

## Dr. Emiliano Dall'Anese

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**RESEARCH INTERESTS** Broad areas of research: Optimization Theory, Learning, and Control. The objective of my current research is to advance theory, algorithms, and analysis for decision and information systems. Specific research themes include online optimization and learning, data-driven optimization and control of networked and dynamical systems, and stochastic optimization. Current application domains include power and energy systems, transportation systems, and healthcare.

Citations: 4547; h-index: 32 (as of January 6, 2022, Source: Google Scholar).

NSF CAREER Award 2020.

**CURRENT AFFILIATION** **University of Colorado Boulder** **Boulder, CO, Aug. 2018 – present**  
Assistant Professor, Dept. of Electrical, Computer and Energy Engineering  
Affiliate faculty, Dept. of Applied Mathematics

**PAST EMPLOYMENT** **National Renewable Energy Laboratory Golden, CO, Dec. 2014 – Aug. 2018**  
Senior Researcher, Energy Systems Optimization and Control

**University of Colorado Boulder** **Boulder, CO, Apr. 2018 – Aug. 2018**  
Visiting Assistant Professor, Dept. of Electrical, Computer and Energy Engineering

**University of Colorado Boulder** **Boulder, CO, Jan. 2017 – April 2018**  
Lecturer, Department of Electrical, Computer and Energy Engineering

**EDUCATION** **University of Minnesota** **Minneapolis, MN, Jan. 2011– Nov. 2014**  
Department of Electrical and Computer Engineering  
Post-doctoral Associate  
*Supervisor:* Prof. Georgios B. Giannakis

**University of Padova** **Padova, 2007–2010**  
Ph.D. in Information Engineering  
*Advisor:* Prof. Silvano Pupolin. *Co-Advisor:* Prof. Georgios B. Giannakis

**University of Padova** **Padova, 2005–2007**  
M.Sc. Degree in Telecommunications Engineering  
*Advisor:* Prof. Silvano Pupolin

**University of Padova** **Padova, 2002–2005**  
B.Sc. Degree in Telecommunications Engineering  
*Advisor:* Prof. Andrea Zanella

\*: graduate student advised at the University of Colorado Boulder.

‡: postdoc advised at the University of Colorado Boulder.

\*: visiting graduate student advised at the University of Colorado Boulder.

### Pre-prints and journal papers to be submitted

- J65. N. Bastianello\*, M. Madden\*, R. Carli, and E. Dall’Anese, “A Stochastic Operator Framework for Inexact Static and Online Optimization”, to be submitted.  
See preprint: <https://arxiv.org/abs/2105.09884>

### Journal papers (under review)

- J64. A. Ospina\*, N. Bastianello\*, E. Dall’Anese, “Online Feedback-based Optimization with sub-Weibull Noise and Infrequent Updates,” *IEEE Control Systems Letters*, submitted January 2022, under review.
- J63. L. Madden\*, S. Becker, and E. Dall’Anese, “High-probability convergence bounds for non-convex stochastic gradient descent,” *Journal of Machine Learning Research*, submitted November 2021, under review.
- J62. G. Bianchin‡, M. Vaquero, J. Cortés, and E. Dall’Anese, “Online Stochastic Optimization for Unknown Linear Systems: Data-Driven Controller Synthesis and Analysis,” *IEEE Trans. on Automatic Control*, submitted September 2021, under review.
- J61. S. Kim\*, L. Madden\*, and E. Dall’Anese, “Convergence of the Inexact Online Gradient and Proximal-Gradient Under the Polyak-Lojasiewicz Condition,” *IEEE Trans. on Signal Processing*, submitted August 2021, under review.
- J60. G. Bianchin‡, E. Dall’Anese, J. I. Poveda, D. Jacobson, E. J. Carlton, and A. G. Buchwald, “Planning a Return to Normal after the COVID-19 Pandemic: Identifying Safe Contact Levels via Online Optimization,” *Scientific Reports*, submitted June 2021, under review.
- J59. A. Ospina\*, A. Simonetto, and E. Dall’Anese, “Time-Varying Optimization of Networked Systems with Human Preferences”, *IEEE Trans. on Control of Network Systems*, submitted March 2021, under review.
- J58. F. Galarza-Jimenez\*, G. Bianchin‡, J. I. Poveda, and E. Dall’Anese, “Online Optimization of LTI Systems Under Persistent Attacks: Stability, Tracking, and Robustness,” *Nonlinear Analysis: Hybrid Systems*, submitted February 2021, under review.
- J57. Y. Tang, E. Dall’Anese, A. Bernstein, and S. Low, “Running Primal-Dual Gradient Method for Time-Varying Nonconvex Problems,” *SIAM Journal on Control and Optimization*, submitted October 2020, under review.
- J56. G. Bianchin‡, J. I. Poveda, and E. Dall’Anese, “Online Optimization of Switched LTI Systems Using Continuous-Time and Hybrid Accelerated Gradient Flows,” *Automatica*, submitted August 2020, conditionally accepted.

### Journal papers (published/to appear)

- J55. K. Wood\*, G. Bianchin<sup>‡</sup>, and E. Dall’Anese, “Online Projected Gradient Descent for Stochastic Optimization with Decision-Dependent Distributions,” *IEEE Control Systems Letters*, to appear.
- J54. G. Bianchin<sup>‡</sup>, J. Cortés, J. I. Poveda, and E. Dall’Anese, “Time-Varying Optimization of LTI Systems via Projected Primal-Dual Gradient Flows,” *IEEE Trans. on Control of Network Systems*, to appear.
- J53. G. Cavraro, E. Dall’Anese, J. Comden, and A. Bernstein, “Online State Estimation for Systems with Asynchronous Sensors,” *IEEE Trans. on Automatic Control*, to appear.
- J52. F. Galarza-Jimenez\*, J. I. Poveda, G. Bianchin<sup>‡</sup>, and E. Dall’Anese, “Extremum Seeking Under Persistent Gradient Deception: A Switching Systems Approach”, *IEEE Control Systems Letters*, vol. 6, pp. 133-138, 2022.
- J51. A. Simonetto, E. Dall’Anese, J. Monteil, and A. Bernstein, “Personalized Optimization with User’s Feedback,” *Automatica*, Vol, 131, 109767, Sept. 2021.
- J50. L. Madden\*, S. Becker, and E. Dall’Anese, “Bounds for the Tracking Error of First-order Online Optimization Methods,” *Journal of Optimization Theory and Applications*, 189, pp. 437–457, 2021.
- J49. Y. Zhang, E. Dall’Anese, and M. Hong, “Online Proximal-ADMM For Time-varying Constrained Optimization,” *IEEE Trans. on Signal and Information Processing over Networks*, vol. 7, pp. 144-155, 2021.
- J48. A. Simonetto, E. Dall’Anese, S. Paternain, G. Leus, and G. B. Giannakis, “Time-Varying Convex Optimization: Time-Structured Algorithms and Applications,” *Proceedings of the IEEE*, vol. 108, no. 11, pp. 2032–2048, Nov. 2020.
- J47. D. Zalkind, E. Dall’Anese, and L. Pao, “Automatic Controller Tuning Using a Zeroth-order Optimization Algorithm,” *Wind Energy Science*, vol. 5, 1pp. 579–1600, 2020.
- J46. X. Zhou, E. Dall’Anese, and L. Chen, “Online Stochastic Optimization of Networked Distributed Energy Resources,” *IEEE Trans. on Automatic Control*, vol. 65, Issue 6, pp. 2387-2401, June 2020.
- J45. E. Dall’Anese, A. Simonetto, S. Becker, and L. Madden\*, “Optimization and Learning with Information Streams: Time-varying Algorithms and Applications,” *IEEE Signal Processing Magazine*, vol. 37, no. 3, pp. 71-83, May 2020.
- J44. J. Song, E. Dall’Anese, A. Simonetto, and H. Zhu, “Dynamic Distribution State Estimation Using Synchrophasor Data,” *IEEE Trans. on Smart Grid*, vol. 11, no. 1, pp. 821-831, Jan. 2020.
- J43. M. Colombino, E. Dall’Anese, and A. Bernstein, “Online Optimization as a Feedback Controller: Stability and Tracking,” *IEEE Trans. on Control of Network Systems*, vol. 7, no. 1, pp. 422-432, March 2020.
- J42. X. Chen, E. Dall’Anese, C. Zhao, and N. Li, “Aggregate Power Flexibility in Unbalanced Distribution Systems,” *IEEE Trans. on Smart Grid*, vol. 11, no. 1, pp. 258-269, Jan. 2020.
- J41. R. Ramakrishna, A. Scaglione, V. Vittal, E. Dall’Anese, and A. Bernstein, “A Model for Joint Probabilistic Forecast of Solar Photovoltaic Power and Outdoor Temperature,” *IEEE Trans. on Signal Processing*, vol. 67, no. 24, pp. 6368-6383, Dec. 2019.

- J40. C.-Y. Chang, M. Colombino, J. Cortes, and E. Dall’Anese, “Saddle-Flow Dynamics for Distributed Feedback-Based Optimization” *IEEE Control Systems Letters*, Volume 3, Issue 4, Oct. 2019.
- J39. A. Bernstein and E. Dall’Anese (equal contribution of the authors), “Real-Time Feedback-Based Optimization of Distribution Grids: A Unified Approach,” *IEEE Trans. on Control of Network Systems*, vol. 6, no. 3, pp. 1197-1209, Sept. 2019.
- J38. E. Dall’Anese, A. Simonetto, and A. Bernstein, “On the Convergence of the Inexact Running Krasnosel’skii-Mann Method,” *IEEE Control Systems Letters*, vol. 3, no. 3, pp. 613-618, July 2019.
- J37. J. Annoni, C. Bay, K. Johnson, E. Dall’Anese, E. Quon, T. Kemper, and P. Fleming, “Wind Direction Estimation Using SCADA Data with Consensus-based Optimization,” *Wind Energy Science*, 4, 355-368, June 2019.
- J36. A. Bernstein, E. Dall’Anese, and A. Simonetto (equal contribution of the authors), “Online Primal-Dual Methods with Measurement Feedback for Time-Varying Convex Optimization,” *IEEE Trans. on Signal Processing*, vol. 67, no. 8, pp. 1978-1991, April 2019.
- J35. A. Zamzam, E. Dall’Anese, C. Zhao, J. Taylor, and N. D. Sidiropoulos, “Optimal Water-Power-Flow Problem: Formulation and Distributed Optimal Solution,” *IEEE Trans. on Control of Network Systems*, vol. 6, no. 1, pp. 37-47, March 2019.
- J34. Y. Guo, K. Baker, E. Dall’Anese, Z. Hu, and T. H. Summers, “Data-based Distributionally Robust Stochastic Optimal Power Flow, Part II: Case Studies,” *IEEE Trans. on Power Systems*, Volume 34, Issue 2, pages 1493-1503, March 2019.
- J33. Y. Guo, K. Baker, E. Dall’Anese, Z. Hu, and T. H. Summers, “Data-based Distributionally Robust Stochastic Optimal Power Flow, Part I: Methodologies,” *IEEE Trans. on Power Systems*, Volume 34, Issue 2, pages 1483-1492, March 2019.
- J32. M. Bazrafshan, N. Gatsis, and E. Dall’Anese, “Placement and Sizing of Inverter-Based Renewable Systems in Multi-Phase Distribution Networks,” *IEEE Trans. on Power Systems*, Volume 34, Issue 2, pages 918-930, March 2019.
- J31. J. Cale, B. Johnson, E. Dall’Anese, P. Young, G. Duggan, P. Bedge, D. Zimmerle, and L. Holton “Mitigating Communication Delays in Remotely Connected Hardware-in-the-loop Experiments,” *IEEE Transactions on Industrial Electronics*, vol. 65, no. 12, pp. 9739-9748, Dec. 2018.
- J.30 A. Bernstein, C. Wang E. Dall’Anese, J-Y. Le Boudec, and C. Zhao, “Load-Flow in Multiphase Distribution Networks: Existence, Uniqueness, and Linear Models,” *IEEE Trans. on Power Systems*, vol. 33, no. 6, pp. 5832-5843, Nov. 2018.
- J29. S. Guggilam, C. Zhao, E. Dall’Anese, Y. C. Chen, and S. Dhople, “Optimizing DER Participation in Inertial and Primary-Frequency Response,” *IEEE Trans. on Power Systems*, vol. 33, no. 5, pp. 5194-5205, Sept. 2018.
- J28. K. Zhang, W. Shi, H. Zhu, E. Dall’Anese, and T. Başar, “Dynamic Distribution System Management With a Locally Connected Communication Network,” *IEEE Journal of Selected Topics in Signal Processing*, vol. 12, no. 4, pp. 673-687, Aug. 2018.
- J27. X. Zhou, E. Dall’Anese, L. Chen, and A. Simonetto, “An Incentive-based Online Optimization Framework for Distribution Grids,” *IEEE Trans. on Automatic Control*, vol. 63, no. 7, pp. 2019-2031, July 2018.
- J26. S. Guggilam, C. Zhao, E. Dall’Anese, Y. C. Chen, and S. Dhople, “Optimizing Power-Frequency Droop Characteristics in Distribution Energy Resources,” *IEEE Trans. on Power Systems*, vol. 33, no. 3, pp. 3076-3086, May 2018.

- J25. E. Dall’Anese, S. Guggilam, A. Simonetto, Y. C. Chen, and S. V. Dhople, “Optimal Regulation of Virtual Power Plants,” *IEEE Trans. on Power Systems*, vol. 33, no. 2, pp. 1868–1881, March 2018.
- J24. K. Baker, A. Bernstein, E. Dall’Anese, and C. Zhao, “Network-Cognizant Voltage Droop Control for Distribution Grids,” *IEEE Trans. on Power Systems*, vol. 33, no. 2, pp. 2098–2108, March 2018.
- J23. A. Simonetto and E. Dall’Anese, “Prediction-Correction Algorithms for Time-Varying Constrained Optimization,” *IEEE Trans. on Signal Processing*, Vol. 65, Issue 20, pp. 5481–5494, Oct 2017 .
- J22. E. Dall’Anese, K. Baker, and T. Summers, “Chance-constrained AC Optimal Power Flow for Distribution Systems with Renewables,” *IEEE Trans. on Power Systems*, Vol. 32, Issue 5, pp. 3427–3438, Sep. 2017.
- J21. Y. Zhang, M. Hong, E. Dall’Anese, S. V. Dhople, and Z. Xu, “Distributed Controllers Seeking Optimal Power Flow Solutions Using ADMM,” *IEEE Trans. on Smart Grid*, vol. 9, no. 5, pp. 4525–4537, Sept. 2018 (appeared Feb. 2017).
- J20. A. Zamzam, N. D. Sidiropoulos, and E. Dall’Anese, “Beyond Relaxation and Newton-Raphson: Solving the AC OPF for Multi-phase Systems with Renewables,” *IEEE Trans. on Smart Grid*, vol. 9, no. 5, pp. 3966–3975, Sept. 2018 (appeared Dec. 2016).
- J19. E. Dall’Anese and A. Simonetto, “Optimal Power Flow Pursuit,” *IEEE Trans. on Smart Grid*, vol. 9, issue 2, pp. 942–959, March 2018 (appeared May 2016).
- J18. S. Guggilam, E. Dall’Anese, Y. C. Chen, S. V. Dhople, and G. B. Giannakis, “Scalable Optimization Methods for Distribution Networks with High PV Integration,” *IEEE Trans. on Smart Grid*, vol. 7, no. 4, pp. 2061–2070, July 2016.
- J17. E. Dall’Anese, S. V. Dhople, and G. B. Giannakis, “Photovoltaic Inverter Controller Seeking AC Optimal Power Flow Solutions,” *IEEE Transactions on Power Systems*, vol. 31, Issue 4, pp. 2809–2823, July 2016.
- J16. E. Dall’Anese, S. V. Dhople, B. B. Johnson, and G. B. Giannakis, “Optimal Dispatch of Residential Photovoltaic Inverters Under Forecasting Uncertainties,” *IEEE Journal of Photovoltaics*, vol. 5, no. 1, pp. 350–359, Jan. 2015.
- J15. E. Dall’Anese, S. V. Dhople, B. B. Johnson, and G. B. Giannakis, “Decentralized Optimal Dispatch of Photovoltaic Inverters in Residential Distribution Systems,” *IEEE Transactions on Energy Conversion*, vol. 29, n. 4, pp. 957–967, Dec. 2014.
- J14. E. Dall’Anese and G. B. Giannakis, “Risk-Constrained Microgrid Reconfiguration Using Group Sparsity,” *IEEE Transactions on Sustainable Energy*, vol. 5, no. 4, pp. 1415–1425, Oct. 2014.
- J13. E. Dall’Anese and G. B. Giannakis, “Sparsity-leveraging Reconfiguration of Smart Distribution Systems,” *IEEE Transactions on Power Delivery*, vol. 29, no. 3, pp. 1417–1426, June 2014.
- J12. K. Rajawat, E. Dall’Anese, and G. B. Giannakis, “Dynamic Network Delay Cartography,” *IEEE Transactions on Information Theory*, vol. 60, no. 05, pp. 2910–2920, May 2014.
- J11. E. Dall’Anese, S. V. Dhople, and G. B. Giannakis, “Optimal Dispatch of Residential Photovoltaic Inverters,” *IEEE Transactions on Sustainable Energy*, vol. 5, n. 2, pp. 487–497, Apr. 2014.
- J10. A. G. Marques, E. Dall’Anese, and G. B. Giannakis, “Cross-Layer Optimization of Multihop Cognitive Networks using Interference Tweets,” *IEEE Journal of Selected Areas in Communications*, vol. 32, no. 3, pp. 641–653, Mar. 2014.

- J9. E. Dall’Anese, H. Zhu, and G. B. Giannakis, “Distributed Optimal Power Flow for Smart Microgrids,” *IEEE Transactions on Smart Grid*, vol. 4, no. 3, pp. 1464-1475, Sep. 2013.
- J8. Y. Zhang, E. Dall’Anese, and G. B. Giannakis, “Distributed Optimal Beamformers for Cognitive Radios Robust to Channel Uncertainties,” *IEEE Transactions on Signal Processing*, vol. 60, no. 12, Dec. 2012.
- J7. E. Dall’Anese and G. B. Giannakis, “Statistical Routing for Multi-hop Cognitive Networks,” *IEEE Journal of Selected Areas in Communications*, vol. 30, no. 10, pp. 1983-1993, Nov. 2012.
- J6. E. Dall’Anese, J.-A. Bazerque, and G. B. Giannakis, “Group Sparse Lasso for Cognitive Spectrum Sensing Robust to Outliers and Model Uncertainties,” *Physical Communication*, vol. 5, no. 2, pp. 161-172, Elsevier, June 2012.
- J5. T. Erseghe, D. Zennaro, E. Dall’Anese, and L. Vangelista, “Fast Consensus by the Alternating Direction Multipliers Method,” *IEEE Transactions on Signal Processing*, vol. 59, no. 11, pp. 5523-5537, Nov. 2011.
- J4. E. Dall’Anese, S.-J. Kim, G. B. Giannakis, and S. Pupolin, “Power Control for Cognitive Radio Networks Under Channel Uncertainty,” *IEEE Transactions on Wireless Communications*, vol. 10, no. 10, pp. 3541-3551, Oct. 2011.
- J3. E. Dall’Anese, S.-J. Kim, and G. B. Giannakis, “Channel Gain Map Tracking via Distributed Kriging,” *IEEE Transactions on Vehicular Technology*, vol. 60, no. 3, pp. 1205-1211, March 2011.
- J2. S.-J. Kim, E. Dall’Anese, and G. B. Giannakis, “Cooperative Spectrum Sensing for Cognitive Radios Using Kriged Kalman Filtering,” *IEEE Journal of Selected Topics in Signal Processing*, vol. 5, no. 1, pp. 24-36, Feb. 2011.
- J1. A. Assalini, E. Dall’Anese, and Silvano Pupolin, “On the Robustness of MIMO LMMSE Channel Estimation,” *IEEE Transactions on Wireless Communications*, vol. 9, Issue 11, pp. 3313-3319, Nov. 2010.

#### **Journal papers, non peer-reviewed**

- JN2. B. Kroposki, A. Bernstein, J. King, D. Vaidhynathan, X. Zhou, C.-Y. Chang, and E. Dall’Anese, “Autonomous Energy Grids,” *Power & Energy Magazine*, Nov. 2020.
- JN1. E. Dall’Anese, P. Mancarella, and A. Monti, “Unlocking Flexibility: Integrated Optimization and Control of Multi-energy Systems,” *Power & Energy Magazine*, Jan.-Feb. 2017.

#### **Conference papers under review**

- C74. L. Cothren\*, G. Bianchin<sup>‡</sup>, and E. Dall’Anese, “Data-enabled Gradient Flow as Feedback Controller: Regulation of Linear Dynamical Systems to Minimizers of Unknown Functions,” *4th Annual Learning for Dynamics & Control Conference*, submitted December 2021, under review.
- C73. F. Galarza-Jimenez\*, J. I. Poveda, and E. Dall’Anese, “Sliding-Seeking Control: Model-Free Optimization with Hard Constraints,” *4th Annual Learning for Dynamics & Control Conference*, submitted December 2021, under review.

- C72. N. Bastianello, A. Simonetto, and E. Dall’Anese, “OpReg-Boost: Learning to Accelerate Online Algorithms with Operator Regression,” *4th Annual Learning for Dynamics & Control Conference*, submitted December 2021, under review.
- C71. A. Ospina\*, N. Bastianello, and E. Dall’Anese, “Data-based Online Optimization of Networked Systems with Infrequent Feedback,” *American Control Conference*, submitted September 2021, under review.
- C70. K. Wood\*, G. Bianchin<sup>‡</sup>, and E. Dall’Anese, “Online Projected Gradient Descent for Stochastic Optimization with Decision-Dependent Distributions,” *American Control Conference*, submitted July 2021, under review.

### Conference papers

- C69. G. Bianchin<sup>‡</sup>, M. Vaquero, Cortés, and E. Dall’Anese, “Data-Driven Synthesis of Optimization-Based Controllers for Regulation of Unknown Linear Systems,” *IEEE Conf. on Decision and Control, IEEE Conference on Decision and Control*, Atlanta, GA, USA, Dec. 2021.
- C68. F. Galarza-Jimenez\*, J. I. Poveda, R. Kutadinata, L. Zhang, E. Dall’Anese, “Self-Optimizing Traffic Light Control using Hybrid Accelerated Extremum Seeking Algorithms,” *IEEE Conf. on Decision and Control*, Atlanta, GA, USA, Dec. 2021.
- C67. N. Bastianello\* and E. Dall’Anese, “Distributed and Inexact Proximal Gradient Method for Online Convex Optimization,” *European Control Conference*, June 2021.
- C66. K. J. Goodrick, E. Dall’Anese, and D. Maksimovic, “Systematic Design and Optimization of Large DC Distribution Architectures Using Simulated Annealing,” *IEEE Applied Power Electronics Conference*, June 2021
- C65. F. Galarza-Jimenez\*, J. I. Poveda, G. Bianchin<sup>‡</sup>, and E. Dall’Anese, “Extremum Seeking Under Persistent Gradient Deception: A Switching Systems Approach”, *American Control Conference*, May 2021.
- C64. A. Ospina\*, A. Simonetto, and E. Dall’Anese, “Personalized Demand Response via Shape-Constrained Online Learning,” *IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (IEEE Smart-GridComm)*, Nov. 2020.
- C63. A. Ajalloeian\*, A. Simonetto, and E. Dall’Anese, “Inexact Online Proximal-gradient Method for Time-varying Convex Optimization,” *American Control Conference*, Denver, CO, USA, July 2020.
- C62. M. Bucciarelli\*, S. Paoletti, E. Dall’Anese, and A. Vicino, “On the Greedy Placement of Energy Storage Systems in Distribution Grids,” *American Control Conference*, Denver, CO, USA, July 2020.
- C61. Bernstein, Y. Chen, M. Colombino, E. Dall’Anese, P. Mehta, and S. Meyn, “Quasi-Stochastic Approximation and Off-Policy Reinforcement Learning,” *IEEE Conference on Decision and Control*, Nice, France, Dec. 2019.
- C60. E. Benenati\*, M. Colombino, and E. Dall’Anese, “A Tractable Formulation for Multi-period Linearized Optimal Power Flow in Presence of Thermostatically Controlled Loads,” *IEEE Conference on Decision and Control*, Nice, France, Dec. 2019.

- C59. E. Dall’Anese, A. Simonetto, and A. Bernstein, “On the Convergence of the Inexact Running Krasnosel’skii-Mann Method,” *IEEE Conference on Decision and Control*, Nice, France, Dec. 2019.
- C58. C.-Y. Chang, M. Colombino, J. Cortes, and E. Dall’Anese, “Saddle-Flow Dynamics for Distributed Feedback-Based Optimization,” *IEEE Conference on Decision and Control*, Nice, France, Dec. 2019.
- C57. G. Cavararo, E. Dall’Anese, and A. Bernstein, “Dynamic Power State Estimation with Asynchronous Measurements,” *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Ottawa, Canada Nov. 2019.
- C56. J. King, E. Dall’Anese, M. Hong, and C. Bay, “Efficient Distributed Optimization of Wind Farms Using Proximal Primal-Dual Algorithms,” *American Control Conference*, Philadelphia, PA, USA, July 2019.
- C55. L. Madden\*, S. Becker, and E. Dall’Anese, “Online Sparse Subspace Clustering,” *IEEE Data Science Workshop*, Minneapolis, MN, June 2019.
- C54. A. Bernstein and E. Dall’Anese, “Asynchronous and Distributed Tracking of Time-Varying Fixed Points,” *IEEE Conference on Decision and Control*, Miami Beach, FL, USA, Dec. 2018.
- C53. Y. Tang, E. Dall’Anese, A. Bernstein, and S. H. Low, “A Feedback-Based Regularized Primal-Dual Gradient Method for Time-Varying Nonconvex Optimization,” *IEEE Conference on Decision and Control*, Miami Beach, FL, USA, Dec. 2018.
- C52. A. Zamzam, E. Dall’Anese, and N. D. Sidiropoulos, “Optimal Distributed Energy Storage Management Using Relaxed Dantzig-Wolfe Decomposition,” *IEEE Conference on Decision and Control*, Miami Beach, FL, USA, Dec. 2018.
- C51. M. S. Nazir, A. Bernstein E. Dall’Anese, and I. Hiskens, “Inner Approximation of Minkowski Sums: A Union-Based Approach and Applications to Aggregated Energy Resources,” *IEEE Conference on Decision and Control*, Miami Beach, FL, USA, Dec. 2018.
- C50. R. Ramakrishna, A. Bernstein, E. Dall’Anese, and A. Scaglione, “Joint Probabilistic Forecast of Temperature and Solar Irradiance,” *International Conference on Acoustics, Speech, and Signal Processing*, Calgary, Canada, April 2018.
- C49. Y. Guo, K. Baker, E. Dall’Anese, Z. Hu, and T. H. Summers, “Stochastic Optimal Power Flow Based on Data-Driven Distributionally Robust Optimization,” *American Control Conference*, Milwaukee, WI, USA June 2018.
- C48. B. Kroposki, E. Dall’Anese, A. Bernstein, Y. Zhang, B.-M. Hodge, “Autonomous Energy Grids,” *Hawaii International Conference on System Sciences (HICSS)*, Big Island, HI, Jan. 2018.
- C47. S. Guggilam, C. Zhao, E. Dall’Anese, Y. C. Chen, and S. Dhople, “Engineering Inertial and Primary-frequency Response for Distributed Energy Resources,” *56th IEEE Conference on Decision and Control*, Melbourne, Australia, Dec. 2017.
- C46. A. Zamzam, X. Fu, E. Dall’Anese, and N. D. Sidiropoulos, “Distributed Optimal Power Flow Using Feasible Point Pursuit,” *IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, Curacao, Dutch Antilles, Dec. 2017.
- C45. E. Dall’Anese, A. Bernstein, and A. Simonetto, “Feedback-based Projected-gradient Method for Real-time Optimization of Aggregations of Energy Resources,” *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Montreal, Canada, Nov. 2017.



- C44. A. Bernstein and E. Dall’Anese, “Bi-level Dynamic Optimization with Feedback,” *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Montreal, Canada, Nov. 2017.
- C43. Y. Zhang, E. Dall’Anese, and M. Hong, “Dynamic ADMM for Real-time Optimal Power Flow,” *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Montreal, Canada, Nov. 2017.
- C42. X. Zhou, Z. Liu, E. Dall’Anese, and L. Chen, “Stochastic Dual Algorithm for Voltage Regulation in Distribution Networks with Discrete Loads,” *IEEE Smart-GridComm*, Dresden, Germany, Oct. 2017.
- C41. A. Bernstein and E. Dall’Anese, “Linear Power-flow Models in Multiphase Distribution Networks,” *IEEE PES International Conference on Innovative Smart Grid Technologies (ISGT Europe)*, Torino, Sept. 2017.
- C40. C. Zhao, E. Dall’Anese, and S. Low, “Convex relaxation of OPF in multiphase radial networks with delta connections,” *IREP Bulk Power Systems Dynamics and Control Symposium*, Espinho, Portugal, August 2017.
- C39. A. S. Zamzam, C. Zhao, E. Dall’Anese, and N. D. Sidiropoulos, “A QCQP approach for OPF in multiphase radial networks with delta connections,” *IREP Bulk Power Systems Dynamics and Control Symposium*, Espinho, Portugal, August 2017.
- C38. A. Simonetto and E. Dall’Anese, “A First-order Prediction-Correction Algorithm for Time-Varying (Constrained) Optimization,” *20th IFAC World Congress*, Toulouse, France, July 2017.
- C37. S. Guggilam, C. Zhao, E. Dall’Anese, Y. C. Chen, and S. Dhople, “Primary Frequency Response with Aggregated DERs,” *American Control Conference*, Seattle, WA, May 2017.
- C36. X. Zhou, E. Dall’Anese, L. Chen, and K. Baker, “Incentive-based Voltage Regulation in distribution Systems,” *American Control Conference*, Seattle, WA, May 2017.
- C35. Y. Zhang, M. Hong, E. Dall’Anese, S. V. Dhople, and X. Zu, “Regulation of Renewable Energy Sources to Optimal Power Flow Solutions using ADMM,” *American Control Conference*, Seattle, WA, May 2017.
- C34. K. Baker, A. Bernstein, E. Dall’Anese, and C. Zhao, “Network-Cognizant Design of Volt/VAR Controllers,” *IEEE PES Innovative Smart Grid Technologies Conference*, Arlington, VA, April 2017.
- C33. E. Dall’Anese, A. Simonetto, and S. V. Dhople, “Design of Distributed Controllers Seeking Optimal Power Flow Solutions Under Communications Constraints,” *55th IEEE Conference on Decision and Controls*, Las Vegas, NV, Dec. 2016.
- C32. E. Dall’Anese, T. Summers, and K. Baker, “Adaptive Optimal Power Flow for Distribution Systems Under Uncertain Forecasts,” *55th IEEE Conference on Decision and Control*, Las Vegas, NV, Dec. 2016.
- C31. X. Zhou, J. Tian, L. Chen, and E. Dall’Anese, “Local Voltage Control in Distribution Networks: A Game-Theoretic Perspective,” *Proc. of 48th North American Power Symposium*, Denver, CO, Sep. 2016.
- C30. K. Baker, E. Dall’Anese, and T. Summers, “Distribution-Agnostic Stochastic Optimal Power Flow for Distribution Grids,” *Proc. of 48th North American Power Symposium*, Denver, CO, Sep. 2016.

- C29. B. Baingana, E. Dall’Anese, and G. Mateos, “Robust Kriged Kalman Filter,” *Proc. of 47th Asilomar Conference on Signal, Systems and Computers*, Pacific Groove, CA, USA, Nov. 2015.
- C28. E. Dall’Anese, S. Dhople, and G. B. Giannakis, “Regulation of Dynamical Systems to Optimal Solutions of Semidefinite Programs: Algorithms and Applications to AC Optimal Power Flow,” *American Control Conf.*, Chicago, IL, July 1-3, 2015.
- C27. A. G. Marques, E. Dall’Anese and G. B. Giannakis, “Primary Receiver Localization Using Sparsity and Interference Tweets,” *Proc. of 5th Intl. Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, Saint Martin, Dec. 2013.
- C26. E. Dall’Anese and G. B. Giannakis, “Optimal Distributed Generation Placement in Smart Microgrids via Semidefinite Relaxation,” *45th Asilomar Conference on Signal, Systems and Computers*, Pacific Groove, CA, USA, Nov. 2013 (invited).
- C25. E. Dall’Anese and G. B. Giannakis, “Convex Distribution System Reconfiguration via Group Sparsity,” *IEEE PES General Meeting 2013*, Vancouver, Canada, July, 2013.
- C24. E. Dall’Anese, A. G. Marques, and G. B. Giannakis, “Hierarchical Spectrum Sharing using Interference Tweets,” *Proc. of the 14th IEEE Intl Works. on Signal Processing Advances for Wireless Commun.*, Darmstadt, Germany, June, 2013.
- C23. A. G. Marques, E. Dall’Anese and G. B. Giannakis, “Joint Resource Allocation and Receiver Occupancy Map Estimation in Underlay Cognitive Radios,” *Proc. of the 38th IEEE Intl. Conf. on Acoustics, Speech and Signal Processing*, Vancouver, Canada, May, 2013.
- C22. E. Dall’Anese, G. B. Giannakis, and B. F. Wollenberg, “Optimization of Unbalanced Power Distribution Networks via Semidefinite Relaxation,” *Proc. of the 44th North American Power System Symposium*, University of Illinois at Urbana-Champaign, IL, Sep. 2012.
- C21. K. Rajawat, E. Dall’Anese, and G. B. Giannakis, “Dynamic Network Kriging,” *Proc. of IEEE Workshop on Statistical Signal Processing*, Ann Arbor, USA, Aug. 2012.
- C20. E. Dall’Anese and G. B. Giannakis, “Statistical Routing for Random Access Cognitive Networks,” *Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing*, Kyoto, Japan, Mar. 2012.
- C19. Y. Zhang, E. Dall’Anese, and G. B. Giannakis, “Distributed Robust Beamforming for MIMO Cognitive Networks,” *Proc. of Intl. Conf. on Acoustics, Speech and Signal Processing*, Kyoto, Japan, Mar. 2012.
- C18. E. Dall’Anese and G. B. Giannakis, “Distributed Cognitive Spectrum Sensing via Group Sparse Total Least-Squares,” *Proc. of the Fourth International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, San Juan, Puerto Rico, Dec. 2011.
- C17. K. Rajawat, E. Dall’Anese, and G. B. Giannakis, “Joint Power and Rate Control for Coded Wireless Packet Networks,” *Proc. of the 45th Asilomar Conference on Signal, Systems and Computers*, Pacific Groove, CA, USA, Nov. 2011 (Invited).
- C16. E. Dall’Anese, S. Pupolin, and A. Assalini, “Sum Mutual Information of Block-faded MIMO MAC MIMO with LMMSE Channel Estimation for Packet Transmission,” *Proc. of the 14th International Symposium on Wireless Personal Multimedia Communications*, Brest, France, Oct. 2011.

- C15. E. Dall’Anese, S.-J. Kim, and G. B. Giannakis, “Admission and Power Control Power Allocation for Cognitive Radio Networks by Sequential Geometric Programming,” *Proc. of the 17th International Conference on Digital Signal Processing*, Corfu, Greece, Jul. 2011 (Invited).
- C14. E. Dall’Anese, J.-A. Bazerque, H. Zhu, and G. B. Giannakis, “Group Sparse Total Least-Squares for Cognitive Spectrum Sensing,” *Proc. of the 12th IEEE International Workshop on Signal Processing Advances in Wireless Communications*, San Francisco, CA, Jun. 2011.
- C13. E. Dall’Anese, S.-J. Kim, G. B. Giannakis, and S. Pupolin, “Power Allocation for Cognitive Radio Networks Under Channel Uncertainty,” *Proc. of the IEEE International Conference on Communications 2011*, Kyoto, Japan, Jun. 2011.
- C12. D. Zennaro, E. Dall’Anese, T. Erseghe, and L. Vangelista, “Fast Clock Synchronization in Wireless Sensor Networks via ADMM-based Consensus,” *Proc. of the 9th International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks, WiOpt 2011*, Princeton, USA, May 2011.
- C11. E. Dall’Anese and S. Pupolin, “Sum Mutual Information of MIMO Multiple Access Channels with Channel Estimation Error,” *Proc. of Wireless Vitae 2011*, Chennai, India, Mar. 2011 (Invited).
- C10. S.-J. Kim, E. Dall’Anese, G. B. Giannakis, and S. Pupolin, “Collaborative Channel Gain Map Tracking for Cognitive Radios,” in *Proc. of The 2nd International Workshop on Cognitive Information Processing*, Elba Island, Italy, Jun. 2010.
- C9. M. Siti, A. Assalini, E. Dall’Anese, and S. Pupolin, “Low Complexity Decision-Directed Channel Estimation based on a Reliable-Symbol Selection Strategy for OFDM Systems,” *Proc. of IEEE International Conference on Communications 2010*, Cape Town, South Africa, 23-27 May 2010.
- C8. E. Dall’Anese, “Geostatistics-Inspired Sparsity-Aware Cooperative Spectrum Sensing for Cognitive Radio Networks,” *Proc. of The Second International Workshop on Mobile Opportunistic Networking (Ph.D. Forum)*, Pisa, Italy, Feb. 2010.
- C7. S.-J. Kim, E. Dall’Anese, and G. B. Giannakis, “Spectrum Sensing for Cognitive Radios Using Krigeed Kalman Filtering,” *Proc. of The Third International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, Aruba, Dutch Antilles, Dec. 2009 (invited paper).
- C6. S.-J. Kim, E. Dall’Anese, and G. B. Giannakis, “Sparsity-Aware Cooperative Cognitive Radio Sensing Using Channel Gain Maps,” *Proc. of the 43rd Asilomar Conference on Signal, Systems and Computers*, Pacific Grove, CA, USA, Nov. 2009.
- C5. E. Dall’Anese, A. Assalini, and S. Pupolin, “Effect of Channel Covariance Error on the MIMO Linear MMSE Channel Estimator,” *Proc. of The 12th International Symposium on Wireless Personal Multimedia Communications*, Sendai, Japan, Sep. 2009.
- C4. A. Assalini, E. Dall’Anese, and S. Pupolin, “Linear MMSE MIMO Channel Estimation with Imperfect Channel Covariance Information,” *Proc. of IEEE International Conference on Communications 2009*, Dresden, Germany, 14-18 Jun. 2009.
- C3. E. Dall’Anese, A. Assalini, and S. Pupolin, “On the Effect of Imperfect Channel Estimation upon the Capacity of Correlated MIMO Fading Channels,” *Proc. of IEEE Vehicular Technology Conference 2009 Spring*, Barcelona, Spain, 26-29 Apr. 2009.

- C2. E. Dall’Anese, A. Assalini, and S. Pupolin, “Reduced-Rank LS Estimation for MIMO-OFDM Systems,” *Proc. of The 11th International Symposium on Wireless Personal Multimedia Communications*, Lapland, Finland, Sep. 2008.
- C1. E. Dall’Anese, A. Assalini, and S. Pupolin, “On Reduced-Rank Channel Estimation and Prediction for OFDM-based Systems,” *Proc. of The 10th International Symposium on Wireless Personal Multimedia Communications*, Jaipur, India, Dec. 2007.

### Book chapters

- B2. E. Dall’Anese and N. Gatsis, “Distributed Optimization of Power and Energy Systems,” *Data Analytics for Power Systems*, Cambridge University Press, edited by Ali Tajer, Samir M. Perlaza, H. Vincent Poor, 2020 (in press).
- B1. S.-J. Kim, E. Dall’Anese, J. A. Bazerque, K. Rajawat, and G. B. Giannakis, “Advances in Spectrum Sensing and Cross-Layer Design in Cognitive Radio Networks,” *Eurasip, E-Reference Signal Processing*, Nov. 2012.

### Thesis

- T3. E. Dall’Anese, “Spatio-temporal Spectrum Reuse based on Channel Gain Cartography,” Ph.D. Thesis, University of Padova, 2010.
- T2. E. Dall’Anese, “Adaptive Channel Estimation for OFDM-based Systems in Vehicular Channels,” *Laurea Specialistica’s Thesis (M.Sc. Degree)*, University of Padova, 2007.
- T1. E. Dall’Anese, “Wireless Wideband Access: The IEEE 802.16 (WiMax) Standard,” *Laurea Triennale’s Thesis (B.Sc. Degree)*, University of Padova, 2005.

### Patents

- P5. K. Baker, A. Bernstein, and E. Dall’Anese, “Network-cognizant voltage droop control,” US Patent Patent No. 10,784,682 B2, Sept. 2020.
- P4. E. Dall’Anese, A. Bernstein, and A. Simonetto, “Real-time Feedback-based Optimization of Distributed Energy Resources,” US Patent No. 2020/0083713 A1, Mar. 2020.
- P3. E. Dall’Anese, A. Simonetto, and S. Dhople, “Real-time Voltage Regulation Through Gather and Broadcast Techniques,” US Patent No. US 10148092 B2, Dec. 2018.
- P2. S. Dhople, G. B. Giannakis, and E. Dall’Anese, “Decentralized Optimal Dispatch of Photovoltaic Inverters in Power Distribution Systems,” U.S. Patent No. US 10,139,800 B2, Nov. 2018.
- P1. G. B. Giannakis, E. Dall’Anese, J. A. Bazerque, H. Zhu, and G. Mateos, “Robust Parametric Power Spectral Density (PSD) Construction.” U.S. Patent No. US 9,363,679 B2, Jun. 2016.

### HONORS AND AWARDS

#### Early Career Awards

- National Science Foundation CAREER Award, 2020.

### Service Recognitions

- Outstanding Service as Reviewer for the year 2018 for the IEEE Control Systems Letters.

### Best Paper Awards

- 2021 IEEE PES Prize Paper Award
- Best Paper Award for journal article [J29] from IEEE Power & Energy Society, 2021
- Best Paper Award for journal article [J34] from IEEE Power & Energy Society, 2020
- Best Paper Award for journal article [J33] from IEEE Power & Energy Society, 2020

### Other Awards

- NREL Staff Awards for exceptional performance, March 2018.
- NREL Chairman’s Award for exceptional performance, August 2016.
- Finalist for the “Franco Strazzabosco Award for Young Engineers,” Italian Scientist and Scholar of North America Foundation, 2014.
- Finalist for the “Franco Strazzabosco Award for Young Engineers,” Italian Scientist and Scholar of North America Foundation, 2013.

### Other Recognitions

- Fellowship from the University of Padova (2007–2010).
- Fellowship from the University of Padova (2002–2005).

## FUNDING

### Funding at the University of Colorado Boulder

- **Principal Investigator (PI):** “Collaborative Research: Closed-loop Optimization and Control of Physical Networks Subject to Dynamic Costs, Constraints, and Disturbances,” National Science Foundation, Dynamics, Control and Systems Diagnostics program. Co-PI: Jorge Cortés (University of California San Diego). Funds: \$600,000; PI portion: \$300,000. Period of performance: January 2021 - December 2023.
- **PI:** “CAREER: Synthesis of Feedback-based Online Algorithms for Power Grids,” National Science Foundation, Energy, Power, Control, and Networks program. Funds: \$500,000. Period of performance: February 2020 - January 2025.
- **PI:** “Control-theoretic design of data-driven policies for containing transmission of infectious diseases,” AB Nexus. Funds: \$50,000. Co-PIs: Andrea Buchwald (University of Colorado Anschutz), Jorge Poveda (University of Colorado Boulder). Period of performance: March 2021 - September 2023.
- **PI:** “Autonomous Urbanization for Mobility and Communities,” National Renewable Energy Laboratory. Funds: \$105,000.00. Period of performance: December 2020 - November 2021.
- **co-PI:** “NSF ERC: Advancing Sustainability through Powered Infrastructure for Roadway Electrification,” National Science Foundation, Engineering Research Center. Lead: Utah State University; team members: University of Colorado Boulder, Purdue University, University of Texas El Paso. PI for University of Colorado Boulder: Qin Lv; co-PIs: Dragan Maksimovic, Emiliano Dall’Anese, Bri-Mathias Hodge, Jana Milford, Jacquelyn Sullivan. Funds: \$4,000,000; co-PI portion: \$600,000. Period of performance: September 2020 - August 2025.
- **PI:** “Synthesis of Real-time Optimization Algorithms for Autonomous Urban Mo-

bility,” National Renewable Energy Laboratory. Funds: \$57,765. Period of performance: April 2020 - September 2020.

- **co-PI** “AMPS: Online and Model-free Optimization of Power and Energy Systems,” National Science Foundation, Algorithms for Modern Power Systems (AMPS) program. PI: Stephen Becker (University of Colorado Boulder). Funds: \$342,764; co-PI portion: \$171,382. Period of performance: August 2019 - August 2022.
- **co-PI** “Learning to Control Safety-Critical Systems,” Research & Innovation Office of the University of Colorado Boulder. PI: Ashutosh Trivedi (University of Colorado Boulder), other co-PI: Fabio Somenzi (University of Colorado Boulder). Funds: \$50,000. Period of performance: August 2019 - July 2020.
- **PI**: “Autonomous Energy Systems Research and Support,” National Renewable Energy Laboratory. Funds: \$149,249. Period of performance: August 2018 - September 2020.
- **PI**: “Design and analysis of online optimization methods for next-generation energy systems,” National Renewable Energy Laboratory. Funds: \$171,920. Period of performance: August 2018 - August 2019.
- **co-PI**: “Multi-Objective Deep Reinforcement Learning for Grid Interactive Energy Efficient Buildings,” U.S. Department of Energy (DOE), Buildings Technology Office. PI: Andrey Bernstein (NREL). Federal funds: \$1,500,000; co-PI portion: \$223,481. Period of performance: August 2019 - August 2022.

#### **Funding at the National Renewable Energy Laboratory**

- **PI**: “Real-time optimization and control of next-generation distribution infrastructure,” U.S. DOE, Advance Research Project Agency – Energy (ARPA-E), Network Optimized Distributed Energy Systems (NODES) program. Co-PIs: Steven Low (Caltech), Na Li (Harvard University), Sairaj Dhople (University of Minnesota), and Christopher Clarke (Southern California Edison). Federal funds: \$4,200,000, cost-share: \$500,000. Period of performance: July 2016 - July 2019.
- **PI**: “Autonomous Energy Grids: a new paradigm to enhance resiliency, security and reliability,” DOE Office of Electricity, Advanced Grid Modeling (AGM) Program. Federal funds: \$200,000. Period of performance: Jan. 2018 - Aug. 2018.
- **PI**: “Optimization of Smart Multi-energy Districts,” Laboratory Directed Research and Development (LDRD) Program at the National Renewable Energy Laboratory (NREL). Funds: \$400,000. Period of performance: Oct. 2016 - Sep. 2018.
- **PI**: “Distributed Inverter Controllers Seeking Reliability and Economic-Optimality of Photovoltaic-Dominant Distribution System,” LDRD Program at NREL. Funds: \$454,859. Period of performance: Oct. 2015 - Sep. 2017.
- NREL leader for the project “GMLC 1.4.10 Control Theory,” Grid Modernization Laboratory Consortium; PI: Scott Backhaus (LANL); NREL funds: \$800,000. Period of performance: April 2016 - March 2019.

#### **TEACHING ACTIVITIES**

#### **Teaching at the University of Colorado Boulder**

##### Graduate courses

- ECEN 5478 Online Convex Optimization and Learning, Fall 2021
- ECEN 5008 Online Convex Optimization, Fall 2020
- ECEN 5008 Coordinated Control of Multi-agent Systems, Fall 2018, Fall 2020
- ECEN 5007 Optimization for Energy Systems, Spring 2019
- ECEN 5008 Advances in Optimization and Control of Power Systems, Spring 2018, Spring 2017

#### Undergraduate courses

- ECEN 3300 Linear Systems, Spring 2021
- ECEN 3300 Linear Systems, Spring 2020

#### Curriculum Development

- EECEN 5478 Online Convex Optimization and Learning (Graduate)
- ECEN 5008 Coordinated Control of Multi-agent Systems (Graduate)
- ECEN 5007 Optimization for Energy Systems (Professional Master Program)

#### Teaching at the University of Minnesota

- Spring semester 2014: advisor for the EE4951 Senior Design Project; project title: “Data analytics for the University of Minnesota power grid.”
- Fall semester 2013: guest lecturer for the class EE 4721 Introduction to Power Systems Analysis.
- Spring semester 2013: advisor for the EE4951 Senior Design Project; project title: “Monitoring the University of Minnesota Network Health.”
- Fall semester 2011: guest lecturer for the class EE8500 Communications Seminar.
- Fall semester 2009: guest lecturer for the class EE8500 Communications Seminar.

#### Teaching at the University of Padova

- Fall Semester 2008: guest lecturer for the class Mobile Communications
- Fall Semester 2008: lab coordinator for the class Mobile Communications.

#### ADVISING AND MENTORING

##### Doctoral Student Advisees

1. Lily (Liliaokeawawa) Cothren, ECEE Ph.D. student, May 2021 - present.
2. Felipe Galarza Jimenez, ECEE Ph.D. student, August 2019 - present.  
(co-advised, primary advisor Jorge I. Poveda)
3. Seunghyun Kim, Applied Mathematics Ph.D. student, May 2020 - present.
4. Liam Madden, Applied Mathematics Ph.D. student, August 2018 - present.  
(co-advised, secondary advisor Stephen Becker)
5. Ana Maria Ospina Sierra, ECEE Ph.D. student, January 2019 - present.
6. Killian Wood, Applied Mathematics Ph.D. student, August 2020 - present.

##### Master Student Advisees

1. Amirhossein Ajalloeian, ECEE, August 2018 - August 2020.

##### Post-doctoral Fellows Supervised

1. Dr. Gianluca Bianchin, April 2020 - present.
2. Dr. Mohammadhafez Bazrafshan, September 2018 - December 2018.

##### Undergraduate Student Advisees

1. Molly Alvine, ECEE, August 2021 - present.
2. Natalie Hellman, ECEE, May 2020 - May 2021.

### Visiting Scholars Hosted

1. Aoife Henry, Master Student, ETH Zurich, September 2020 - May 2021.
2. Nicola Bastianello, Ph.D. student, University of Padova, October 2019 - April 2020.
3. Martina Bucciarelli, Ph.D. student, University of Siena, January 2019 - May 2019.
4. Emilio Benenati, Master student, ETH Zurich, September 2018 - March 2019.

### Doctoral Defense Committee Member

1. Misha Sinner, Electrical, Computer, and Energy Engineering, May 2021. Advisor: Lucy Pao.
2. Sangwoo Moon, Aerospace Engineering, November 2020. Advisor: Eric Frew.
3. Kaitlyn Nicole Garifi, Electrical, Computer, and Energy Engineering, October 2020. Advisor: Kyri Baker.
4. Daniel Zalkind, Electrical, Computer, and Energy Engineering, January 2020. Advisor: Lucy Pao.

### Mentoring at the National Renewable Energy Laboratory (2014 - 2018)

1. Marcello Colombino (NREL); postdoc, Feb 2018 - Aug. 2018.
2. Yujie Tang (California Institute of Technology, Advisor: Prof. Steven Low); PhD student, internship during summer 2018.
3. Xinyang Zhou (University of Colorado at Boulder, Advisor: Prof. Lijun Chen); PhD student, internship during summer 2016 and summer 2017.
4. Ahmed Zamzam (University of Minnesota, Advisor: Prof. Nicholas Sidiropoulos); PhD student, internship during summer 2017.
5. Salman Nazir (University of Michigan, Advisor: Prof. Ian A. Hiskens); PhD student, internship during summer 2017.
6. Adrian Hauswirth (ETH Zurich, Advisor: Prof. Florian Dörfler); PhD student, visiting professional during summer 2016.

### PROFESSIONAL AFFILIATIONS

- Institute of Electrical and Electronics Engineers (IEEE), Member, 2008 - present
- INFORMS, Member, 2019.
- Italian Scientist and Scholar of North America Foundation, Member, 2012 - present
- Associazione Bellunesi nel Mondo, Member, 2013 - present

### PROFESSIONAL SERVICE ACTIVITIES

#### Associate Editor

- IEEE Control Systems Letters (L-CSS) January 2020 - present
- IEEE Conference on Control Technology and Applications (CCTA) 2020

#### Associate Editor at Large

- IEEE Conference on Control Technology and Applications (CCTA) 2020



## Panelist

- NSF Cyber-Physical Systems Panel, 2019 and 2020
- NSF DCDS, 2021

## Peer Review Activities

### *Current:*

- *Journals:* IEEE Transactions on Automatic Control, IEEE Transactions on Control of Network Systems, IEEE Control Systems Letters, Automatica, IEEE Transactions on Signal Processing, IEEE Transactions on Smart Grid.
- *Conferences:* American Control Conference, IEEE Conference on Decision and Controls, IEEE Conference on Control Technology and Applications, IEEE SmartGridComm, IEEE Global Conference on Signal and Information Processing.

### *Past:*

- *Journals:* Signal Processing Letters, Transactions on Power Systems.
- *Conferences:* IEEE International Conference on Acoustics, Speech, and Signal Processing, Power Systems Computational Conference.

## Workshop organizer

- 1st Rocky Mountain Workshop on Decisions, Autonomous Systems, and Controls, planned for 2021 (co-organizer)
- NREL workshop on Autonomous Energy Grids, Sept. 2017.
- NREL workshop on Frontiers in Distributed Optimization & Control of Sustainable Power Systems, Jan. 2016.

## Technical Program Committee

IFAC Conference on Networked Systems 2022, ACM e-Energy 2022, IEEE Globasip 2019, Power Systems Computation Conference 2018, GreenMetrics 2017, IEEE SmartGridComm 2018, IEEE SmartGridComm 2017, IEEE Globasip 2017, IEEE SmartGridComm 2016, IEEE Globasip 2016, Smart Grid Communication Symposium of Globecom 2015.

## Organizing Committee Member

- Symposium on “Information Processing, Learning and Optimization for Smart Energy Infrastructures” at IEEE GlobalSIP 2018.

## Conference Invited Session Organizer

- “Feedback-based Online Optimization for Networked Systems”, co-organized with F. Dörfler (ETH Zurich), A. Simonetto (IBM Research Ireland), and A. Bernstein (NREL), 57th IEEE Conference on Decision and Control, 2020

## Chair activities

- Co-chairing for the Special Interest Group on ICT-Enabled Transactive Energy and Grid Economics, IEEE Communications Society, Dec. 2017 – Dec. 2018.
- Paper Chair for the International Conference on Computing, Networking and Communications, 2016.

## Conference Session Chair

- “Optimization Algorithms I,” American Control Conference, 2020
- “Optimization I” (co-chair), 58th IEEE Conference on Decision and Control, 2019

## UNIVERSITY SERVICE ACTIVITIES

### Service Activities at the University Colorado Boulder

- BOLD Center’s S-STEM GoldShirt, faculty advisor, November 2020 - present.
- Strategic Planning Committee, Department of Electrical, Computer, and Energy Engineering, July 2020 - present.
- Executive Committee, Department of Electrical, Computer, and Energy Engineering, February 2020 - present.
- Department Chair Search Committee, Department of Electrical, Computer, and Energy Engineering, Spring 2019.
- Graduate Studies Committee, Department of Electrical, Computer, and Energy Engineering, August 2018 - May 2019.
- NSF CAREER proposal reviewer for the College of Engineering and Applied Science, June 2020, June 2021.

## SEMINARS/TALKS

- S46. “Data-driven online optimization of dynamical systems: Algorithms and applications to power grids,” University of California San Diego, November 2021 (webinar).
- S45. “Data-based Online Optimization of Networked Systems,” Washington State University, October 2021 (webinar).
- S44. “Data-based Online Optimization of Networked Systems,” Laboratory for Information and Decision Systems, Massachusetts Institute of Technology, October 2021 (webinar).
- S43. “Online Stochastic Optimization of Unknown Linear Systems: Data-Driven Controller Synthesis and Applications to Energy Systems,” NREL Workshop on Resilient Autonomous Energy Systems, September 2021 (webinar).
- S42. “Feedback-based online optimization of power grids with users in the loop,” IEEE Power & Energy Chapter, University of California Berkeley, May 2021 (webinar).
- S41. “Closed-loop online optimization of dynamical systems,” Center for Control, Dynamical Systems, and Computation, University of California Santa Barbara, April 2021 (webinar).
- S40. “Online algorithms and applications at the intersection of optimization, control, and learning,” University of Colorado Boulder, September 2020 (webinar).
- S39. “Online Optimization of Switched LTI Systems,” NREL Workshop on Autonomous Energy Systems, August 2020 (webinar).
- S38. “Synthesis of Feedback-Based Online Algorithms for Time-varying Network Optimization,” Iowa State University, July 2020 (webinar).
- S37. “Online Distributed Proximal-gradient Method for Time-varying Convex Optimization,” National Renewable Energy Laboratory, May 2020 (webinar).
- S36. “Synthesis of Feedback-Based Online Algorithms for Time-varying Network Optimization,” NREL workshop on Innovative Optimization and Control Methods for Highly Distributed Autonomous Systems Workshop, April 2019.

- S35. ‘Synthesis of Feedback-Based Online Algorithms for Time-varying Network Optimization,’ University of Colorado Boulder, Applied Mathematics Colloquium, February 2019.
- S34. ‘Synthesis of Feedback-Based Online Algorithms for Time-varying Network Optimization,’ The mathematics of energy systems, Isaac Newton Institute for Mathematical Sciences, Cambridge, UK, January 2019.
- S33. ‘Synthesis of Feedback-Based Online Algorithms for Time-varying Network Optimization,’ University of Padova, Italy, January 2019.
- S32. ‘Online Optimization with Feedback,’ University of Colorado at Boulder, StatOptML seminar series, September 25, 2018.
- S31. ‘Feedback-based Online Optimization of Large-Scale Networked Energy Systems,’ Columbia University, March 2018.
- S30. ‘Feedback-based Online Optimization of Large-Scale Networked (Energy) Systems,’ University of Colorado at Boulder, January 25, 2018.
- S29. ‘Real-time optimization of distribution grids for increased flexibility and resilience,’ NREL Smart Grid Educational Series, October 2017 (webinar).
- S28. ‘Online optimization of virtual power plants,’ Stanford University, April 2017.
- S27. ‘Realizing dispatchable virtual power plants,’ University of Michigan, Ann Arbor, November 17, 2016.
- S26. ‘Online optimal power flow for distribution systems with renewables,’ University of Minnesota, Minneapolis, June 2, 2016.
- S25. ‘Advances in distributed control of distribution-level energy resources’, IEEE Denver Section, May 10, 2016.
- S24. ‘Bridging the gap between control and steady-state optimization in distribution systems,’ Los Alamos National Laboratory, Los Alamos, NM, March 14, 2016.
- S23. ‘Bridging the gap between control and steady-state optimization in distribution systems,’ University of Colorado at Denver, Denver, CO, March 8, 2016.
- S22. ‘Bridging the gap between control and steady-state optimization in distribution systems,’ University of Colorado at Boulder, Boulder, CO, February 26, 2016.
- S21. ‘Pursuing optimality in future distribution systems,’ NREL Workshop on Frontiers in Distributed Optimization & Control of Sustainable Power Systems, Golden, CO, January 28, 2016.
- S20. ‘Optimal power flow pursuit,’ University at Texas San Antonio, San Antonio, TX, October 16, 2015.
- S19. ‘Bridging the gap between control and steady-state optimization in distribution systems,’ Texas A&M University, College Station, TX, April 22, 2015.
- S18. ‘Bridging the gap between control and steady-state optimization in distribution systems,’ Colorado State University, Fort Collins, CO, March 30, 2015.
- S17. ‘Bridging the gap between control and steady-state optimization in distribution systems,’ Purdue University, West Lafayette, IN, March 3, 2015.
- S16. ‘Photovoltaic inverter controller seeking AC optimal power flow solutions,’ University of Illinois at Urbana-Champaign, Urbana, IL, March 2, 2015.
- S15. ‘Optimal operation of future distribution systems via sparsity and semidefinite relaxation,’ Northeastern University, Boston, MA, Apr. 1, 2014.

- S14. “Optimal operation of future distribution systems with increased renewable integration,” University at Buffalo, The State University of New York, Amherst, NY, Mar. 5, 2014.
- S13. “Optimal operation of future distribution systems with increased renewable integration,” University of Vermont, Burlington, VT, Feb. 28, 2014.
- S12. “Optimal operation of future distribution systems with increased renewable integration,” Lehigh University, Bethlehem, PA, Feb. 24, 2014.
- S11. “Optimal operation of distribution systems with increased renewable generation,” University of Nevada, Reno, NV, Feb. 18, 2014.
- S10. “Optimal energy management in future distribution systems with renewable sources,” ISSNAF Annual Meeting, Washington, DC, Oct. 29, 2013.
- S9. “Optimization of modern power distribution systems using sparsity and semidefinite relaxation,” University of British Columbia, Vancouver, Canada, July 2013.
- S8. “Optimal dispatch of photovoltaic inverters in residential neighborhoods,” Workshop on Mathematical and Computational Challenges in the Control, Optimization, and Design of Energy-Efficient Buildings, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis, MN, June 2013.
- S7. “Optimization of modern power distribution systems using sparsity and semidefinite relaxation,” University of North Carolina at Charlotte, Charlotte, NC, Apr. 2013.
- S6. “Power Control for Cognitive Networks Under Channel Uncertainty,” University of Minnesota, Minneapolis, MN, Sep. 2010.
- S5. “Robust spectrum sensing via group sparse total least-squares,” Technische Universiteit Delft, Delft, Netherlands, Apr. 2011.
- S4. “Channel Gain Cartography for Cognitive Radio Networks,” University of Padova, Padova, Italy, Nov. 2010.
- S3. “Channel Gain Cartography for Wireless Networks,” University of Minnesota, Minneapolis, MN, Jul. 2010.
- S2. “Sparsity-Aware Cooperative Cognitive Spectrum Sensing Using Channel Gain Maps,” University of Padova, Padova, Italy, Jan. 2010.
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INVITED  
PRESENTATIONS AT  
CONFERENCES

- IP8. “NSF CAREER: Synthesis of Feedback-based Online Algorithms for Power Grids,” IEEE Power & Energy General Meeting, July 2021.
- IP7. “Learning to optimize grid-edge devices in real time,” IEEE Power & Energy General Meeting Super Session, July 2021.
- IP6. “Personalized Online Optimization of Networked Systems via Gaussian Processes,” 55th Annual Conference on Information Sciences and Systems, March 2021.
- IP5. “Feedback-based Online Optimization For Power Grids,” INFORMS Annual Meeting, Nov. 2018.
- IP4. “Unlocking flexibility: Integrated optimization of multi-energy systems,” IEEE Power & Energy General Meeting, Chicago, IL, July 2017.
- IP3. “A system-theoretic control framework for virtual power plants,” Grid Science Winter Conference, Santa Fe, NM, Jan. 2017.

IP2. “Optimization of multi-energy systems,” IEEE Power & Energy General Meeting, Boston, July 2016.

IP1. “Optimal Power Flow Pursuit,” American Control Conference, Boston, July 2016.

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