buildings), Resilient Cyber-Physical Systems, Networked and Distributed Control Systems, Distributed Inference in Networks, Control of Computing Systems, Energy Systems, Neuro-inspired Learning and Control.

Positions

Center for Trustworthy AI in Cyber-Physical Systems

James McKelvey School of Engineering, Washington University in St. Louis, St Louis, MO

Founder and Director, January 2020 - Present

Department of Electrical and Systems Engineering, Washington University in St Louis, St. Louis, MO

Das Family Distinguished Professor and Department Chair, January 2019 – Present

Progress Tech Transfer Fund, investment fund specialized in sustainable technologies, Milano, MI, Italy

Member of the technical scientific committee, July 2021– Present

Washington University in St. Louis, Campus Box 1042, One Brookings Drive, St. Louis, Missouri 63130-4899

Phone: (314) 935-5565, Fax: (314) 935-7500, www.es.e.wustl.edu

Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.

Adjunct Professor, January 2019 - Present

Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.

Professor, July 2017-December 2018.

Courtesy appointments: Robotics Institute and Mechanical Engineering.

Affiliation with SII, Cylab, PDL, NETL fellow.

Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.

Associate Professor, July 2012-June 2017.

Institute for Complex Engineered Systems, Carnegie Mellon University, Pittsburgh, PA.

Co-director, Smart Infrastructure Institute, May 2013- December 2019.

Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA.

Assistant Professor, March 2007-July 2012.

Department of Electrical Engineering, Stanford University, Palo Alto, CA.

Postdoctoral fellow, November 2005-February 2007 (60% appointment).

Department of Electrical Engineering and Computer Science, University of California, Berkeley, CA.

Postdoctoral Fellow, November 2005, February 2007 (40% appointment).

A.T. Kearney Management Consulting, Milano, Italy, summer 2001.

Summer Associate in the telecommunications group.

Awards and Honors

1. *IEEE Fellow*, 2021 for contributions to networked and secure control systems
2. Microsoft Indoor Localization Competition, winners in the infrastructure-based category, at IPSN 2015 with Patrick Lazik, Niranjini Rajagopal, Oliver Shih, and Anthony Rowe.
<http://research.microsoft.com/en-us/events/indoorlocompetition2015/>
3. Chaires Internationales, Universite' Libre de Bruxelles, 2012.
4. George Tallman Ladd Research Award, Carnegie Institute of Technology, Carnegie Mellon, 2010.
5. NSF Career Award, NSF, February 2010.
6. Eli Jury Award, University of California, Berkeley, 2006.
7. Best student paper award finalist, Asian Control Conference, ASCC, 2009 (as advisor).
8. Best student paper award finalist, IEEE Conference on Decision and Control, 2007 (as advisor).
9. Best student paper award finalist, IEEE Conference on Decision and Control, 2003.

Washington University in St. Louis, Campus Box 1042, One Brookings Drive, St. Louis, Missouri 63130-4899

Phone: (314) 935-5565, Fax: (314) 935-7500, www.eese.wustl.edu

Postdoctoral scholars and Visiting scientists

1. Carmel Fisco, Postdoctoral Scholar, Washington University in St Louis: September 2023- Present
2. Mehdi Hosseinzadeh, Postdoctoral Scholar, Washington University in St Louis: October 2019- August 2022
Current Position: Assistant professor of Mechanical Engineering, Washington State University
3. Raffaele Romagnoli, Postdoctoral Scholar, Carnegie Mellon University, January 2019- August 2022
Current Position: Research Scientist, Carnegie Mellon University
4. Dario Stabili: January 2019- July 2019.
Current position: Postdoctoral Scholar, Department of Computer Science at University of Modena and Reggio Emilia, Modena, Italy
5. Massimiliano D'angelo: January 2019- July 2019.
Current position: Research Scientist, Department of Computer, Control and Management Engineering at University of Roma La Sapienza, Rome, Italy
6. Giovanni Burresti: September 2017- December 2018.
Current position: Research Scientist, Department of Political, Social Cognitive Sciences at University of Siena, Italy
7. Omur Ozel, March 2017- August 2018.
Current position: Assistant Professor, Department of Electrical Engineering at George Washington University, Washington, DC
8. Elias Bou-Harb, September 2015- December 2015.
Current position: Associate Professor of Computer Science at Louisiana State University, Baton Rouge, LA
9. Nicola Forti, September 2015- May 2016.
Current position: Research Scientist at Centre for Maritime Research and Experimentation (CMRE), STO NATO, La Spezia, Italy
10. Walter Lucia, September 2015- May 2016
Current position: Associate Professor at Institute for Information Systems Engineering, Concordia University, Montreal, Canada
11. Emanuele Garone, January 2010- May 2010
Current position: Professor at Faculté des Sciences Appliquées/école Polytechnique, Université Libre de Bruxelles, Brussels, Belgium
12. Roberto Ambrosino, 2008-2009
Current position: Professor at Department of Electrical Engineering, Università degli Studi di Napoli PARTHENOPE, Naples, Italy

Graduate Student Advising

Ph.D. Students

1. Shubham Natraj, September 2023- Present
2. Haoyu Yin, June 2022- Present
3. Jonathan Gornet, August 2019- Present
4. Bahram Yaghooti, August 2019- Present
5. Carmel Fiscio, "Modeling, Analysis, and Design of Influence in Multi-Agent Systems", 2017–2023 (co-advised with S. Kar)
Present Position: Postdoctoral Fellow at Washington University in St. Louis (to move to Cornell, 2/1/2024)
6. Paul Griffioen, "Resilient Cyber-Physical Systems", 2016 –2022 (co-advised with B. Krogh)
Present Position: Postdoctoral Fellow at UC Berkeley, in EECS
7. John (Adam) Costanzo, "Data-Driven Learning of Large Causal Structures “QuICly” using Quotient Graphical Independence Models," 2014 - 2020.
Present Position: Research Scientist at Texas Instruments, Dallas, TX
8. Niranjini Rajagopal, " Localization, Beacon Placement and Mapping for Range-Based Indoor Localization Systems," 2012 - 2019. (co-advised with A. Rowe)
Present Position: Research Scientist at Amazon, Seattle, WA
9. Xiaofei Liu, "Robust Structural Observability of Dynamical Networks," 2012 - 2018.
Present Position: Senior Software Engineer, LinkedIn, Mountain View, CA
10. Sean Weerakkody, "Active Detection for Resilient Cyber-Physical Security," 2012 - 2018.
Present Position: Senior Professional Staff, Applied Physics Laboratory, Johns Hopkins University
11. Xiaoqi Yin, "Resource Allocation in Smart Infrastructure: Case Studies in Video Delivery and Electric Power Networks," 2010 - 2016.
Present Position: Software Engineer, Google Inc.
12. Sabina Zejnilovic, "Localizing a diffusion source on graphs: analysis and design of node selection strategies," August 2010 - May 2016. (co-advised with J. P. Gomes)
Present Position: Data Scientist, Cloudflare, Portugal
13. Rohan Chabukswar, "Secure Detection in Cyber-Physical Control Systems," August 2009 - May 2014.
Present Position: Chief Technologist, Collins Aerospace, Cork, Ireland

14. Jonathan D. Taylor, "Robust Bode Methods for the Analysis and Control of Nonlinear and Multivariable Systems," January 2009 - May 2013. (co-advised with W. Messner)
Present Position: VP of Robotics and AI, Hummingbird Systems, Pittsburgh, PA
15. Dragana Bajovic, "Event Detection in Large Scale Sensor Networks," August 2008 - May 2013. (co-advised with J. Xavier). Dragana received the **A.G. Milnes Award**, awarded to a graduating ECE PhD student for the PhD thesis work judged to be of the highest quality and which has had or is likely to have significant impact in her field.
Present Position: Associate Professor, University of Novi Sad, Novi Sad, Serbia
16. Yilin Mo, "Secure and Dependable Control Systems," August 2007 - December 2012.
Present Position: Associate Professor, Department of Automation at Tsinghua University, Beijing, China
17. Luca Parolini, "Models, Metrics, and Control Strategies for Data Centers," September 2007 - December 2010. (co-advised with B. Krogh)
Present Position: Research engineer at BMW A.G., Munich, Germany
18. James Weimer, "Large-Scale Multi-Source Detection Using Wireless Sensor Networks," August 2006 - May 2010. (co-advised with B. Krogh).
Present Position: Assistant Professor of Computer Science, Vanderbilt University, Nashville, TN

Master's Students

1. Sindhura Chayapathy, "Design of an Indoor Localization System," May 2015 - May 2016. co-advised with A. Rowe
2. Tejal Kudav, "Sensory Supplementation via Echolocation," September 2014 - May 2015. co-advised with P. Grover, L. Heller.
3. David Pearson, "Synchrophasor GPS Security," August 2011 - May 2013.
4. Xiaorui Wang, "Climbing Robots Development and Coordination," January 2010 - December 2010.
5. Mohammadreza Aghajani, "Dynamic Power Allocation in Server Farms", August 2008 - May 2010.
6. Vinay Gunasekaran, "Modeling of Smart Valve Networks," January 2009 - December 2009. co-advised with W. Messner
7. Aakash Shah, "Enhancing the integrity of SCADA and control system devices," September 2007 - May 2008. co-advised with A. Perrig
8. Lucas Balthazar, "Distributed Optimization", June 2021

Teaching Activities

Courses taught:

Undergraduate: Mathematical Foundations of Electrical Engineering, Signals and Systems, Fundamentals of Control, Embedded Control Systems

Graduate: Wireless Sensor Networks, Linear Systems, Networked Control Systems.

Published Intellectual Contributions

Book Chapters

1. S. Weerakkody, O. Ozel, Y. Mo and B. Sinopoli, "Resilient Control in Cyber-Physical Systems: Countering Uncertainty, Constraints, and Adversarial Behavior", *Foundations and Trends in Systems and Control*: Vol. 7: No. 1-2, pp 1-252, 2019.
2. S. Weerakkody and B. Sinopoli, "Challenges and Opportunities: Cyber-Physical Security in the Smart Grid", in "Smart Grid Control: Opportunities and Research Challenges", pp. 257-273, Springer Verlag, 2019, DOI: 10.1007/978-3-319-98310-3_16.
3. B. Sinopoli and J. Costanzo, "Modeling Dynamical Phenomena in the Era of Big Data", in "Principles of Modeling", Essays dedicated to Edward A. Lee on the occasion of his 60th Birthday, pp. 162-181, Springer Verlag, 2018, DOI: 10.1007/978-3-319-95246-8.
4. B. Sinopoli, A. Perrig, H.J. Kim and Y. Mo, "Security of Cyber-Physical Systems", in "Cyber-Physical Systems", Chapter 7, SEI Series in Software Engineering, Addison-Wesley Professional, 2017.
5. L. Parolini, B. Sinopoli and B. Krogh, "Models and Control Strategies for Data Centers in the Smart Grid", in "Control and Optimization Methods for Electric Smart Grids", Vol. 3 of the series "Power Electronics and Power Systems", pp. 223-237, Springer Verlag, 2011.
6. R. Ambrosino, B. Sinopoli, K. Poolla, "Optimal Sensor Scheduling for Remote Estimation Over Wireless Sensor Networks", In "Modelling, Estimation and Control of Networked Complex Systems", part of the series "Understanding Complex Systems", pp. 127-142, Springer Verlag, 2009.
7. E. Garone, B. Sinopoli and A. Casavola, "On the effect of packet acknowledgment on the stability and performance of Networked Control Systems", In "Modelling, Estimation and Control of Networked Complex Systems", part of the series "Understanding Complex Systems", pp. 191-206, Springer Verlag, 2009.

Archival Papers in Journals Critically Reviewed Before Publication

1. P. Griffioen, B. Krogh and B. Sinopoli, "Ensuring Resilience Against Stealthy Attacks on Cyber-Physical Systems", *IEEE Transactions on Automatic Control*, to appear.

2. P. Griffioen, R. Romagnoli, B. Krogh and B. Sinopoli, "Reducing Attack Opportunities Through Decentralized Event-Triggered Control", *IEEE Transactions on Control of Network Systems*, doi: 10.1109/TCNS.2023.3343151.
3. C. Fisco, S. Kar and B. Sinopoli "Clustered Control of Transition-Independent MDPs", *IEEE Transactions on Control of Network Systems*, doi: 10.1109/TCNS.2023.3330925.
4. M. Hosseinzadeh, B. Sinopoli, I. Kolmanovsky and S. Baruah, "Robust to Early Termination Model Predictive Control," *IEEE Transactions on Automatic Control*, doi: 10.1109/TAC.2023.3308817.
5. M. Hosseinzadeh, B. Sinopoli and A. F. Bobick, "Toward Safe and Efficient Human–Robot Interaction via Behavior-Driven Danger Signaling," in *IEEE Transactions on Control Systems Technology*, vol. 32, no. 1, pp. 214-224, Jan. 2024, doi: 10.1109/TCST.2023.3305100
6. W. Lucia, G. Franzè, B. Sinopoli, "A Supervisor-based Control Architecture for Constrained Cyber-Physical Systems Subject to Network Attacks", *IEEE Transactions on Control of Network Systems*, vol. 10, no. 3, pp. 1184-1194, Sept. 2023, doi: 10.1109/TCNS.2022.3182098
7. R. Romagnoli, B. H. Krogh, D. d. Niz, A. D. Hristozov and B. Sinopoli, "Runtime System Support for CPS Software Rejuvenation," in *IEEE Transactions on Emerging Topics in Computing*, vol. 11, no. 3, pp. 594-604, 1 July-Sept. 2023, doi: 10.1109/TETC.2023.3267899.
8. Dario Stabili, Raffaele Romagnoli, Mirco Marchetti, Bruno Sinopoli, Michele Colajanni, "A multidisciplinary detection system for cyber attacks on Powertrain Cyber Physical Systems", *Future Generation Computer Systems*, Vol. 144, 2023, Pages 151-164, ISSN 0167-739X, <https://doi.org/10.1016/j.future.2023.02.019>.
9. M. Hosseinzadeh, K. Shankar, M. Apostolaki, J. Ramachandran, S. E. Adams, V. Sekar, B. Sinopoli, "CANE: A Cascade-Control Approach for Network-Assisted Video QoE Management", *IEEE Transactions on Control Systems Technology*, vol. 31, no. 6, pp. 2543-2554, Nov. 2023, doi: 10.1109/TCST.2023.3267716.
10. R. Romagnoli, B. H. Krogh, D. de Niz, A. Hristozov, B. Sinopoli, "Software Rejuvenation for Safe Operation of Cyber-Physical Systems in the Presence of Run-time Cyber Attacks", *IEEE Transactions on Control Systems Technology*, vol. 31, no. 4, pp. 1565-1580, July 2023, doi: 10.1109/TCST.2023.3236470.
11. M. Hosseinzadeh, B. Sinopoli, I. V. Kolmanovsky, S. Baruah, "MPC-Based Emergency Vehicle-Centered Multi-Intersection Traffic Control", *IEEE Transactions on Control Systems Technology*, vol. 31, no. 1, pp. 166-178, Jan. 2023, doi: 10.1109/TCST.2022.3168610.
12. M. Pirani, M. Hosseinzadeh, J. A. Taylor, and B. Sinopoli, "Optimal Active Fault Detection in Inverter-Based Grids", *IEEE Transactions on Control Systems Technology*, vol. 31, no. 3, pp. 1411-1417, May 2023, doi: 10.1109/TCST.2022.3207661.

13. M. Hosseinzadeh, B. Sinopoli, I. Kolmanovsky, and S. Baruah, "ROTEC: Robust to Premature Termination Command Governor for Systems with Limited Computing Capacity", *Systems and Control Letters*, Volume 161, 2022, 105142, ISSN 0167-6911, <https://doi.org/10.1016/j.sysconle.2022.105142>.
14. B. Yaghooti, R. Romagnoli, B. Sinopoli, "Physical Watermarking for Replay Attack Detection in Continuous-time Systems," *European Journal of Control*, Special issue, Volume 62, 2021, Pages 57-62, ISSN 0947-3580, <https://doi.org/10.1016/j.ejcon.2021.06.012>.
15. M. Hosseinzadeh, I. V. Kolmanovsky, S. Baruah, B. Sinopoli, "Reference Governor-Based Fault-Tolerant Constrained Control," *Automatica*, Volume 136, 2022, 110089, ISSN 0005-1098, <https://doi.org/10.1016/j.automatica.2021.110089>.
16. T. Arauz, J. M. Maestre, R. Romagnoli, B. Sinopoli and E. F. Camacho, "A Linear Programming Approach to Computing Safe Sets for Software Rejuvenation," in *IEEE Control Systems Letters*, vol. 6, pp. 1214-1219, 2022, doi: 10.1109/LCSYS.2021.3090448.
17. M. Pirani, J. A. Taylor and B. Sinopoli, "Strategic Sensor Placement on Graphs", *Systems and Control Letters*, Vol. 148, February 2021, 104855 doi: 10.1016/j.sysconle.2020.104855.
18. P. Griffioen, S. Weerakkody and B. Sinopoli, "A Moving Target Defense for Securing Cyber-Physical Systems," *IEEE Transactions on Automatic Control*, vol. 66, no. 5, pp. 2016-2031, May 2021, doi: 10.1109/TAC.2020.3005686.
19. Y. Ma, C. Lu, B. Sinopoli and S. Zeng, "Exploring Edge Computing for Multi-Tier Industrial Control," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, vol. 39, no. 11, pp. 3506-3518, Nov. 2020, doi: 10.1109/TCAD.2020.3012648.
20. L. Balthazar, J. Xavier and B. Sinopoli, "Distributed Linear Estimation Via a Roaming Token," *IEEE Transactions on Signal Processing*, vol. 68, pp. 780-792, 2020, doi:10.1109/TSP.2020.2965295.
21. N. Forti, G. Battistelli, L. Chisci, B. Sinopoli, "Joint Attack Detection and Secure State Estimation of Cyber-Physical Systems", *International Journal of Robust and Nonlinear Control, Special Issue: Privacy and Security of Cyber-Physical Systems*, Vol 30 (11), pp. 4303-4330, July 2020.
22. A. Rizzo, M. Caporali, D. Conti, F. Montefoschi, G. Burrelli and B. Sinopoli, "The Design of UDOO Boards: Contributing to the Appropriation of Digital Technology", *Frontiers in ICT*, Vol. 6, pp. 15, 2019, <https://doi.org/10.3389/fict.2019.00004>.
23. S. Battilotti, F. Cacace, M. d'Angelo, A. Germani, and B. Sinopoli, "LQ non-Gaussian Regulator with Markovian Control", *IEEE Control Systems Letters*, 3(3), 679-684, 2019.
24. S. Weerakkody, O. Ozel, Y. Mo and B. Sinopoli, "Resilient Control in Cyber-Physical Systems: Countering Uncertainty, Constraints, and Adversarial Behavior", *Foundations and Trends in Systems and Control*: Vol. 7: No. 1-2, pp 1-252, 2019.

25. O. Ozel, B. Sinopoli, and O. Yağan, "Uniform redundancy allocation maximizes the robustness of flow networks against cascading failures", *Physical Review E* 98, 042306, October 2018.
26. N. Forti, G. Battistelli, L. Chisci, S. Li, B. Wang, and B. Sinopoli, "Distributed joint attack detection and secure state estimation," *IEEE Transactions on Signal and Information Processing over Networks, Special Issue on Distributed Signal Processing for Security and Privacy in Networked Cyber-Physical Systems*, 2017.
27. E. Bou-Harb, W. Lucia, N. Forti, S. Weerakkody, N. Ghani, and B. Sinopoli, "Cyber Meets Control: A Novel Federated Approach for Resilient CPS Leveraging Real Cyber Threat Intelligence," *IEEE Communications Magazine*, Vol. 55, no. 5, pp. 198-205, May 2017.
28. S. Weerakkody, X. Liu, S. H. Son, and B. Sinopoli, "A Graph Theoretic Characterization of Perfect Attackability for the Secure Design of Distributed Control Systems," *IEEE Transactions on Control of Network Systems*, Vol 4, no. 1, pp. 1060-1070, 2017.
29. D. Bajovic, J. M. F. Moura, J. Xavier, and B. Sinopoli, "Distributed inference over directed networks: Performance limits and optimal design," *IEEE Transactions on Signal Processing*, vol. 64, no. 13, pp. 3308-3323, July, 2016.
30. S. Weerakkody, Y. Mo, B. Sinopoli, D. Han, and L. Shi, "Multi-Sensor Scheduling for State Estimation with Event-Based Stochastic Triggers," *IEEE Transactions on Automatic Control*, vol. 61, no. 9, pp. 2695-2701, Sept. 2016.
31. S. Zejnilovic, D. Mitsche, J. Gomes, and B. Sinopoli, "Extending the metric dimension to graphs with missing edges," *Theoretical Computer Science*, vol. 609, no. Part 2, pp. 384-394, 2016.
32. Y. Mo and B. Sinopoli, "Secure Estimation in the Presence of Integrity Attacks," *IEEE Transactions on Automatic Control*, vol. 60, no. 4, pp. 1145- 1151, 2015.
33. Y. Mo, S. Weerakkody, and B. Sinopoli, "Physical Authentication of Control Systems: Designing Watermarked Control Inputs to Detect Counterfeit Sensor Outputs," *IEEE Control Systems Magazine*, vol. 35, no. 1, pp. 93-109, 2015.
34. Y. Mo and B. Sinopoli, "On the Performance Degradation of Cyber-Physical Systems under Stealthy Integrity Attacks," *IEEE Transactions on Automatic Control*, vol. PP, no.99, pp. 6, 2015.
35. D. Han, Y. Mo, J. Wu, S. Weerakkody, B. Sinopoli, and L. Shi, "Stochastic Event-Triggered Sensor Schedule for Remote State Estimation," *IEEE Transactions on Automatic Control*, vol. 60, no. 10, pp. 2661 - 2675, 2015.
36. S. Zejnilovic, J. Xavier, J. Gomes, and B. Sinopoli, "Selecting observers for source localization via error exponents," *IEEE International Symposium on Information Theory*, pp. 6, 2015.
37. Y. Mo, R. Chabukswar, and B. Sinopoli, "Detecting Integrity Attacks on SCADA Systems," *IEEE Transactions on Control Systems Technology*, vol. 22, no. 4, pp. 1396-1407, 2014.

38. K.G. Vamvoudakis, J.P. Hespanha, B. Sinopoli, and Y. Mo, "Detection in Adversarial Environments," *IEEE Transactions on Automatic Control*, vol. 59, no. 12, pp. 3209-3223, 2014.
39. Y. Mo, E. Garone, and B. Sinopoli, "On infinite-horizon sensor scheduling," *Systems & Control Letters*, vol. 67, pp. 65 - 70, 2014.
40. Y. Mo, J.P. Hespanha, and B. Sinopoli, "Resilient Detection in the Presence of Integrity Attacks," *IEEE Transactions on Signal Processing*, vol. 62, no. 1, pp. 31-43, 2014.
41. D. Bajovic, J. Xavier, J. M. F. Moura, and B. Sinopoli, "Consensus and Products of Random Stochastic Matrices: Exact Rate for Convergence in Probability," *IEEE Transactions on Signal Processing*, vol. 61, no. 10, pp. 2557-2571, 2013.
42. D. Bajovic, D. Jakovetic, J. M. F. Moura, J. Xavier, and B. Sinopoli, "Large Deviations Performance of Consensus + Innovations Distributed detection with non-Gaussian Observations," *IEEE Transactions on Signal Processing*, vol. 60, no. 11, pp. 5987-6002, 2012.
43. J. Weimer, B. Krogh, M. J. Small, and B. Sinopoli, "An approach to leak detection using wireless sensor networks at carbon sequestration sites," *International Journal of Greenhouse Gas Control*, vol. 9, pp. 243-253, 2012.
44. Y. Mo and B. Sinopoli, "Kalman Filtering With Intermittent Observations: Tail Distribution and Critical Value," *IEEE Transactions on Automatic Control*, vol. 57, no. 3, pp. 677-689, 2012.
45. Q. Jia, L. Shi, Y. Mo, and B. Sinopoli, "On Optimal Partial Broadcasting of Wireless Sensor Networks for Kalman Filtering," *IEEE Transactions on Automatic Control*, vol. 57, no. 3, pp. 715-721, 2012.
46. E. Garone, B. Sinopoli, A. Goldsmith, and A. Casavola, "LQG Control for MIMO Systems Over Multiple Erasure Channels With Perfect Acknowledgment," *IEEE Transactions on Automatic Control*, vol. 57, no. 2, pp. 450-456, 2012.
47. S. Kar, B. Sinopoli, and J. M. F. Moura, "Kalman Filtering with Intermittent Observations: Weak Convergence to a Stationary Distribution," *IEEE Transactions on Automatic Control*, vol. 57, no. 2, pp. 405-420, 2012.
48. L. Parolini, B. Sinopoli, B. Krogh, and Z. Wang, "A Cyber-Physical Systems Approach to Data Center Modeling and Control for Energy Efficiency," *Proceedings of the IEEE*, vol. 100, no. 1, pp. 254-268, 2012.
49. Y. Mo, T.-J. Kim, K. Brancik, D. Dickinson, H. Lee, A. Perrig, and B. Sinopoli, "Cyber-Physical Security of a Smart Grid Infrastructure," *Proceedings of the IEEE*, vol. 100, no. 1, pp. 195-209, 2012.
50. D. Bajovic, D. Jakovetic, J. Xavier, B. Sinopoli, and J. M. F. Moura, "Asymptotic Performance of Distributed Detection over Random Networks," *ICASSP: International Conference on Acoustics, Speech and Signal Processing*, vol. 36th, pp. 3008-3011, 2011.

51. L. Xie, Y. Mo, and B. Sinopoli, "Integrity Data Attacks in Power Market Operations, IEEE Transactions on Smart Grid, Volume 2, Issue 4, Dec 2011, Pages 659-666," *IEEE Transactions on Smart Grid*, vol. 2, no. 4, pp. 659-666, 2011.
52. Y. Mo, E. Garone, A. Casavola, and B. Sinopoli, "Stochastic Sensor Scheduling for Energy Constrained Estimation in Multi-Hop Wireless Sensor Networks" *IEEE Transactions on Automatic Control*, Special Issue on Wireless Sensor and Actuator Networks, vol. 56, no. 10, pp. 2489-2495, 2011.
53. D. Bajovic, J. Xavier, and B. Sinopoli, "Sensor Selection for Event Detection in Wireless Sensor Networks," *IEEE Transactions on Signal Processing*, vol. 59, no. 10, pp. 4938-4953, 2011.
54. D. Bajovic, D. Jakovetic, J. Xavier, B. Sinopoli, and J. M. F. Moura, "Distributed Detection over Random Networks: Large Deviations Performance Analysis", *IEEE Transactions on Signal Processing*, vol. 59, no. 9, pp. 4381-4396, 2011.
55. Y. Mo, R. Ambrosino, and B. Sinopoli, "Sensor selection strategies for state estimation in energy constrained wireless sensor networks", *Automatica*, vol. 47, no. 7, pp. 1330-1338, 2011.
56. L. Shi, Q. S. Jia, Y. Mo, and B. Sinopoli, "Sensor Scheduling over a Packet-delaying Network" *Automatica*, vol. 47, no. 5, pp. 1089-1092, 2011.
57. E. Garone, B. Sinopoli, and A. Casavola, "LQG Control Over Lossy TCP-like Networks with Probabilistic Packet Acknowledgment", *International Journal of Systems, Control and Communications*, Special Issue on Networked Control, vol. 2, no. 1/2/3, pp. 55-81, 2010.
58. L. Parolini, N. Tolia, B. Sinopoli, and B. Krogh, "A Cyber-Physical Systems Approach to Energy Management in Data Centers" *International Conference on Cyber-Physical Systems*, pp. 168-177, 2010.
59. J. Weimer, B. Sinopoli, and B. Krogh, "Multiple Source Detection and Localization in Advection-Diffusion Processes Using Wireless Sensor Networks," *30th IEEE Real-Time Systems Symposium, 2009, RTSS 2009.*, pp. 333-342, 2009.
60. A. Giani, G. Karsai, T. Roosta, A. Shah, B. Sinopoli, and J. Wiley, "A testbed for secure and robust SCADA systems," *Real-time and Embedded Technology and Applications Symposium (RTAS)*, vol. 5, no. 2, pp. 4, 2008.
61. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, and S. Sastry, "Optimal linear LQG control over lossy networks without packet acknowledgment," *Asian Journal of Control*, Special Issue on "Networked Embedded Hybrid Control Systems" vol. 10, no. 1, 2008.
62. L. Schenato, B. Sinopoli, M. Franceschetti, K. Poolla, and S. Shankar Sastry, "Foundations of control and estimation over lossy networks," *Proceedings of the IEEE*, vol. 95, no. 1, pp. 163-187, 2007.

63. X. Nguyen, M. I. Jordan, and B. Sinopoli, "A Kernel-Based Learning Approach to Ad Hoc Sensor Network Localization," *ACM Transactions on Sensor Networks*, vol. 1, no. 1, 2005.
64. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, M. Jordan, and S. Sastry, "Kalman filtering with intermittent observations," *IEEE Transactions on Automatic Control*, vol. 49, no. 9, pp. 1453-1464, 2004.
65. X. Nguyen, M.I. Jordan, and B. Sinopoli, "A kernel-based learning approach to ad hoc sensor network localization. In Proc. AAAI-2004 Workshop on Sensor Networks," *AAAI Conference on Artificial Intelligence/IAAI: Innovative Applications of Artificial Intelligence Conference*, 2004.
66. B. Sinopoli, C. Sharp, L. Schenato, S. Schaffert, and S. Sastry, "Distributed control applications within sensor networks," *Proceedings of the IEEE*, vol. 91, no. 8, pp. 1235-1246, 2003.

Conference Proceedings

1. B. Yaghooti, N. Raviv, B. Sinopoli, "Beyond PCA: A Probabilistic Gram-Schmidt Approach to Feature Extraction", *AIStat*, under review.
2. C. Fisco, A. Agarwal, Y. Ruan, S. Kar, L. Pileggi, B. Sinopoli, "Towards Hyperparameter-Agnostic DNN Training via Dynamical System Insights", *AIStat*, under review.
3. C. Fisco, S. Kar, B. Sinopoli "Maximizing Reachability in Factored MDPs Via Near-Optimal Clustering with Applications to Control of Multi-Agent Systems", *2023 62st IEEE Conference on Decision and Control (CDC)*, Dec. 2023, Singapore.
4. M. Pirani, M. Hosseinzadeh, J.A. Taylor and B. Sinopoli, "Optimal Active Fault Detection in Inverter-Based Grids", *7th IEEE Conference on Control Technology and Applications (CCTA)*, Bridgetown, Barbados, Aug 2023.
5. R. Romagnoli, B. H. Krogh, D. d. Niz, A. D. Hristozov and B. Sinopoli, "Software Rejuvenation for Safe Operation of Cyber-Physical Systems in the Presence of Run-Time Cyber Attacks", *7th IEEE Conference on Control Technology and Applications (CCTA)*, Bridgetown, Barbados, Aug 2023.
6. B. Yaghooti and B. Sinopoli, "Inferring Dynamics of Discrete-time, Fractional-Order Control-affine Nonlinear Systems," *2023 American Control Conference (ACC)*, San Diego, CA, USA, 2023, pp. 935-940, doi: 10.23919/ACC55779.2023.10156099.
7. J. Gornet, M. Hosseinzadeh and B. Sinopoli, " Stochastic Multi-armed Bandits with Non-stationary Rewards Generated by a Linear Dynamical System," *2022 61st IEEE Conference on Decision and Control (CDC)*, Dec. 2022, Cancun, Mexico.
8. C. Fisco, S. Kar, and B. Sinopoli, "On Confident Policy Evaluation for Factored Markov Decision Processes with Node Dropouts," *2022 61st IEEE Conference on Decision and Control (CDC)*, Dec. 2022, Cancun, Mexico.

9. C. Fisco, S. Kar and B. Sinopoli, "Identifying Impactful Agents Via Faux Adversarial Games," 2022 58th Annual Allerton Conference on Communication, Control, and Computing (Allerton), pp. 1-7, doi: 10.1109/Allerton49937.2022.9929377.
10. D. Stabili, R. Romagnoli, M. Marchetti, B. Sinopoli and M. Colajanni, "Exploring the consequences of cyber attacks on Powertrain Cyber Physical Systems," 2022 *International Conference on Control, Robotics and Informatics (ICCRI)*, Danang, Vietnam, 2022, pp. 96-103, doi: 10.1109/ICCRI55461.2022.00023.
11. M. Hosseinzadeh, B. Sinopoli, I. Kolmanovsky and S. Baruah, "Implementing Optimization-Based Control Tasks in Cyber-Physical Systems With Limited Computing Capacity," 2nd International Workshop on Computation-Aware Algorithmic Design for Cyber-Physical Systems (CAADCPS), 2022, pp. 15-16, doi: 10.1109/CAADCPS56132.2022.00009.
12. P. Griffioen, R. Romagnoli, B. H. Krogh, and B. Sinopoli, "Reducing attack vulnerabilities through decentralized event-triggered control", 2021 *IEEE 60th Conference on Decision and Control (CDC)*, December 2021.
13. C. Fisco, S. Kar and B. Sinopoli, "Efficient Solutions for Targeted Control of Multi-Agent MDPs," American Control Conference, May 2021.
14. M. Hosseinzadeh, and B. Sinopoli, "Active Attack Detection and Control in Constrained Cyber-Physical Systems Under Prevented Actuation Attack," American Control Conference, May 2021.
15. P. Griffioen, R. Romagnoli, B. H. Krogh, and B. Sinopoli, "Resilient Control in the Presence of Man-In-The-Middle Attacks," American Control Conference, May 2021.
16. P. Griffioen, R. Romagnoli, B. H. Krogh, and B. Sinopoli, "Decentralized Event-Triggered Control in the Presence of Adversaries," 2020 *IEEE 59th Conference on Decision and Control (CDC)*, December 2020.
17. M. Hosseinzadeh, B. Sinopoli and A. F. Bobick, "An Explicit Reference Governor for Time-Varying Linear Constraints," 2020 59th IEEE Conference on Decision and Control (CDC), 2020, pp. 3323-3328, doi: 10.1109/CDC42340.2020.9304485.
18. B. Yaghooti, M. Hosseinzadeh, and B. Sinopoli, "Constrained Control of Semilinear Fractional-Order Systems: Application in Drug Delivery Systems," in *Proceedings of the 4th IEEE Conference on Control Technology and Applications*, Montreal, Canada, Aug. 24-26, 2020, pp. 833-838.
19. R. Romagnoli, P. Griffioen, B. H. Krogh, and B. Sinopoli, "Software Rejuvenation Under Persistent Attacks in Constrained Environments," 2020 *IFAC World Congress*, July 2020.
20. P. Griffioen, R. Romagnoli, B. H. Krogh, and B. Sinopoli, "Secure Networked Control for Decentralized Systems via Software Rejuvenation," 2020 *American Control Conference (ACC)*, July 2020, pp. 1266-1273.

21. R. Romagnoli, B. H. Krogh and B. Sinopoli, "Robust Software Rejuvenation for CPS with State Estimation and Disturbances," 2020 American Control Conference (ACC), Denver, CO, USA, 2020, pp. 1241-1246, doi: 10.23919/ACC45564.2020.9147388.
22. S. Battilotti, F. Cacace, M. d'Angelo, A. Germani and B. Sinopoli, "LQ non-Gaussian Control with I/O packet losses," 2020 American Control Conference (ACC), Denver, CO, USA, 2020, pp. 2802-2807, doi: 10.23919/ACC45564.2020.9147371.
23. M. Pirani, J. A. Taylor and B. Sinopoli, "Attack Resilient Interconnected Second Order Systems: A Game-Theoretic Approach", *IEEE 58th Conference on Decision and Control (CDC)*, pp. 4391-4396, December 2019.
24. P. Griffioen, R. Romagnoli, B. H. Krogh, and B. Sinopoli, "Secure Networked Control via Software Rejuvenation," *IEEE 58th Conference on Decision and Control (CDC)*, December 2019, pp. 3878-3884.
25. M. Hosseinzadeh, B. Sinopoli, and E. Garone, "Feasibility and Detection of Replay Attack in Networked Constrained Cyber-Physical Systems," in *Proceedings of the 57th Annual Allerton Conference on Communication, Control, and Computing*, Allerton Park & Retreat Center, Monticello, IL, USA, Sep.24-27, 2019, pp. 712-717.
26. S. Battilotti, F. Cacace, M. d'Angelo, A. Germani, Bruno Sinopoli, "Kalman-like Filtering with Intermittent Observations and non-Gaussian Noise", in *8th IFAC Workshop on Distributed Estimation and Control in Networked Systems NECSYS 2019*, Vol. 52 (20), 2019, pp. 61-66.
27. C. Fisco, S. Kar and B. Sinopoli, "Learning Transition Statistics in Networks of Interacting Agents," *2019 57th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, Monticello, IL, USA, 2019, pp. 439-445.
28. P. Griffioen, S. Weerakkody, and B. Sinopoli, "An Optimal Design of a Moving Target Defense for Attack Detection in Control Systems," *2019 American Control Conference (ACC)*, July 2019, pp. 4527-4534.
29. R. Romagnoli, B. H. Krogh and B. Sinopoli, "Design of Software Rejuvenation for CPS Security Using Invariant Sets," 2019 American Control Conference (ACC), Philadelphia, PA, USA, 2019, pp. 3740-3745, doi: 10.23919/ACC.2019.8815155.
30. R. Romagnoli, S. Weerakkody and B. Sinopoli, "A Model Inversion Based Watermark for Replay Attack Detection with Output Tracking," 2019 American Control Conference (ACC), Philadelphia, PA, USA, 2019, pp. 384-390, doi: 10.23919/ACC.2019.8814483.
31. P. Griffioen, S. Weerakkody, O. Ozel, Y. Mo, and B. Sinopoli, "A Tutorial on Detecting Security Attacks on Cyber-Physical Systems," *2019 18th European Control Conference (ECC)*, June 2019, pp. 979-984.

32. O. Ozel, B. Sinopoli and O. Yagan, "Optimizing Robustness against Cascading Failures under Max-Load Targeted Attack," *2019 18th European Control Conference (ECC)*, Naples, Italy, 2019, pp. 2221-2226, doi: 10.23919/ECC.2019.8795762.
33. C. Fisco, B. Swenson, S. Kar and B. Sinopoli, "Control of Parametric Games," *2019 18th European Control Conference (ECC)*, Naples, Italy, 2019, pp. 1036-1042. doi: 10.23919/ECC.2019.8796274
34. R. Romagnoli, B. H. Krogh and B. Sinopoli, "Safety and Liveness of Software Rejuvenation for Secure Tracking Control," *2019 18th European Control Conference (ECC)*, Naples, Italy, 2019, pp. 2215-2220, doi: 10.23919/ECC.2019.8795951.
35. L. Tomaselli, M. Pozzi and B. Sinopoli, "Optimal Risk-Sharing Mechanism to Enhance Resilience of Communities", 13th International Conference on Applications of Statistics and Probability in Civil Engineering(ICASP13), Seoul, South Korea, May 26-30, 2019.
36. S. Mohan, M. Asplund, G. Bloom, A. Sadeghi, A. Ibrahim, N. Salajageh, P. Griffioen, and B. Sinopoli, "Special Session: The Future of IoT Security." *2018 International Conference on Embedded Software (EMSOFT)*, October 2018.
37. N. Rajagopal, P. Lazik, N. Pereira, S. Chayapathy, B. Sinopoli and A. Rowe, "Enhancing Indoor Smartphone Location Acquisition using Floor Plans", *The 17th International Conference on Information Processing in Sensor Networks*, 2018, Porto, Portugal.
38. S. Weerakkody, O. Ozel, P. Griffioen, and B. Sinopoli, "Active Detection for Exposing Intelligent Attacks in Control Systems," *2017 IEEE Conference on Control Technology and Applications (CCTA)*, August 2017, pp. 1306-1312.
39. M. Bartulovic, J. Jiang, S. Balakrishnan, V. Sekar and B. Sinopoli, "Biases in Data-Driven Networking, and What to Do About Them", *HOTNETS: ACM Workshop on Hot Topics in Networks*, pp. 192-198, 2017.
40. S. Weerakkody, X. Liu, and B. Sinopoli, "Robust Structural Analysis and Design of Distributed Control Systems to Prevent Zero Dynamics Attacks," *56th IEEE Conference on Decision and Control*, pp. 1356-1361, 2017.
41. N. Forti, G. Battistelli, L. Chisci, and B. Sinopoli, "Worst-case analysis of joint attack detection and resilient state estimation," *56th IEEE Conference on Decision and Control*, pp. 182-188, 2017.
42. J. Costanzo, D. Materassi, B. Sinopoli, "Inferring Link Changes in Dynamic Networks through Power Spectral Density Variations," *55th Annual Allerton Conference on Communication, Control, and Computing*, pp 8, 2017.
43. S. Weerakkody, O. Ozel, and B. Sinopoli, "A Bernoulli-Gaussian Physical Watermark for Detecting Integrity Attacks in Control Systems," *55th Annual Allerton Conference on Communication, Control, and Computing*, pp 8, 2017.

44. S. Weerakkody, O. Ozel, P. Griffioen, and B. Sinopoli, "Active Detection for Exposing Intelligent Attacks in Control Systems," *1st IEEE Conference on Control Technology and Applications*, pp. 1306-1312, 2017.
45. O. Ozel, S. Weerakkody, and B. Sinopoli, "Physical Watermarking for Securing Cyber-Physical Systems via Packet Drop Injections", *8th IEEE Conference on Smart Grid Communications*, pp 6, 2017.
46. P. Weng, Z. Qiu, J. Costanzo, X. Yin and B. Sinopoli, "Optimal Threshold Policies for Robust Data Center Control", *International Conference on Advanced Engineering Theory and Applications, (AETA)*, pp. 17, 2017.
47. J. Costanzo, D. Materassi, B. Sinopoli, "Using Viterbi and Kalman to Detect Topological Changes in Dynamic Networks," *American Control Conference*, pp. 5410-5415, 2017.
48. X. Yin, M. Bartulovic, V. Sekar, B. Sinopoli, "On the Efficiency and Fairness of Multiplayer HTTP-based Adaptive Video Streaming", *American Control Conference*, pp. 4236-4241, 2017.
49. N. Forti, G. Battistelli, L. Chisci, B. Sinopoli, "Secure state estimation of cyber-physical systems under switching attacks", *IFAC World Congress*, pp 7, 2017.
50. N. Forti, G. Battistelli, L. Chisci, and B. Sinopoli, "A Bayesian approach to joint attack detection and resilient state estimation," *IEEE Conference on Decision and Control*, pp. 1192-1198, 2016.
51. S. Weerakkody, B. Sinopoli, S. Kar, and A. Datta, "Information Flow for Security in Control Systems," *IEEE Conference on Decision and Control*, pp. 5064-5072, 2016.
52. X. Liu, S. Weerakkody, and B. Sinopoli, "Sensor Placement for Reliable Observability: a Structured Systems Approach," *IEEE Conference on Decision and Control*, pp. 5414-5421, 2016.
53. S. Weerakkody, X. Liu, S. H. Son, and B. Sinopoli, "A Graph Theoretic Characterization of Perfect Attackability and Detection in Distributed Control Systems," *American Control Conference (ACC)*, pp. 6, 2016.
54. Y. Sun, X. Yin, J. Jiang, V. Sekar, F. Lin, N. Wang, T. Liu, and B. Sinopoli, "CS2P: Improving Video Bitrate Selection and Adaptation with Data-Driven Throughput Prediction," *ACM SIGCOMM Conference Proceedings*, pp. 14, August 2016.
55. N. Rajagopal, S. Chayapathy, B. Sinopoli, A. Rowe, "Beacon placement for range-based indoor localization", *IEEE International Conference on Indoor Positioning and Indoor Navigation (IPIN)*, PP 8, 2016.
56. S. Weerakkody and B. Sinopoli, "Detecting integrity attacks on control systems using a moving target approach," *IEEE Conference on Decision and Control*, pp. 5820 - 5826, 2015.
57. S. Zejnilovic, J. Gomes, and B. Sinopoli, "Sequential observer selection for source localization," *IEEE Global Conference on Signal and Information Processing*, pp. 1220 - 1224, 2015.

58. X. Yin, M. Ilic, and B. Sinopoli, "Toward Design of Risk-Based Real-Time Dispatch at Value," *IEEE Innovative Smart Grid Technologies Conference (ISGT)*, pp. 5, 2015.
59. M. M. Nicotra, M. Bartulovic, E. Garone, and B. Sinopoli, "A Distributed Explicit Reference Governor for Constrained Control of Multiple UAVs," *IFAC Workshop on Estimation and Control of Networked Systems*, vol. 48, no. 22, pp. 156-161, 2015.
60. R. Chabukswar and B. Sinopoli, "Secure Detection with Correlated Binary Sensors," *American Control Conference (ACC)*, pp. 3874 - 3879, 2015.
61. P. Lazik, N. Rajagopal, B. Sinopoli, and A. Rowe, "Ultrasonic Time Synchronization and Ranging on Smartphones," *Real-time and Embedded Technology and Applications Symposium (RTAS)*, pp. 108-118, 2015.
62. P. Lazik, N. Rajagopal, O. Shih, B. Sinopoli, and A. Rowe, "Demo: ALPS--The Acoustic Location Processing System," *SenSys: Proceedings of the International Conference on Embedded Networked Sensor Systems*, pp. 491-492, 2015.
63. P. Lazik, N. Rajagopal, O. Shih, B. Sinopoli, and A. Rowe, "ALPS: A Bluetooth and Ultrasound Platform for Mapping and Localization," *SenSys: Proceedings of the International Conference on Embedded Networked Sensor Systems*, pp. 73-84, 2015.
64. B. Debruhl, S. Weerakkody, B. Sinopoli, and P. D. Tague, "Is Your Commute Driving you Crazy? A Study of Misbehavior in Vehicular Platoons," *WiSec: Proceedings of the ACM Conference on Wireless Network Security*, pp. 11, 2015.
65. X. Yin, A. Jindal, V. Sekar, and B. Sinopoli, "A Control-Theoretic Approach for Dynamic Adaptive Video Streaming over HTTP," *ACM SIGCOMM Conference Proceedings*, pp. 325-338, 2015.
66. X. Yin and B. Sinopoli, "Adaptive robust optimization for coordinated capacity and load control in data centers," *IEEE Conference on Decision and Control*, pp. 5674-5679, 2014.
67. S. Weerakkody, Y. Mo, and B. Sinopoli, "Detecting integrity attacks on control systems using robust physical watermarking," *IEEE Conference on Decision and Control*, pp. 3757-3764, 2014.
68. S. Zejnilovic, D. Mitsche, J. Gomes, and B. Sinopoli, "Network observability for source localization in graphs with unobserved edges," *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, pp. 857-861, 2014.
69. H. Cam, P. Mouallem, Y. Mo, B. Sinopoli, and B. Nkrumah, "Modeling impact of attacks, recovery, and attackability conditions for situational awareness," *Cognitive Methods in Situation Awareness and Decision Support (CogSIMA), 2014 IEEE International*, pp. 181-187, 2014.
70. X. Yin, V. Sekar, and B. Sinopoli, "Toward a principled framework to design dynamic adaptive streaming algorithms over HTTP," *HOTNETS: ACM Workshop on Hot Topics in Networks*, pp. 9 pages, 2014.

71. S. Zejnilovic, J. Gomes, and B. Sinopoli, "Network observability and localization of sources of diffusion in tree networks with missing edges," *European Signal Processing Conference (EUSIPCO)*, pp. 2345-2349, 2014.
72. Y. Mo and B. Sinopoli, "Robust estimation in the presence of integrity attacks," *IEEE Conference on Decision and Control*, pp. 6085-6090, 2013.
73. D. Han, Y. Mo, J. Wu, B. Sinopoli, and L. Shi, "Stochastic event-triggered sensor scheduling for remote state estimation," *IEEE Conference on Decision and Control*, pp. 6079-6084, 2013.
74. S. Zejnilovic, J. Gomes, and B. Sinopoli, "Network observability and localization of the source of diffusion based on a subset of nodes," *Annual Allerton Conference on Communication, Control and Computing*, pp. 847-852, 2013.
75. S. Weerakkody, Y. Mo, B. Sinopoli, D. Han, and L. Shi, "Multi-Sensor Scheduling for State Estimation with Event-Based, Stochastic Triggers," *IFAC Workshop on Estimation and Control of Networked Systems*, vol. 4, no. 1, pp. 15-22, 2013.
76. R. Chabukswar, Y. Mo, and B. Sinopoli, "Secure Detection Using Binary Sensors," *IFAC Workshop on Estimation and Control of Networked Systems*, vol. 4, no. 1, pp. 160-167, 2013.
77. X. Liu, S. Pequito, S. Kar, Y. Mo, B. Sinopoli, and A. P. Aguiar, "Minimum robust sensor placement for large scale linear time-invariant systems: a structured systems approach," *IFAC Workshop on Estimation and Control of Networked Systems*, pp. 815- 820, 2013.
78. Y. Mo, E. Garone, and B. Sinopoli, "LQG control with Markovian packet loss," *European Control Conference (ECC)*, pp. 2380-2385, 2013.
79. S. Bopardikar, A. Speranzon, S. Zhang, and B. Sinopoli, "Performance analysis of linear estimators with unknown changes in sensors characteristics," *American Control Conference (ACC)*, pp. 3117 - 3122, 2013.
80. K.G. Vamvoudakis, J.P. Hespanha, B. Sinopoli, and Y. Mo, "Adversarial detection as a zero-sum game," *IEEE Conference on Decision and Control*, pp. 7133-7138, 2012.
81. D. Bajovic, J. Xavier, J. M. F. Moura, and B. Sinopoli, "Exact Rate for Convergence in Probability of Averaging Processes via Generalized Min-Cut," *IEEE Conference on Decision and Control*, pp. 2715-2725, 2012.
82. Y. Mo, E. Garone, L. Shi, and B. Sinopoli, "Infinite-Horizon Sensor Scheduling for Estimation over Lossy Networks," *IEEE Conference on Decision and Control*, pp. 3317- 3322, 2012.
83. D. Bajovic, J. Xavier, and B. Sinopoli, "Products of stochastic matrices: Exact rate for convergence in probability for directed networks," *Telecommunications Forum (TELFOR) 2012 20th*, pp. 883-886, 2012.

84. D. Bajovic, J. Xavier, and B. Sinopoli, "Products of stochastic matrices: Large deviation rate for Markov chain temporal dependencies," *Annual Allerton Conference on Communication, Control and Computing*, pp. 724-729, 2012.
85. S. Zejnilovic, J. P. Gomes, and B. Sinopoli, "Collaborative diffusive source localization in wireless sensor networks," *European Signal Processing Conference (EUSIPCO)*, pp. 704-708, 2012.
86. Y. Mo, J. Hespanha, and B. Sinopoli, "Robust detection in the presence of integrity attacks," *American Control Conference (ACC)*, pp. 3541-3546, 2012.
87. Y. Mo, E. Garone, A. Casavola, and B. Sinopoli, "Stochastic Sensor Scheduling in Wireless Sensor Networks with General Graph Topology," *American Control Conference (ACC)*, pp. 2048- 2053, 2012.
88. Y. Mo and B. Sinopoli, "Integrity Attacks on Cyber-Physical Systems," *Conference on High Confidence Networked Systems, CPSweek*, pp. 47-54, 2012.
89. S. Zejnilovic, J.P. Gomes, and B. Sinopoli, "Collaborative sequential-based detection in wireless sensor networks," *Asilomar Conference on Signals, Systems and Computers*, pp. 67-71, 2011.
90. L. Xie, Y. Mo, and B. Sinopoli, "Malicious Data Attacks in Power Market Operations," *IEEE International Conference on Smart Grid Communications (SmartGridComm)*, pp. 659 - 666, 2011.
91. S. Pequito, A.P. Aguiar, B. Sinopoli, and D.A. Gomes, "Nonlinear estimation using Mean Field Games," *Annual Allerton Conference on Communication, Control and Computing*, pp. 5, 2011.
92. D. Bajovic, D. Jakovetic, J. M. F. Moura, J. Xavier, and B. Sinopoli, "Large Deviations Analysis of Consensus+Innovations Distributed Detection over Random Networks," *Annual Allerton Conference on Communication, Control and Computing*, no. Invited paper, pp. 151-155, 2011.
93. S. Pequito, A.P. Aguiar, B. Sinopoli, and D.A. Gomes, "Unsupervised learning of finite mixture models using mean field games," *Annual Allerton Conference on Communication, Control and Computing*, pp. 321-328, 2011.
94. Y. Mo and B. Sinopoli, "Kalman Filtering with Intermittent Observations: Critical Value for Second Order System," *IFAC World Congress*, pp. 6592-6597, 2011.
95. J. Weimer, B. Sinopoli, and B. Krogh, "Large-scale Source Localization with Application to CO2 Sequestration Site Monitoring," *IFAC World Congress*, pp. 4278-4283, 2011.
96. L. Parolini, B. Sinopoli, and B. Krogh, "Model Predictive Control of Data Centers in the Smart Grid Scenario," *IFAC World Congress*, pp. 10505-10510, 2011.
97. R. Chabukswar, Y. Mo, and B. Sinopoli, "Detecting Integrity Attacks on SCADA Systems," *IFAC World Congress*, pp. 11239-11244, 2011.

98. Y. Mo and B. Sinopoli, "Secure Data Transmission Protocol in Multi-Hop Sensor Networks, Workshop on Foundations of Dependable and Secure Cyber-Physical Systems,," *Workshop on Foundations of Dependable and Secure Cyber-Physical Systems, CPS Week, Chicago, USA, 2011*, vol. Hicons, pp. 6, 2011.
99. L. Parolini, E. Garone, B. Sinopoli, and B. Krogh, "A Hierarchical Approach to Energy Management in Data Centers 49th IEEE Conference on Decision and Control. December 2010, Atlanta, GA," *IEEE Conference on Decision and Control*, pp. 1065 - 1070, 2010.
100. M. Aghajani, L. Parolini, and B. Sinopoli, "Dynamic Power Allocation in Server Farms: a Real Time Optimization Approach," *IEEE Conference on Decision and Control*, pp. 3790-3795, 2010.
101. Y. Mo, E. Garone, A. Casavola, and B. Sinopoli, "False data injection attacks against state estimation in wireless sensor networks," *IEEE Conference on Decision and Control*, pp. 5967-5972, 2010.
102. Y. Mo, E. Garone, A. Casavola, and B. Sinopoli, "Sensor scheduling for energy constrained estimation in multi-hop Wireless Sensor Networks," *IEEE Conference on Decision and Control*, pp. 1348-1353, 2010.
103. L. Xie, Y. Mo, and B. Sinopoli, "False Data Injection Attacks in Electricity Markets," *IEEE International Conference on Smart Grid Communications (SmartGridComm)*, pp. 226-231, 2010.
104. D. Bajovic, D. Jakovetic, J. Xavier, B. Sinopoli, and J. M. F. Moura, "Distributed detection over time varying networks: Large deviations analysis," *Annual Allerton Conference on Communication, Control and Computing*, pp. 302-309, 2010.
105. Y. Mo and B. Sinopoli, "Communication Complexity and Energy Efficient Consensus Algorithm," *IFAC Workshop on Estimation and Control of Networked Systems*, pp. 209-214, 2010.
106. S. Kar, B. Sinopoli, and J. M. F. Moura, "A Random Dynamical Systems Approach to Filtering in Large-Scale Networks," *American Control Conference (ACC)*, pp. 1027-1034, 2010.
107. J. D. Taylor, B. Sinopoli and W. Messner, "Nonlinear modeling of butterfly valves and flow rate control using the Circle Criterion Bode plot," *Proceedings of the 2010 American Control Conference, 2010*, pp. 1967-1972, doi: 10.1109/ACC.2010.5531376.
108. R. Chabukswar, B. Sinopoli, G. Karsai, A. Giani, H. Neema, and A. Davis, "Simulation of Network Attacks on SCADA Systems," *Workshop on Secure Control Systems (SCS)*, pp. 6, 2010.
109. Y. Mo and B. Sinopoli, "False Data Injection Attacks in Control Systems," *Workshop on Secure Control Systems (SCS)*, pp. 6, 2010.
110. D. Bajovic, B. Sinopoli, and J. Xavier, "Sensor selection for hypothesis testing in wireless sensor networks: a Kullback-Leibler based approach," *IEEE Conference on Decision and Control*, pp. 1659-1664, 2009.

111. Y. Mo, R. Ambrosino, and B. Sinopoli, "A convex optimization approach of multi-step sensor selection under correlated noise," *Annual Allerton Conference on Communication, Control and Computing*, pp. 186-193, 2009.
112. Y. Mo, R. Ambrosino, and B. Sinopoli, "Network energy minimization via sensor selection and topology control," *IFAC Workshop on Estimation and Control of Networked Systems*, vol. 1, no. 1, pp. 174-179, 2009.
113. D. Bajovic, B. Sinopoli, and J. Xavier, "Robust linear dimensionality reduction for hypothesis testing with application to sensor selection," *Annual Allerton Conference on Communication, Control and Computing*, pp. 363-370, 2009.
114. Y. Mo and B. Sinopoli, "Secure control against replay attacks," *Annual Allerton Conference on Communication, Control and Computing*, pp. 911-918, 2009.
115. Y. Mo, L. Shi, R. Ambrosino, and B. Sinopoli, "Network lifetime maximization via sensor selection," *Asian Control Conference (ASCC)*, pp. 441-446, 2009.
116. A. Cardenas, S. Amin, B. Sinopoli, A. Giani, A. Perrig, and S.S. Sastry, "Challenges for securing cyber physical systems", *Workshop on future directions in cyber-physical systems security*, pp. 7, 2009.
117. L. Parolini, B. Sinopoli, and B. Krogh, "A unified thermal-computational approach to data center energy management," *FeBID: International Workshop on Feedback Control Implementation and Design in Computing Systems and Networks*, pp. 8, 2009.
118. Y. Mo and B. Sinopoli, "A characterization of the critical value for Kalman filtering with intermittent observations," *IEEE Conference on Decision and Control*, pp. 2692-2697, 2008.
119. E. Garone, B. Sinopoli, and A. Casavola, "LQG control over lossy TCP-like networks with probabilistic packet acknowledgements," *IEEE Conference on Decision and Control*, pp. 2686-2691, 2008.
120. L. Parolini, B. Sinopoli, and B. Krogh, "Reducing data center energy consumption via coordinated cooling and load management," *HotPower: Workshop on power aware computing and systems*, pp. 5, 2008.
121. U.A. Khan, S. Kar, B. Sinopoli, and J. M. F. Moura, "Distributed sensor localization in Euclidean spaces: Dynamic environments," *Annual Allerton Conference on Communication, Control and Computing*, pp. 361-366, 2008.
122. R. Ambrosino, B. Sinopoli, K. Poolla, and S. Sastry, "Optimal sensor density for remote estimation over Wireless Sensor Networks," *Annual Allerton Conference on Communication, Control and Computing*, pp. 599-606, 2008.
123. J.E. Weimer, B. Sinopoli, and B. Krogh, "A Relaxation Approach to Dynamic Sensor Selection in Large-Scale Wireless Networks," *ICDCS: IEEE Conference on Distributed Computing Systems*, pp. 501-506, 2008.

124. A. Shah, A. Perrig, and B. Sinopoli, "Mechanisms to provide integrity in SCADA and PCS devices," *Proceedings of the International Workshop on Cyber-Physical Systems-Challenges and Applications (CPS-CA)*, pp. 7, 2008.
125. E. Garone, B. Sinopoli, and A. Casavola, "LQG control for distributed systems over TCP-like erasure channels," *IEEE Conference on Decision and Control*, pp. 44-49, 2007.
126. E. Garone, B. Sinopoli, and A. Casavola, "Communication protocols for optimal control over lossy networks," *Annual Allerton Conference on Communication, Control and Computing*, pp. 8, 2007.
127. L. Shi, M. Epstein, B. Sinopoli, and R. Murray, "Effective Sensor Scheduling Schemes in a Sensor Network by Employing Feedback in the Communication Loop," *IEEE International Conference on Control Applications*, pp. 1006- 1011, 2007.
128. B. Zhu, B. Sinopoli, K. Poolla, and S. Sastry, "Estimation over Wireless Sensor Networks," *American Control Conference (ACC)*, pp. 2732-2737, 2007.
129. S. Adlakha, B. Sinopoli, and A. Goldsmith, "Optimal Sensing Rate for Estimation over Shared Communication Links," *American Control Conference (ACC)*, pp. 5043-5045, 2007.
130. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, and S. Sastry, "Optimal Linear LQG Control Over Lossy Networks Without Packet Acknowledgment," *IEEE Conference on Decision and Control*, pp. 392-397, 2006.
131. V. Gupta, B. Sinopoli, S. Adlakha, A. Goldsmith, and R. Murray, "Receding horizon networked control," *Annual Allerton Conference on Communication, Control and Computing*, pp. 169-176, 2006.
132. P. Chen, S. Oh, M. Manzo, B. Sinopoli, C. Sharp, K. Whitehouse, O. Tolle, J. Jeong, P. Dutta, J. Hui, S. Schaffert, S. Kim, J. Taneja, B. Zhu, T. Roosta, M. Howard, D. Culler, and S. Sastry, "Instrumenting wireless sensor networks for real-time surveillance," *IEEE International Conference on Robotics and Automation*, pp. 3128-3133, 2006.
133. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, and S. Sastry, "An LQG Optimal Linear Controller for Control Systems with Packet Losses," *IEEE Conference on Decision and Control and European Control Conference (CDC-ECC)*, pp. 458-463, 2005.
134. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, and S.S. Sastry, "Estimation and Control over Lossy Networks," *Annual Allerton Conference on Communication, Control and Computing*, pp. 8, 2005.
135. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, and S.S. Sastry, "LQG control with missing observation and control packets", *IFAC World Congress*, pp. 8, 2005

136. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, and S.S. Sastry, "Optimal control with unreliable communication: the TCP case," *American Control Conference (ACC)*, pp. 3354-3359, 2005.
137. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, and S.S. Sastry, "Time varying optimal control with packet losses," *IEEE Conference on Decision and Control*, vol. 2, pp. 1938-1943, 2004.
138. B. Sinopoli, L. Schenato, M. Franceschetti, K. Poolla, M.I. Jordan, and S.S. Sastry, "Kalman filtering with intermittent observations," *IEEE Conference on Decision and Control*, vol. 1, pp. 701-708 Vol.1, 2003.
139. B. Sinopoli, M. Micheli, G. Donato, and T.J. Koo, "Vision based navigation for an unmanned aerial vehicle," *IEEE International Conference on Robotics and Automation*, vol. 2, pp. 1757-1764, 2001.
140. J. Liu, X. Liu, T.-K. J.Koo, B. Sinopoli, S. Sastry, and E.A. Lee, "A hierarchical hybrid system model and its simulation," *IEEE Conference on Decision and Control*, vol. 4, pp. 3508-3513, 1999.
141. T.J. Koo, B. Sinopoli, A. Sangiovanni-Vincentelli, and S. Sastry, "A formal approach to reactive system design: unmanned aerial vehicle flight management system design example," *Proceedings of the 1999 IEEE International Symposium on Computer Aided Control System Design, 1999.*, pp. 522-527, 1999.

Other Writings (Technical Reports and Testimony)

1. B. Sinopoli, "Views on Smart Cities and Indoor Localization", in Bloomberg Law Privacy and Data Security, May 27, 2016. <https://www.bna.com/views-smart-cities-n57982073135/>
2. X. Yin, J. Jiang, V. Sekar, and B. Sinopoli, "Understanding Throughput Stability and Predictability to Enable Better Video Quality of Experience," in *Workshop on Tracking Quality of Experience in the Internet*, 2015.
3. Y. Sun, X. Yin, N. Wang, J. Jiang, V. Sekar, Y. Jin, and B. Sinopoli, "Analyzing TCP Throughput Stability and Predictability with Implications for Adaptive Video Streaming," in *arXiv preprint arXiv:1506.05541*, 2015.
4. Bruno Sinopoli, Antonio Rizzo, "Transformative Computing Platforms: Android, Linux, Arduino in an Open Hardware Mini PC", *In-Q-tel quarterly magazine*, Vol. 5, No. 3, 2014.
5. Bruno Sinopoli, "Cyber-Physical Security: A Whole New Ballgame", *Smart Grid Newsletter*, November 2012. <http://smartgrid.ieee.org/newsletters/november-2012/197-cyber-physical-security-a-whole-new-ballgame>.
6. Bruno Sinopoli, "Vuoi sapere come stai? O se c'e' traffico? E' semplice con WSN" (Would you like to know how you are feeling? If whether there is traffic? It's simple with WSN), *Il Riformista* (Italian newspaper), 6/12/2012.

Selected Invited Presentations

1. “Modeling, Analysis, and Design of Influence in Multi-Agent Systems”, ECE departmental seminar, Michigan State University, October 2023.
2. “Modeling, Analysis, and Design of Influence in Multi-Agent Systems”, **Keynote Presentation**, International Conference on Control, Decision and Information Technologies (CoDIT'23), July 2023.
3. “Modeling, Analysis, and Design of Influence in Multi-Agent Systems”, Invited talk, Midwest workshop on Game Theory and Control, Minneapolis, MN, April 2023.
4. “Modeling, Analysis, and Design of Influence in Multi-Agent Systems”, ECE departmental seminar, Iowa State University, April 2023.
5. “Modeling, Analysis, and Design of Influence in Multi-Agent Systems”, CCDC seminar, UC Santa Barbara, October 2022.
6. “Toward AI-enhanced Design of Resilient Cyber-Physical Systems”, **Plenary talk**, IFAC Necsys July 2022.
7. “Toward Design of Resilient Cyber-Physical Systems”, KYOS two-day Course on Cyber-Security, University of Cyprus, September 2021.
8. “Toward AI-enhanced Design of Resilient Cyber-Physical Systems: a Journey from Inception to Present Times”, **Keynote Presentation, 2021 CPS-IOT Week**, May 2021.
9. “Toward AI-enhanced Design of Resilient Cyber-Physical Systems”, Distinguished Seminar, The Ohio State University, April 2021.
10. “Modeling, Analysis and Design of Resilient Cyber-Physical Systems”, Hong Kong University of Science and Technology (HKUST), Hong Kong, September 2019.
11. “Modeling, Analysis and Design of Resilient Cyber-Physical Systems”, Yonsei University, Seoul, S. Korea, September 2019.
12. “Cyber-Physical Systems: Performance, Robustness and Security”, Seoul National University, Seoul, S. Korea, September 2019.
13. “Modeling Analysis and Design of Resilient Cyber-Physical Systems”, 14th SICC International Tutorial Workshop "Topics in nonlinear dynamics" titled Modeling, Analysis, and Control of Complex Networks and Cyber-Physical Systems, Ischia, Italy, June 2019
14. “Cyber-Physical Systems Security: from Detection to Control”, Tutorial given at the European Control Conference, Naples, Italy, June 2019

15. "Modeling, Analysis and Design of Resilient Cyber-Physical Systems", Tsinghua University, Beijing, China, June 2019.
16. "Modeling, Analysis and Design of Resilient Cyber-Physical Systems", Beijing Institute of technology, Beijing, China, June 2019.
17. "Modeling, Analysis and Design of Resilient Cyber-Physical Systems", **Plenary Talk**, Chinese Conference on Decision and Control, Nanchang, China, June 2019.
18. "Modeling, Analysis and Design of Resilient Cyber-Physical Systems", Zhejiang University, Hangzhou, China, June 2019.
19. "Cyber-Physical Systems: Performance, Robustness and Security", Shanghai Jiaotong University, Shanghai, China, June 2019.
20. "Modeling, Analysis and Design of Resilient Cyber-Physical Systems", MORE on Automotive Systems Workshop, Modena, Italy, May 2018.
21. "Modeling, Analysis and Design of Resilient Cyber-Physical Systems", IMT School of Advanced Studies, Lucca, Italy, May 2018.
22. "Internet of Things: Opportunities and Challenges in Smart Infrastructures", PNC Internet of Everything (IoE), Pittsburgh, PA, February 2018. Invited Talk given to PNC employees.
23. "Cyber-Physical Systems: Performance, Robustness and Security", University of Southern California ECE seminar, Los Angeles, CA, February 2018.
24. "Cyber-Physical Systems: Performance, Robustness and Security", University of Pennsylvania ESE Colloquium, Philadelphia, PA, November 2017.
25. "On the Resilience of Cyber-Physical Systems", Invited talk at the workshop on Smart Grid Security, held at SMARTGRIDCOMM, Dresden, Germany, October 2017.
26. "Modeling Dynamical Phenomena in the Era of Big Data", Invited talk at the Festschrift, a workshop on Principles of modeling, dedicated to Edward A. Lee on the occasion of his 60th Birthday, Berkeley, CA, October 2017.
27. "On the Security of Cyber-Physical Systems", invited talk at CyPhySS 2017, 1st Cyber-Physical Systems Symposium, Indian Institute of Science, Bengaluru, India, July 2017.
28. "Cyber-Physical Systems: Robustness and Security", a mini course offered at the University of Firenze, Italy, June 2017.
29. "A Set-theoretic Approach for Secure and Resilient Control of Cyber-Physical Systems", Invited talk at the workshop on Science of CPS Security, CPSweek, Vienna, April 2017.

30. "A Control-Theoretic Approach for Dynamic Adaptive Video Streaming over HTTP", Invited talk at the workshop on Large-Scale Networks, IEEE Conference on Decision and Control, Las Vegas, December 2016.
31. "On the Security of Cyber-Physical Systems", Invited talk at the Special Session on Cybersecurity of Energy Delivery Systems, IEEE Energy Conversion Congress and Exposition (ECCE), September 2016.
32. "A Control-Theoretic Approach for Dynamic Adaptive Video Streaming over HTTP," **Keynote Presentation** at the Feedback Computing Workshop at ACM International Conference on Autonomic Computing (ICAC), Wurzburg, Germany, July 2016.
33. "On the Security of Cyber-Physical Systems", Invited talk at the workshop in honor of Shankar Sastry's 60th birthday, Berkeley, CA, May 2016.
34. "A set-theoretic approach for secure and resilient control of Cyber-Physical Systems," CPSweek 2016, workshop on Science of CPS security, Vienna, Austria, April 2016.
35. "A Graph Theoretic Characterization of Perfect Attackability for the Secure Design of Distributed Control Systems," INFORMATION THEORY AND APPLICATIONS, UC San Diego, San Diego, CA, February 2016.
36. "A Graph Theoretic Characterization of Perfect Attackability for the Secure Design of Distributed Control Systems," invited talk at workshop, IEEE Conference on Decision and Control, Osaka, Japan, December 2015.
37. "On the Security of Cyber-Physical Systems," 10th International Conference on Semantic Technology for Intelligence, Defense, and Security (STIDS 2015), George Mason University, November 2015.
38. "On the Security of Cyber-Physical Systems," University of Southern California, Los Angeles, CA, October 2015.
39. "Detection of Integrity Attacks Cyber-Physical Systems," Cylab Partners Conference, Pittsburgh, PA, September 2015.
40. "Models and Control Strategies for Adaptive Video Streaming," 7th Cloud Control Workshop, Sweden, June 2015.
41. "On the Security of Cyber-Physical Systems," SCy-Phy Systems Week 2015, Singapore, June 2015.
42. "Cyber-Physical Systems: Performance, Robustness and Security," IBM Research, New York, NY, May 2015.
43. "On the Security of Cyber-Physical Systems," Cylab Seminar, Carnegie Mellon University, March 2015.

44. "Toward a Principled Framework to the Design of Dynamic Adaptive Streaming Algorithms over HTTP," Information Theory and Applications, San Diego, CA, February 2015.
45. "On the security of Cyber-Physical Systems," Daegu Gyeongbuk Institute of Science and Technology, Daegu, S. Korea, November 2014.
46. "The Concept of Physical Authentication as a Tool for Intrusion Detection in Cyber-Physical Systems," Cylab Partners' Conference, Pittsburgh, PA, October 2014.
47. "On the security of Cyber-Physical Systems," MPE 2013+ Workshop of Data-aware Energy Use, UC San Diego, San Diego, CA, October 1, 2014.
48. "On the security of Cyber-Physical Systems," University of Toronto, Toronto, Ontario, September 2014.
49. "On the security of Cyber-Physical Systems," Midwest Control Workshop, Ohio State University, Columbus, OH, April 2014.
50. "On the security of Cyber-Physical Systems," IBM, Washington, DC, March 2014.
51. "Physical Authentication of Control Systems via the design of watermarked control inputs," Information Theory and Applications workshop, UC San Diego, San Diego, CA, February 2014.
52. "On the security of Cyber-Physical Systems," Free University of Brussels, Brussels, Belgium, January 2014.
53. "On the Security of Smart Infrastructure," 25th Information Technology Study Group (ITSG) Workshop, Atlanta, GA, November 2013.
54. "Network observability and localization of the source of diffusion based on a subset of nodes," 51st Annual Allerton Conference on Communication, Control, and Computing (Allerton), 2013, Allerton Park, IL, October 2013.
55. "On the Security of Cyber-Physical Systems," Singapore University of Technology and Design, Singapore, October 2013.
56. "On the security of cyber-physical systems," European Control Conference, Zurich, Switzerland, July 2013.
57. "On the security of Cyber-Physical Systems," University of Siena, Siena, Italy, June 2013.
58. "On the Security of Cyber-Physical Systems," Cylab Seminar, Carnegie Mellon, January 2013.
59. "Secure control of Cyber-Physical Systems," Army Research Laboratory, ARL, Washington, DC, December 2012.

60. "Secure Control of Cyber-Physical Systems," Hong Kong University of Science and Technology (HKUST), Hong Kong, HK, April 2012.
61. "Robust Detection in the Presence of Integrity Attacks," Information Theory and Applications workshop, UC San Diego, San Diego, CA, February 2012.
62. "Models and Control Strategies for Data Centers in the Smart Grid," Lund University, Lund, Sweden, December 5, 2011.
63. "Secure Detection in the Presence of Integrity Attacks," TRUST FII conference, November 3, 2011.
64. "Large Deviations Analysis of Consensus+Innovations Detection in Random Networks," 49th Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL, September 30, 2011.
65. "Energy Efficient Control of Data Centers," HP Labs, Palo Alto, CA, June 28, 2011.
66. "Secure Cyber-Physical Systems," CPS summer school, Georgia Tech, June 27, 2011.
67. "Secure Control of Cyber-Physical Systems," UIUC, TCIPG seminar, April 1, 2011.
68. "A Mean Field Games Approach to Nonlinear Estimation," Information Theory and Applications (ITA), February 2011.
69. "Secure Control of Cyber-Physical Systems," Carnegie Mellon University, January 20, 2011.
70. "Detection of Attacks on control systems," Northrop Grumman Research Consortium Symposium, November 2010.
71. "Secure Control Against Replay Attacks," UC Berkeley, October 2010.
72. "On the Effect of False Data Injection Attacks on Control Systems," Cylab Partners conference, September 2010.
73. "A Random Dynamical Systems Approach to Filtering in Large-Scale Networks," American Control Conference (ACC), June 30, 2010.
74. "Secure control against replay attacks," Information Theory and Applications (ITA), February 2010.
75. "Cyber-Physical Systems: a few results, a new direction and an application," UC Santa Barbara, February 2010.
76. "Networked Control Systems", a tutorial presented at the 1st IFAC workshop on Distributed Estimation and Control in Networked Systems, Venice, Italy, September 2009.
77. "Securing Cyber-Physical Systems: A Case Study", ARO workshop on CPS security, University of Washington, Seattle, WA, August 2009.

78. "Sensing, Estimation and Control of Cyber-Physical Systems", Cylab Seminar, Carnegie Mellon, May 2009.
79. "Sensing, Estimation and Control of Cyber-Physical Systems", Departmental seminar, UT Austin, April 2009.
80. "Robust, Secure, Efficient Cyber-Physical Systems (CPS)", Idaho National Lab, April 2009.
81. "A Random Dynamical Systems Approach to Networked Control Systems", Information Theory and Applications workshop, UC San Diego, February 2009.
82. "Random Dynamical Systems: from Networked Estimation to Cyber-Physical Models for Energy Efficiency in Data Centers", UC Berkeley, October 2008.
83. "Closing the Loop Around Networks of Embedded Devices", Instituto Superior Tecnico, Lisbon, Portugal, July 2008.
84. "Closing the Loop Around Networks of Embedded Devices", UC Santa Barbara, June 2008.
85. "Networked Embedded Control Systems", Grasp Lab Seminar, University of Pennsylvania, October 2007.
86. "Estimation and Control over Networks of Embedded Devices", Cylab seminar, Carnegie Mellon, August 2007.
87. "Networked Feedback Systems", Universita' della Magna Graecia, Catanzaro, Italy, July 2007.
88. "Estimation and Control over Wireless Sensor Networks", keynote given at the Honeywell technical conference, Phoenix, AZ, May 2007.

Patents

1. Rowe, A., Lazik, P., Rajagopal, N., Shih, O., Sinopoli, B., "METHOD AND APPARATUS FOR LOCATING A MOBILE DEVICE", United States Patent US10247807B2, 4/2/2019
2. Sinopoli, B., Sekar, V., Yin, X., "SYSTEM AND METHOD FOR DYNAMIC ADAPTIVE VIDEO STREAMING USING MODEL PREDICTIVE CONTROL", United States Patent 20170026713A1, 4/23/2019
3. Sinopoli, B., Krogh, B., Parolini, L., Tolia, N., "MANAGING COOLING DEVICES AND COMPUTING NODES IN AN INFRASTRUCTURE", United States Patent US8539059B2, 9/17/2013

Contracts, Grants and Sponsored Research

Principal Investigator

1. AI Institute for strengthening the AI-cognition Nexus for Robust Human-Autonomy Interaction, NSF, WashU lead, UIUC, CMU and Indiana University as partners, Preproposal submitted.
2. Collaborative Research: CPS: Medium: Robust to Early Termination Optimization for Safe and Reliable Control of High Performance Cyber-Physical Systems, NSF, July 1, 2024, June 30, 2027, \$1,200,000, under review.
3. AI Institute: Planning: TRustworthy Autonomous Systems Engineering (TRASE), NSF, September 2020- August 2022, \$500,000.
4. Risk Model Framework for Connected Vehicles, AT&T, April 2020- December 2020, \$100,000.
5. CPS: Medium: Collaborative Research: Multi-objective Mitigation Strategies for Viability and Performance of Cyber-Physical Systems, NSF, September 2019- August 2022, \$799,996.
6. "An IoT Testbed for the PwC Center", Risk and Regulatory Services Innovation Center, sponsored by PWC, August 2017- March 2018, \$82,657.
7. Bruno Sinopoli, Anthony Rowe, Yuvraj Agarwal, "Resilience Analysis and Design of IoT-based Smart Infrastructures", Risk and Regulatory Services Innovation Center, sponsored by PWC, September 1, 2016- June 30, 2017, \$199,732.
8. Bruno Sinopoli, Soumya Kar, Anupam Datta, "CPS: Synergy: Information Flow Analysis for Cyber-Physical System Security", NSF, September 1, 2016- August 31, 2019, \$1,000,000.
9. Bruno Sinopoli, "Information Flow Analysis for Cyber-Physical System Security", DAEGU YEONGBUK INSTITUTE OF SCIENCE AND TECHNOLOGY, July 2016 - July 2017, \$36,000.
10. Bruno Sinopoli, Marija Ilic, "Machine-Intelligence for Advanced Notification of Threats and Energy-Grid Survivable Situational Awareness (MANTESSA) ", DARPA/APPLIED COMMUNICATION SYSTEMS, July 2016- July 2020, \$914,998.
11. Bruno Sinopoli, Marija Ilic, Soumya Kar, "Integratable, Composable, and Evolvable Cybersecurity in Energy Delivery Systems", DOE/UNIVERSITY OF ARKANSAS, September 2015 - September 2020, \$2,527,222.
12. Bruno Sinopoli, Anthony Rowe, Burcu Akinci, Anind Dey, "PFI: BIC: A Cost Effective Accurate and Resilient Indoor Positioning System", NSF, August 2015 - July 2018, \$998,387.
13. Bruno Sinopoli, "Robust Energy-Efficient Data Center Control", CIRC, January 2015 - December 2016, \$115,000.

14. Bruno Sinopoli, "Information Flow Analysis for Cyber-Physical System Security", DAEGU YEONGBUK INSTITUTE OF SCIENCE AND TECHNOLOGY, July 2015 - July 2016, \$36,000.
15. Bruno Sinopoli, "Misbehavior Detection and Mitigation in Vehicular Networks", DAEGU YEONGBUK INSTITUTE OF SCIENCE AND TECHNOLOGY, December 2014- December 2016, \$72,000.
16. Bruno Sinopoli, Matteo Pozzi, "Resilience of electric energy systems to extreme events: a sequential decision making perspective", Scott Institute ProSEED Grant, March 2016 - May 2016, \$17,500.00
17. Bruno Sinopoli, "Sensor-based electronic guidance and control of an Automated People Mover (APM) ", PITA, January 2014 - May 2015, \$91,875.00
18. Bruno Sinopoli, "Sensor-based electronic guidance and control of an Automated People Mover (APM) ", PITA, January 2013 - May 2014, \$90,000.00
19. Bruno Sinopoli, "CPS: Synergy: Collaborative Research: Event-Based Information Acquisition, Learning, and Control in High-Dimensional Cyber-Physical Systems", NSF, October 2013 - October 2016, \$333,333.
20. Bruno Sinopoli, "CPS: Medium: Collaborative Research: The Cyber-Physical Challenges of Transient Stability and Security in Power Grids", NSF, September 2011 - August 2014, \$375,000.
21. Bruno Sinopoli, Bruce Krogh, "Supplement to GOALI: Models, Metrics, and Control Strategies for Energy Efficient Data Centers", NSF, September 2009 - September 2012, \$6,000.
22. Bruno Sinopoli, Bruce Krogh, "GOALI: Models, Metrics, and Control Strategies for Energy Efficient Data Centers", NSF, September 2009 - September 2012, \$489,999.
23. Bruno Sinopoli, "2009 Northeast Control Workshop", NSF, March 2009 - September 2009, \$34,913.
24. Bruno Sinopoli, "CAREER: Efficient, Secure and Robust Control of Cyber Physical Systems", NSF, March 2010 - March 2015, \$400,000.
25. Bruno Sinopoli, Joao Xavier, Miguel Rodrigues, "Novel information processing methodologies for intelligent sensor networks", Fundação para a Ciência e a Tecnologia (FCT), November 2010 - October 2013, \$400,000.
26. Bruno Sinopoli, Metin Sitti, "NASA Summer Grant", NASA, June 2009 - September 2009, \$30,000.
27. Bruno Sinopoli, Bruce Krogh, Greg Ganger, "Energy Management for Data Centers", PITA, January 2008-June 2009, \$66,627.
28. Bruno Sinopoli, "Secure SCADA Through Robust Estimation, Control, Detection", BERKMANN FUND, January 2008-January 2009, \$6,000.

29. Bruno Sinopoli, "Robust, Secure, Efficient Networked Embedded Control Systems", ARO/CYLAB, September 2008 - September 2009, \$75,000.
30. Bruno Sinopoli, "Robust, Secure, Efficient Networked Embedded Control Systems", ARO/CYLAB, September 2007 - September 2008, \$84,226.

Co-Principal Investigator

1. Collaborative Research: CPS: Frontier: Resilient Advanced Integrated Control Loops (RAdICoL) forming Cyber-Physical Infrastructure Assets, NSF, January 2024- December 2027, \$1,249,999 (WashU Portion), under review.
2. SLES: SafeMADE: Safe Multi-Agent Learning-Enabled Systems in Dynamic Environments, NSF, September 2024-August 2027, \$1,499,999, under review.
3. S. Ching, B. Sinopoli, I. Monosov, T. Papouin, F. Pasqualetti, S. Oymak, "Understanding and Implementing Multi-Scale Neuro-Glial Dynamics for Robust Non-Markovian Learning and Decision-Making", ARO MURI Grant #W911NF-21-1-0312, July 2021-June 2023, \$2,500,000 with option for year 3 with additional \$1,250,000.
4. Anthony Rowe, Bruno Sinopoli, "An Infrastructure-Free Localization System for Firefighters", NIST, June 2017- May 2020, \$782,280.
5. Matteo Pozzi, Bruno Sinopoli, "CRISP Type 1/Collaborative Research: Computational Approach for Integrated Network Resilience Analysis Under Extreme Events for Financial and Physical Infrastructures", NSF, November 1, 2016 – October 31, 2018, \$350,000.
6. Vyas Sekar, Bruno Sinopoli, "A Control-Theoretic Approach for Adaptive Video Streaming over HTTP", CISCO RESEARCH, April 2015 - December 2016, \$100,000.
7. Pulkit Grover, Bruno Sinopoli, Laurie Heller, "Echolocation for Visually Impaired Navigation", GOOGLE INC., November 2015 - November 2016, \$70,000.
8. Anthony Rowe, Bruno Sinopoli, "A Cost-effective Accurate and Resilient Indoor Positioning System", PITA, January 2015 - December 2015, \$62,000.
9. Burcu, Akinci, Mario Berges, Khee Poh Lam, Bruno Sinopoli, "Exploratory Study of Building Energy Management and Modeling Technologies", TOSHIBA, May 2014 - April 2015, \$500,000
10. Mario Berges, Anthony Rowe, Burcu Akinci, Semiha Ergan, Hae Young Noh, Bruno Sinopoli, "A Fully Instrumented Building Laboratory for Energy Management and Control", CIT, April 2013 - July 2013, \$90,000
11. Pei Zhang, Bruno Sinopoli, "Collaborative Mobile Sensor Network Control", Cylab/ARO, 2009 - 2010, \$23,000

12. Anupam Datta, Collin Jackson, Alessandro Acquisti, Nicolas Christin, Virgil Gligor, Bruno Sinopoli, "TRUST year 10", NSF/ UC BERKELEY, November 2014- November 2015, \$368,400.
13. Anupam Datta, Collin Jackson, Alessandro Acquisti, Nicolas Christin, Virgil Gligor, Bruno Sinopoli, "TRUST year 9", NSF/ UC BERKELEY, November 2013- November 2014, \$458,000.
14. Adrian Perrig, Anupam Datta, Collin Jackson, Alessandro Acquisti, Nicolas Christin, Virgil Gligor, Bruno Sinopoli, "TRUST year 8", NSF/ UC BERKELEY, November 2012- November 2013, \$553,000.
15. Adrian Perrig, Anupam Datta, Collin Jackson, Alessandro Acquisti, Nicolas Christin, Virgil Gligor, Bruno Sinopoli, Jonathan McCune, Patrick Tague, "TRUST year 7", NSF/ UC BERKELEY, November 2011- November 2012, \$552,999.
16. Adrian Perrig, Anupam Datta, Collin Jackson, Alessandro Acquisti, Nicolas Christin, Virgil Gligor, Bruno Sinopoli, "TRUST year 6", NSF/ UC BERKELEY, November 2010- November 2011, \$553,000.
17. Adrian Perrig, Anupam Datta, Collin Jackson, Alessandro Acquisti, Nicolas Christin, Virgil Gligor, Bruno Sinopoli, "TRUST year 5", NSF/ UC BERKELEY, November 2009- November 2010, \$571,225.
18. Adrian Perrig, Anupam Datta, Virgil Gligor, Bruno Sinopoli, "TRUST year 4", NSF/ UC BERKELEY, November 2008- November 2009, \$383,233.
19. Mike Reiter, Adrian Perrig, Anupam Datta, Bruno Sinopoli, "TRUST year 3", NSF/ UC BERKELEY, November 2007- November 2008, \$310,918.
20. Adrian Perrig, Bruno Sinopoli, Jonathan Mc Cune, Patrick Tague, "NGC Cybersecurity Research Consortium Year 3", NORTHROP GRUMMAN, September 2011- September 2012, \$506,620.66.
21. Adrian Perrig, David Brumley, Bruno Sinopoli, Virgil Gligor, Jonathan Mc Cune, Patrick Tague, "NGC Cybersecurity Research Consortium Year 2", NORTHROP GRUMMAN, September 2010- September 2011, \$846,722.43.
22. Adrian Perrig, David Brumley, Bruno Sinopoli, "NGC Cybersecurity Research Consortium Year 1", NORTHROP GRUMMAN, September 2010- September 2011, \$599,585.06.
23. Bruce Krogh, David Garlan, Bruno Sinopoli, "CSR-EHCS(CPS), TM: Architectures, Abstractions and Algorithms for Cyber-Physical Networks", September 2008 - September 2010, \$300,000.
24. Bruce Krogh, Bruno Sinopoli, "Carbon Nanotube-based Sensor Network for CO2 Monitoring", NETL/IEAS, \$310,013.

Editorial Roles/Major Activities in Professional Societies

1. Member of the 2022 IEEE-USA Communication Policy Committee, 2021-present
2. Advisory Committee Member, 8th Midwest Game Theory and Control Workshop, St Louis, April 2019.
3. Organizer, MORE on Automotive Workshop, University Of Modena, Italy, May 2018.
4. **General Co-Chair**, International Conference of Cyber-Physical Systems (ICCPS) 2018, April 2017 - April 2018.
5. **Co-organizer**, "Smart Grid Resiliency and Security Workshop", NSF CPS PI Meeting, November 2017.
6. Associate Editor, IEEE Transactions on Control of Network Systems, June 2014 – June 2017.
7. Associate Editor, IEEE Conference on Decision and Control, December 2012 – December 2017.
8. Guest Editor, IEEE Transactions on Control of Network Systems, special issue on "*Security of Cyber-Physical Systems*", September 2015 – September 2017.
9. Associate Editor, American Control Conference, June 2012 – December 2017.
10. Editorial board member, IEEE control systems society, April 2012 – December 2017.
11. **Co-organizer**, CPSweek 2017, February 2016- April 2017.
12. Program Committee Member, IFAC Workshop on Networked Control Systems, January 2009 – December 2017.
13. **Program Committee Co-Chair**, International Conference of Cyber-Physical Systems (ICCPS) 2017, April 2016 - April 2017.
14. **Committee Chair**, 35th IEEE International Conference on Distributed Computing Systems (ICDCS 2015), September 2014 - June 2015.
15. Program Committee Member, 22nd Mediterranean Conference on Control and Automation, November 2013 - June 2014.
16. Program Committee Member, 2014 American Control Conference, October 2013 - December 2013.
17. Program Committee Member, Conference on High Confidence Networked Systems (HiCoNS) at CPSWeek, October 2011 - October 2013.
18. **International Program Committee co-Chair**, "2013 European Control Conference," September 2012-July 2013.

19. Program Committee Member, 2013 American Control Conference, January 2013 - April 2013.
20. Program Committee Member, IEEE Real-Time and Embedded Technology and Applications Symposium, December 2012 - April 2013.
21. Program Committee Member, IEEE Real-Time Systems Symposium-Cyber-Physical Systems Track, July 2012 - December 2012.
22. Program Committee Member, American Control Conference, September 2011 - June 2012.
23. Technical Program Committee Member: IEEE SmartGridComm Symposium on Cyber and Physical Security and Privacy, Brussels, Belgium, January 2011 - October 2011.
24. Technical Program Committee Member: IEEE SmartGridComm Symposium on Architectures and Models for the Smart Grid, Brussels, Belgium, January 2011 - October 2011.
25. Program Committee Member, Workshop on Foundations of Dependable and Secure Cyber-Physical Systems - CPSWeek 2011, December 2010 - April 2011.
26. Session Chair, IEEE Conference on Decision and Control, February 2010 - December 2010.
27. **Program Committee Chair**, 2nd IFAC Workshop on Networked Control Systems, January 2010 - September 2010.
28. Technical Program Committee Member: The 17th Mediterranean Conference on Control and Automation, 2011.
29. Co-organizer and chair of the invited session on secure control systems: IEEE Control and Decision Conference, 2010.
30. Co-organizer and chair of the invited session on energy efficient infrastructures: IEEE Control and Decision Conference, 2010.
31. Technical Program Committee Member: The 6th IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS '10), Santa Barbara, CA June 2010.
32. **Co-Organizer of the NSF sponsored "6th Northeast Control Workshop"**, held at Johns Hopkins University, April 2010.
33. Technical Program Committee: The 11th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS), Lyon, France November 2009.
34. **Co-organizer of the NSF sponsored "5th Northeast Control Workshop"**, held at CMU, April 2009.

35. Demonstrations Chair: Sixth International Conference on Networked Sensing Systems, Pittsburgh, PA June 2009.
36. Technical program committee member: IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), special Track on Cyber-Physical Systems, San Francisco, CA April 2009.
37. Technical program committee member: FeBID 2009, the 4th International Workshop on Feedback Control Implementation and Design in Computing Systems and Networks, San Francisco, CA April 2009.
38. **Technical program committee co-Chair:** Second International Conference on Robot Communication and Coordination (ROBOCOMM), Odense, Denmark, March 31 - April 2 2009.
39. Technical Program Committee: IEEE Conference on Automation Science and Engineering (CASE), Washington, D.C. August 2008
40. Technical program committee member: Control over Communication Channels (CONCOMM), Limassol, Cyprus, April 2007.
41. Technical program committee member: Summer Computer Simulation Conference (SCSC'07), San Diego, CA June 2007.
42. Technical program committee member: First International Conference on Robot Communication and Coordination (ROBOCOMM), Athens, Greece, September 2007.
43. Technical program committee member: IEEE Real-Time Systems Symposium, Special Track on Cyber-Physical Systems, Barcelona, Spain, December 2007.
44. **Co-organizer:** Joint US-EU-TEKES Workshop: Long Term Challenges in High Confidence Composable Embedded Systems, June 21-22, 2006.
45. **Co-organizer:** Caltech-Stanford-Berkeley Workshop on Control, Communications and Sensing, Stanford University, April 6-7, 2006.
46. **Co-organizer:** Beyond SCADA: Networked Embedded Control Systems Workshop, Washington, DC, March 14-15, 2006.
47. **Co-organizer:** FUSE '03: invited workshop on fundamentals of sensor networks, environment sensing and large-scale networks. Berkeley, CA. May 9 2003.

Other Activities

Co-founder, **UDOO**, (www.udoo.org), April 2013

UDOO is a multi-development platform solution for Android, Linux, Arduino™ and Google ADK 2012. The board is designed to provide a flexible environment that allows to rapidly prototype Physical computing systems and explore the new frontiers of the Internet of Things. UDOO allows you to switch between Linux and Android in a few seconds, simply by replacing the Micro SD card and rebooting the system. UDOO has an estimated 30,000 users, a forum of more than 4,000 active subscribers and a large number of IoT projects that use UDOO as main computing platform. UDOO is becoming more widely used in STEM education.

Consulting Activities

1. SECO INC, Boston, MA. (December 2012 – December 2020).
2. United Technologies Research Center. (February 2011 - June 2012).
3. Draeger Safety INC. (March 2011 - May 2011).
4. Trilliant INC. (March 2013 - August 2013).