

Na (Lina) Li

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Academic Appointments

- 07/2018– Thomas D. Cabot Associate Professor of Electrical Engineering and Applied Mathematics
John A. Paulson School of Engineering and Applied Sciences
Harvard University
- 07/2014– 06/2018 Assistant Professor of Electrical Engineering and Applied Mathematics
John A. Paulson School of Engineering and Applied Sciences
Harvard University
- 09/2018– Research Affiliate, Laboratory of Information and Decision Systems
Massachusetts Institute of Technology
- 03/2018–05/2018 Visiting scholar, Simons Institute for the Theory and Computing
University of California, Berkeley
- 07/2013–06/2014 Postdoc Associate, Laboratory of Information and Decision Systems
Massachusetts Institute of Technology
Supervisor: Munther Dahleh

Education

- 2007–2013 Ph.D., Control and Dynamical Systems
California Institute of Technology
Adviser: John Doyle; (co)Adviser: Steven Low
- 2003–2007 B.Sc., Mathematics and Applied Mathematics
Chu-Ko-Chen College, Zhejiang University
- 2006–2007 Visiting Student, Mechanical Engineering and Aerospace
University of California, Los Angeles
Adviser: Jeff Shamma

Selected Honors and Awards

- 2020 Plenary Speaker in 2020 American Control Conference
- 2019 Donald P. Eckman Award from American Automatic Control Council
Citation: “For fundamental contributions to control and optimization of networked systems, including foundational theory of performance limits, novel algorithm design, and applications to real-world cyber-physical societal systems ”
- 2019 ONR (Office of Naval Research) Young Investigator Program (YIP) Award

- 2019 Harvard SEAS LInc Faculty Fellowship
- 2018 Best Student Paper Award Finalist in IEEE Conference on Control Technology and Applications (as an adviser)
- 2018 Harvard Physical Sciences and Engineering Accelerator Award
- 2018 Harvard Climate Change Solutions Fund Award
- 2017 AFOSR (Air Force Office of Scientific Research) Young Investigator Program (YIP) Award
- 2016 Invited speaker to the inaugural Resnick Institute Young Investigators Symposium at Caltech
- 2016 NSF CAREER Award
- 2012 Invitee to “Rising Stars in EECS: An Academia Workshop for Women”, MIT
- 2011 Best Student Paper Award Finalist in IEEE Conference on Decision and Control
- 2006 Chu KoChen Honors Scholarship (Highest Honor in Zhejiang University, only awarded to 12/20,000 undergraduates each academic year)

Selected Student Honors and Awards

- 2019 Undergraduate student Aldis Elfarsdottir received Dean’s Design Awards for her senior thesis of “Thermal Dynamic Model Development and Model Predictive Building Control Using an Extensive Sensor Network”.
- 2018 PhD student Xin Chen received one of the two Best Student Paper Award Finalists in IEEE Conference on Control Technology and Applications.
- 2017 Master student Meier Yannick (from ETH) received the Outstanding Master Thesis award, ETH Zurich for his thesis under my supervision.
- 2015 PhD student Ariana Minot received “Runner-up for 1st Place” award in the poster session of AWM (Association for Women in Mathematics) Research Symposium.

Professional Service

- Associate Editor of IEEE Transactions on Automatic Control, starting Nov 2019
- Associate Editor of Systems and Control Letters, 2019–present
- Associate Editor of IEEE Control System Letters, 2019–present
- Guest editor for a special issue of IEEE Transactions of Smart Grid on “ Intelligent and Sustainable Energy Systems Towards Smart City”, 2019
- Guest editor for a special issue of IET Generation Transmission & Distribution titled with ”Distributed & autonomous dispatch and control for active distribution network/microgrids– potential scheme to realize plug & play of DER”, 2016
- Workshop Chair of 60th IEEE Conference on Decision and Control (CDC), 2021
- Publicity Chair of 2020 ACM/IEEE ACM/IEEE International Conference on Cyber-PhysicalSystems (ICCPs), 2020
- Publication Chair of ACM International Conference on Future Energy Systems (ACM e-Energy), 2019
- Associate Editor of the Conference Editorial Board (CEB) of the IEEE Control Systems Society (CSS), 2016–present
- American Automatic Control Council (AACC) Technical Committees on Education, 2016–present
- IEEE Technical Committee on Cybernetics for Cyber-Physical Systems (CPS), 2015–present

- Session Chairs in American Control Conference and IEEE Conference on Decision and Control, 2015–present
- Organizer of invited sessions in American Control Conference and IEEE Conference on Decision and Control, 2015–present
- Power & Energy Society PEEC University Education committee, 2018–2019
- Organizer of invited session in Informs annual meeting, 2018
- Technical program committee for International Conference on Cyber-Physical Systems (ICCPs), 2016
- Technical program committee for ACM Workshop of GreenMetrics, 2014–2016
- Technical program committee for GlobalSIP, 2016
- Technical program committee for IEEE SmartGridComm, 2012, 2014, 2018
- NSF review panelist every year, 2016–present
- Journal and Conference reviewing: Proceedings of the National Academy of Sciences (PNAS); Automatica; IEEE Transactions on Automatic Control; IEEE Transactions on Control of Network Systems; IEEE Transactions on Smart Grid; IEEE Transactions on Power Systems; IEEE Transactions on Systems, Man, and Cybernetics; IEEE Transactions on Signal Processing; IEEE Signal Processing Magazine; IEEE Journal of Selected Topics in Signal Processing; IEEE Transactions on Industrial Informatics; IEEE Transactions on Mobile Computing; IEEE System Journal; ACM Transactions on Internet Technology; IEEE SmarGridComm Conference; IEEE Conference on Decision and Control; American Control Conference; European Control Conference; Power Systems Computation Conference; SIAM conference on Control and Its Applications; Conference on Neural Information Processing Systems (NeurIPS); International Conference on Machine Learning (ICML).

Institute Service at Harvard

- Mentor in Harvard Graduate Women in Science and Engineering (HGWISE), 2017–present
- Committee for PhD student qualification exams and defenses, on average 5+ per year, 2014–present
- Undergraduate concentration adviser in Electrical Engineering and Applied Mathematics, 2014–present
- Frequent participation in faculty-student dinners, 2015–present
- Freshman Adviser, 2016–2017, 2019–2020
- Organizer of EE seminar series, 2014–2016, 2018
- Initiate and organize a joint group seminar series with other faculties in EE on information and systems, 2014–present
- Committee member in graduate student admission, 2014–2018, 2019–2020
- Judge in MakeHarvard, Harvard’s 24 hour engineering hackathon, 2018
- Committee member in the committee of High Degree (CHD), 2014–2017
- Advisor on the committee of the junior faculty search in bio-mechanic control, 2018
- Committee member for the faculty search in Electrical Engineering, 2019–2020
- Committee member for the junior faculty search in Electrical Engineering and Applied Math 2015–2016
- Committee member for the junior faculty search in Electrical Engineering, 2014–2015
- Committee member for the junior faculty search in Electrical Engineering, 2013–2014
- Committee member for the junior faculty search in MCB/CSB in FAS, 2016–2017
- Committee member for the junior faculty search in MCB in FAS, 2015–2016

Teaching

ES 155: Systems and Control (Harvard SEAS, undergraduate)

This course is an EE required class targeting sophomores and juniors. It provides a comprehensive foundation in systems design, analysis, and control, while also introducing key linear-algebraic concepts in the context of system applications. It was a new class which I designed.

- Fall 2019: TBD
- Fall 2018: Course rating: 4.1/5.0; Instructor rating: 4.4/5.0

ES/AM 158: Feedback Control Systems: Analysis and Design (Harvard SEAS, undergraduate)

This course is an EE elective course, targeting juniors and seniors. It provides an introduction to feedback and control in different application areas. The focus is on the basic principles of feedback and its use as a tool for altering or inferring the dynamics of systems under uncertainty. It was a new class which I designed.

- Fall 2017: Course rating: 4.5/5.0; Instructor rating: 4.6/5.0
- Fall 2016: Course rating: 4.6/5.0; Instructor rating: 4.4/5.0
- Fall 2015: Course rating: 3.9/5.0; Instructor rating: 4.3/5.0

ES 202/AM 232: Estimation and Control of Dynamical Systems (Harvard SEAS, graduate)

This graduate level course studies dynamic systems in time domain with inputs and outputs. Students will learn how to design estimator and controller for a system to ensure desirable properties such as stability, performance, and robustness of the dynamical system.

- Spring 2020:
- Spring 2016: Course rating: 4.0/5.0; Instructor rating: 4.4/5.0
- Spring 2015: Course rating: 4.2/5.0; Instructor rating: 4.8/5.0

Advising

Current PhD students

- Yingying Li, 08/2015-present
- Xin Chen, 08/2017-present
- Ziang Chen, 08/2019-present
- Tianpeng Zhang, 08/2019-present
- Runyu Zhang, 08/2019-present
- Zhaolin Ren, 08/2019-present
- Aoxiao Zhong, 08/2018-present, co-advised with Prof. Quanzheng Li (MGH)
- Wei Zhang, 08/2017-present, co-advised with Prof. Ali Malkawi (School of Design)

Postdoc associates (current)

- Yujie Tang, Feb 2019–present, Graduation school: Caltech
- Yang Zheng, Feb 2019–present, co-supervised with Prof. Ali Malkawi, Graduate school: University of Oxford

Current undergraduate research assistants (current)

- Victor Qin (Harvard)
- Darell Huang (Harvard)

PhD students who graduated

- Guannan Qu (May 2019), Thesis: *Distributed Decision Making in Cyber-Physical Network Systems*, Next Stop: CMS Postdoc at Caltech
- Ariana Minot (May 2017, co-advised with Prof. Yue Lu), Thesis: *Distributed Optimization Methods for Monitoring and Operating Electric Power Systems*, Next stop: Research scientist in MIT Lincoln Lab

Postdoc Associates (past)

- Sindri Magnusson, (08/2018-07/2019), Next stop: postdoc fellow at KTH Royal Institute of Technology, Sweden (Sindri has to go back to KTH Sweden for family reasons after 1 year of postdoc-ship. He has been working with me on limited communication distributed optimization and control since he was a PhD student back to 2015.)
- Jorge I. Poveda, 09/2018-12/2018, Next stop: Tenure-track Assistant Professor at University of Colorado, Boulder
- Chinwendu Enyioha, 07/2015-01/2018, co-supervised with Prof. Vahid Tarokh, Next stop: Tenure-track Assistant Professor University of Central Florida
- Qinran Hu, 09/2015-07/2018, Next stop: Associate Professor Southeast University
- Xuan Zhang, 11/2015-10/2017, co-supervised with Prof. Ali Malkawi in Graduate School of Design, Next stop: Tenure-track Assistant professor at Tsinghua-Berkeley Shenzhen Institute
- Wei Wei, 12/2014-03/2015, Next stop: Tenure-track Assistant Professor at Tsinghua University

Master Theses

- Johannes Koehler (10/2016-12/2016), Master in University of Stuttgart, Germany, Thesis: *Distributed Economic Model Predictive Control under Inexact Minimization with Application to Power Systems*
- Yannick Meier (12/2015-06/2016, Master in ETH), Thesis: *Parallel and Distributed Primal-Dual Interior Point Methods for Optimal Power Flow in Distribution Networks*, **Outstanding Master Thesis Award at ETH Zurich**
- David Brown (09/2014-06/2015, Now as a researcher in Lincoln Lab), Thesis: *Distributed Greedy Algorithm for Satellite Assignment Problem*

Undergraduate senior theses

- Darell Hwang (2019-2020), Thesis: TBD (Topic on health care devices)
- Amy Donna Bittler (2019-2020), Thesis: TBD (Topic on smart grids)
- Aldis Elfarsdottir (2018-2019), Thesis: *Thermal Dynamic Model Development and Predictive Building Control using an Extensive Sensor Network*, **Dean's Design Award**
- Bahlakoana Mabetha (2017-2018), Thesis: *A Smart Humidifier*
- Seif Abou Eleinen (2017-2018), Thesis: *A Smart Arm Crutch*
- Austen Novis (2015-2016), Thesis: *Swim Power Meter*
- Tyler Barringer (2015-2016), Thesis: *Solar Photovoltaic Power: Short Term Volatility and its Future under Climate Change*

Ph.D thesis committee

- Guannan Qu, Harvard University, 2019, *Distributed Decision Making in Cyber-Physical Network Systems*
- Hongyao Ma, Harvard University, 2019, *Mechanism Design for Coordinating Behavior*
- Wangyu Luo, Harvard University, 2019, *Analysis and Generalization of Several Information Processing Methods Related to Stein's Lemma*
- Neel Doshi, Harvard University, 2019, *Model-based Design, Control, and Planning for Legged Microrobots*
- Tianyi Chen, University of Minnesota Twin Cities, 2019, *Thesis: Efficient Methods for Distributed Machine Learning and Resource Management in the Internet-of-Things*
- Reza Amizi, Brown University, 2018, *Thesis: Improving the Performance of Power Constrained Computing Clusters*
- Shuai Wang, Boston University, 2018, *Thesis: Paradigm and Paradox in Power Networks*
- Xin Zhan, Brown University, 2017, *Thesis: Energy-Efficiency Optimization Techniques for Computing Clusters: Exploiting the Heterogeneities*
- Ariana Minot, Harvard University 2017, *Thesis: Distributed Optimization Methods for Monitoring and Operating Electric Power Systems*
- Ian Weiner, Harvard University, 2016, *Thesis: High-SNR Capacity of AWGN Channels with generic alphabet constraint*
- Ioannis Gkioulekas, Harvard University, 2016, *Thesis: A Framework for Inverse Scattering*
- Kevin Chen, Harvard University, 2016, *Thesis: Gradient Descent for Optimization Problems with sparse Solutions*
- Elli Ntakou, Boston University, 2016, *Thesis: Distribution Power Markets: Detailed Modeling and Tractable algorithms*

Other graduate mentoring (Selected)

- Tianyi Chen (07/2017), from University of Minnesota, Twin Cities.
- Rui Li (09/2017–08/2018), from Tsinghua University
- Sindri Magnusson (07/2015-06/2017), from KTH
- Bala Kameshwar Poolla (07/2016), from ETH, Zurich
- Martin Anderasson (07/2015), from KTH
- Kathryn Heal (07/2015-05/2016), co-advising with Prof. Vahid Tarokh, Harvard
- Xiaoqi Tan (11/2015-05/2016), from HKUST

HGWISE (Harvard Graduate Women in Science and Engineering) Mentoring

- Sharon Qian (09/2017-)
- Bahareh Tolooshams (09/2017-)

Research Support

Current

- PI, ONR YIP: *Real-Time Distributed Coordination of Multi-Agent Systems Under Limited Communication*, 03/01/2019-02/28/2022, \$750,000.
- PI, Center of excellence for NEOM Research at KAUST, *Green and Smart Buildings*, 09/2019-08/2021, \$250,000.
- PI, NSF EAGER: *Real-Time: Learning, Selection, and Control in Residential Demand Response for Grid Reliability*, 10/01/2018-09/30/2020, \$250,000.
- PI, Harvard Climate Change Solutions Fund Award: *Identifying the challenges and technical pathways toward a reliable carbon-free energy system in the United States*, 01/15/2018-01/14/2020, \$128,800.
- PI, AFOSR Yong Investigator Program (YIP) Award: *Distributed Coordination in Multi-Agent Networked Systems: Algorithms and Fundamental Limits*, 12/15/2017-12/14/2020, \$360,000.00.
- PI, NSF CAREER: *Optimization, Control, and Incentive Design for Power Networks with High Levels of Distributed Energy Resources*, 02/01/2016-01/31/2021, \$500,003.

Past

- PI, NSF Collaborative Research: *Towards Communication-Cognizant Voltage Regulation and Energy Management for Power Distribution Systems*, 08/01/2016-07/31/2019, \$221,111.
- PI, Harvard Physical Sciences and Engineering Accelerator Award: *Singularity: AI-Powered Distributed Energy Networks*, 02/01/2018-01/31/2019, \$72,500.
- PI(Subcontractor), ARPA-E NODES: *Real-time optimization and control of next-generation*, 08/01/2016-07/31/2019, \$340,000 out of \$3,900,000. (Leading PI: National Renewable Energy Laboratory)
- PI, Guodian Nanjing Automation Co., Ltd: *Optimal Bidding Strategy and Assets Allocation Plan for Generation Companies*, 04/01/2016-03/31/2018, \$342,000.
- co-PI, NSF Eager: *Limited Communications Demand Control in the Power Grid*, 08/15/2015-07/31/2017, \$225,000. (PI: Vahid Tarokh)
- PI, Lincoln Laboratory, *Optimization of Distributed Space Systems*, 09/01/2014-08/31/2015, \$102,811.

Journal Publications and Preprints

Under Review

- u1. Jorge I. Poveda, **Na Li**, “Robust Hybrid Zero-Order Optimization Algorithms with Acceleration via Averaging in Time”, ArXiv:1909.00265, submitted to *Automatica*.
- u2. Yujie Tang, **Na Li**, “Distributed Zero-Order Algorithms for Nonconvex Multi-Agent Optimization”, ArXiv:1908.11444, submitted to *IEEE Transactions of Control of Network Systems*.
- u3. Yujie Tang, Guannan Qu, **Na Li**, “Semi-Global Exponential Stability of Primal-Dual Gradient Dynamics for Constrained Convex Optimization”, ArXiv:1903.09580, submitted to *System & Control Letters*.
- u4. Yingying Li, Qinran Hu, **Na Li**, “Learning and Selecting Users for Achieving Reliability: A Multi-armed Bandit Approach”, submitted to *Automatica*. <https://nali.seas.harvard.edu/files/nali/files/automaticadr.pdf>

- u5. Yingying Li, Guannan Qu, **Na Li**, “Online Optimization with Predictions and Switching Costs: Fast Algorithms and Fundamental Limits”, ArXiv:1801.07780, submitted to *IEEE Transactions of Automatic Control*.
- u6. Sindri Magnusson, Guannan Qu, **Na Li**, “Distributed Optimal Voltage Control with Asynchronous and Delayed Communication”, ArXiv:1903.01065, submitted to *IEEE Transactions of Smart Grid*.
- u7. Yang Zheng, Luca Furieri, Antonis Papachristodoulou, **Na Li**, Maryam Kamgarpour, “On the Equivalence of Youla, System-level and Input-output Parameterizations”, ArXiv:1907.06256, submitted to *IEEE Transactions on Automatic Control*.
- u8. Xin Chen, Changhong Zhao, **Na Li**, “Distributed Automatic Load-frequency Control with Optimality in Power Systems”, ArXiv:1811.00892, submitted to *IEEE Transactions of Control of Networked Systems*.
- u9. Johannes Köhler, Matthias A. Muller, Frank Allgower, **Na Li**, “Real-time economic dispatch in power systems with distributed economic model predictive control”, submitted to *IEEE Transactions on Smart Grids*. <https://nali.seas.harvard.edu/files/nali/files/mpcpower.pdf>

Published or Accepted

1. Guannan Qu, **Na Li**, “Accelerated Distributed Nesterov Gradient Descent”, accepted to *IEEE Transactions on Automatic Control*.
2. Guannan Qu, **Na Li**, “An Optimal and Distributed Feedback Voltage Control under Limited Reactive Power”, accepted to *IEEE Transactions of Power Systems*.
3. Xin Chen, Emiliano Dall’Anese, Changhong Zhao, **Na Li**, “Aggregate Power Flexibility in Unbalanced Distribution Systems”, accepted to *IEEE Transactions of Smart Grids*.
4. Sindri Magnusson, Guannan Qu, **Na Li**, Carlo Fischione, “Voltage Control Using Limited Communication”, accepted to *IEEE Transactions on Control of Network Systems*.
5. Guannan Qu, David Brown, **Na Li**, “Distributed Greedy Algorithm for Multi-Agent Task Assignment Problem with Submodular Utility Functions”, *Automatica*, 105, Page 206-215, 2019.
6. Guannan Qu, **Na Li**, “On the Exponential Stability of Primal-Dual Gradient Dynamics”, *IEEE Control System Letters*, 3(1), Pages: 43-48, 2019.
7. Sindri Magnusson, Chinwendu Enyioha, **Na Li**, Carlo Fischione, Vahid Tarokh, “Communication Complexity of Dual Decomposition Methods for Distributed Resource Allocation Optimization”, *IEEE Journal of Selected Topics in Signal Processing*, Special Issue on Signal and Information Processing for Critical Infrastructures, 12(4), Pages: 717-732, 2018.
8. Takeshi Hatanaka, Nikhil Chopra, Takayuki Ishizaki, **Na Li**, “Passivity-Based Distributed Optimization with Communication Delays Using PI Consensus Algorithm”, *IEEE Transactions on Automatic Control*, 63(12), Pages: 4421-4428, 2018.
9. Guannan Qu, **Na Li**, “Harnessing Smoothness to Accelerate Distributed Optimization”, *IEEE Transactions on Control of Network Systems*, 5(3), Pages: 1245-1260, 2018.
10. Xuan Zhang, Antonis Papachristodoulou, **Na Li**, “Distributed Control for Achieving Optimal Steady State”, *IEEE Transactions on Automatic Control*, 63(3), 864–871, 2018.
11. Sindri Magnusson, Chinwendu Enyioha, **Na Li**, Carlo Fischione, and Vahid Tarokh, “Convergence of Limited Communications Gradient Methods”, *IEEE Transactions on Automatic Control*, 63(5), 1356–1371, 2018.
12. Chinwendu Enyioha, Sindri Magnusson, **Na Li**, Carlo Fischione, and Vahid Tarokh, “On the variability of Renewable energy and Online power allocation”, *IEEE Transactions on Power Systems*, 33(1), 451-462 2018.

13. Xiaoqi Tan, Guannan Qu, Bo Sun, **Na Li**, Danny Tsang, “Optimal Scheduling of Battery Charging Station Serving Electric Vehicles Based on Battery Swapping”, *IEEE Transactions on Smart Grid*, 10(2), 1372–1384, 2019.
14. Wei Wei, Jianhui Wang, **Na Li**, and Shengwei Mei, “Optimal Power Flow of Radial Networks and its Variations: A Sequential Convex Optimization Approach”, *IEEE Transactions on Smart Grid*, 8(6), 2974–2987, 2017.
15. Wenbo Shi, **Na Li**, Chi-Cheng Chu, and Rajit Gadh, “Real-Time Energy Management in Microgrids”, *IEEE Transactions on Smart Grid*, 8(1), Pages 228-238, 2017.
16. Wei Wei, **Na Li**, Jianhui Wang, Shengwei Mei, “Estimating the Probability of Infeasible Real-time Dispatch without Exact Distributions of Stochastic Wind Generations”, *IEEE Transactions on Power Systems*, 31(6), Pages 5022-5032, 2016.
17. Ariana Minot, Yue Lu, **Na Li**, “A Distributed Newton Method for Power System State Estimation”, *IEEE Transactions on Power Systems*, 31(5), Pages 3804-3815, 2016.
18. Qingqing Huang, Leilai Shao, **Na Li**, “Dynamic Detection of Transmission Line Outages Using Hidden Markov Models”, *IEEE Transactions on Power Systems*, 31(3), Pages 2026-2033, 2016.
19. **Na Li**, Lijun Chen, Changhong Zhao, “Connecting Automatic General Control and Economic Dispatch from an Optimization View”, *IEEE Transactions on Control of Network Systems*, 3(3), Pages 254-264, 2016.
20. Yunjian Xu, **Na Li**, Steven Low, “Demand Response with Capacity Constrained Supply Function Bidding”, *IEEE Transactions on Power Systems*, 31(2), Pages 1377-1394, 2016.
21. Lijun Chen, **Na Li**, “On the Interaction between Load Balancing and Speed Scaling”, *IEEE Journal on Selected Areas Communication (JSAC)-Series on Green Communications and Networking*, 33(12), Pages 2567-2578, 2015.
22. **Na Li**, Lijun Chen, Munther Dahleh, “Demand Response Using Linear Supply Function Bidding”, *IEEE Transactions on Smart Grid*, 6(4), Pages 1827-1838, 2015.
23. Lingwen Gan, **Na Li**, Ufuk Topcu, Steven Low, “Exact Convex Relaxation for Optimal Power Flow in Radial Networks”, *IEEE Transactions on Automatic Control*, 60(1), Pages 72-87, 2015.
24. **Na Li**, Jerry Cruz, Chenghao Chien, Somayeh Sojoudi, Ben Recht, David Stone, Marie Csete, Daniel Bahmiller, John Doyle, “Robust Efficiency and Actuator Saturation Explain Healthy Heart Rate Control and Variability”, *Proceedings of National Academia Sciences*, 111(33), Pages E3476–E3485, 2014.
25. Wenbo Shi, **Na Li**, Xiaorong Xie, Chi-Cheng Chu, and Rajit Gadh, “Optimal Residential Demand Response in Distribution Network”, *IEEE Journal on Selected Areas in Communications*, 32(7), Pages 1-10, 2014.
26. Changhong Zhao, Ufuk Topcu, **Na Li**, Steven Low, “Design and Stability of Load-Side Primary Frequency Control in Power System”, *IEEE Transactions on Automatic Control*, 59(5), Pages 1177-1189, 2014.
27. **Na Li**, Jason Marden, “Decoupling Coupled Constraints through Utility Design”, *IEEE Transactions on Automatic Control*, 59(8), Pages 2289-2294, 2014.
28. **Na Li**, Jason Marden, “Designing Games for Distributed Optimization”, *the Journal of IEEE Selected Topics in Signal Processing*, 7(2), Pages:230-242, 2013.

Book (Chapters)

1. Lijun Chen, **Na Li**, Libin Jiang, Steven H. Low, “Optimal Demand Response: Problem Formulation and Deterministic Case”, Chapter in Control and Optimization Theory for Electric Smart Grids, Aranya Chakraborty and Marija Ilic (Eds.), Springer, 2012.

2. Takeshi Hatanaka, Tomohiro Ikawa and **Na Li**, “A Passivity-Based Design of Cyber-Physical Building HVAC Energy Management Integrating Optimization and Physical Dynamics”, Chapter in Economically-enabled Energy Management: Interplay between Control Engineering and Economics, T. Hatanaka, Y. Wasa and K. Uchida (Eds.) Springer-Verlag, to be published, 2020.

Peer-Reviewed Conference Publications

1. Xin Chen, **Na Li**, “Exponential Stability of Primal-Dual Gradient Dynamics with Non-Strong Convexity”, ArXiv:1905.00298, Submitted to ACC.
2. Yingying Li, Xin Chen, **Na Li**, “Online Optimal Control with Linear Dynamics and Predictions: Algorithms and Regret Analysis”, 33rd Annual Conference on Neural Information Processing Systems (NeurIPS 2019), 2019.
3. Yujie Tang, **Na Li**, “Distributed Zero-Order Algorithms for Nonconvex Multi-Agent Optimization”, Allerton Conference on Communication, Control, and Computing, 2019.
4. Sindri Magnusson, Hossein Shokri-Ghadikolaei, **Na Li**, “On Maintaining Linear Convergence of Distributed Learning under Limited Communication”, Asilomar Conference on Signals, Systems, and Computers, 2019.
5. Yingying Li, Aoxiao Zhong, Guannan Qu, **Na Li**, “Online Markov Decision Processes with Time-varying Transition Probabilities and Rewards”, ICML workshop on Real-world Sequential Decision Making, 2019.
6. Guannan Qu, **Na Li**, “Exploiting Fast Decaying and Locality in Multi-Agent MDP with Tree Dependence Structure”, IEEE Conference on Decision and Control (CDC), 2019.
7. Jorge I. Poveda, **Na Li**, “Inducing Uniform Asymptotic Stability in Accelerated Optimization Dynamics via Hybrid Regularization”, ArXiv, Submitted to CDC, 2019. Sindri Magnusson, Carlo Fishione, **Na Li**, “Optimal Voltage Control Using Event Triggered Communication”, ACM E-Energy, 2019.
8. Yingying Li, **Na Li**, “Online Learning for Markov Decision Processes in Nonstationary Environments: A Dynamic Regret Analysis”, American Control Conference, 2019.
9. Sindri Magnusson, Guannan Qu, **Na Li** “Distributed Voltage Control with Communication Delays”, American Control Conference, 2019.
10. Yingying Li, Qinran Hu, **Na Li**, “Learning and Selecting the Right Customers for Reliability: A Multi-armed Bandit Approach”, IEEE Control and Decision Conference, 2018.
11. Xin Chen, Changhong Zhao, **Na Li**, “Distributed Automatic Load-Frequency Control with Optimality in Power Systems”, IEEE Conference on Control Technology and Applications (CCTA), 2018.
12. Guannan Qu, **Na Li**, “An Optimal and Distributed Feedback Voltage Control under Limited Reactive Power”, Power Systems Computation Conference (PSCC), 2018.
13. Yingying Li, Guannan Qu, **Na Li**, “Using Predictions in Online Optimization with Switching Costs: A Fast Algorithm and A Fundamental Limit”, American Control Conference (ACC), 2018.
14. Takashi Tanaka, **Na Li**, Kenko Uchida, “On the Relationship between the VCG Mechanism and Market Clearing”, American Control Conference (ACC), 2018.
15. Tianyi Chen, **Na Li**, Georgios B. Giannakis, “Aggregating Flexibility of Heterogeneous Energy Resources in Distribution Networks”, American Control Conference (ACC), 2018.
16. Guannan Qu, **Na Li**, “Accelerated Distributed Nesterov Gradient Descent for Convex and Smooth Functions”, IEEE Conference on Decision and Control (CDC), 2017.

17. Johannes Koehler, Matthias A. Muller, **Na Li**, Frank Allgower, “Real Time Economic Dispatch for power networks: A Distributed Economic Model Predictive Control Approach”, IEEE Conference on Decision and Control (CDC), 2017.
18. Takeshi Hatanaka, Xuan Zhang, Wenbo Shi, Minghui Zhu, **Na Li**, “Physics-Integrated Hierarchical/Distributed HVAC Optimization for Multiple Buildings with Robustness against Time Delays”, IEEE Conference on Decision and Control (CDC), 2017.
19. Xuan Zhang, Bin Yan, Wenbo Shi, Ali Malkawi, (Samuel) Qing-Shan Jia, **Na Li**, “Community-level Geothermal Heat Pump System Management via an Aggregation-disaggregation Framework”, IEEE Conference on Decision and Control (CDC), 2017.
20. Masoud Baidiei, **Na Li**, “Stochastic Primal-Dual Method on Riemannian Manifolds with Bounded Sectional Curvature”, IEEE International Conference on Machine Learning and Applications (ICMLA), 2017.
21. Sindri Magnusson, Carlo Fischione, **Na Li**, “Voltage Control Using Limited Communication”, IFAC 2017.
22. Yingying Li, **Na Li**, “Mechanism Design for Reliability in Demand Response with Uncertainty”, American Control Conference (ACC), 2017.
23. Xuan Zhang, Wenbo Shi, Qinran Hu, Bin Yan, Ali Malkawi, **Na Li**, “Distributed Temperature Control via Geothermal Heat Pump Systems in Energy Efficient Buildings”, American Control Conference (ACC), 2017.
24. Yanhua Tian, **Na Li**, Josh Taylor, “Harmonic Reduction via Optimal Power Flow and the Frequency Coupling Matrix”, IEEE Conference on Control Technology and Applications, 2017.
25. Takeshi Hatanaka, Xuan Zhang, Wenbo Shi, Minghui Zhu, **Na Li**, “An Integrated Design of Optimization and Physical Dynamics for Energy Efficient Buildings: A Passivity Approach”, IEEE Conference on Control Technology and Applications (CCTA), 2017.
26. Reza Azimi, Masoud Baidiei, Xin Zhan, **Na Li**, Sherief Reda, “Fast decentralized power capping for server clusters”, 23th IEEE Symposium on High Performance Computer Architecture (HPCA), 2017. (acceptance rate, 22%)
27. Guannan Qu, **Na Li**, “Harnessing Smoothness to Accelerate Distributed Optimization”, Conference on Decision and Control (CDC), 2016.
28. Donya Ghavidel Dobakhshari, **Na Li**, Vijay Gupta, “An Incentive-Based Approach to Distributed Estimation with Strategic Sensors”, Accepted to Conference on Decision and Control (CDC) 2016.
29. Sindri Magnusson, Chinwendu Enyioha, **Na Li**, Carlo Fischione, “Practical Coding Schemes For Bandwidth Limited One-Way Communication Resource Allocation”, Accepted to Conference on Decision and Control (CDC), 2016.
30. Masoud Baidiei, **Na Li**, “Distributed Regularized Primal-Dual Method”, Accepted to GlobalSIP, 2016.
31. Xuan Zhang, Wenbo Shi, Xiwang Li, Bin Yan, Ali Malkawi, **Na Li**, “Decentralized Temperature Control via HVAC Systems in Energy Efficient Buildings: An Approximate Solution Procedure”, Accepted to GlobalSIP, 2016.
32. Hongyao Ma, Valentin Robu, **Na Li**, David Parkes, “Incentivizing Reliability in Demand-Side Response”, Accepted to *International Joint Conference on Artificial Intelligence IJCAI-16*, 2016.
33. Ariana Minot, Yue Lu, **Na Li**, “A Distributed Primal-Dual Interior Point Method for Optimal Power Flow”, *Power Systems Computation Conference (PSCC)*, 2016.
34. Martin Andreasson and **Na Li**, “Dynamical Decentralized Voltage Control of Multi-Terminal HVDC Grids”, European Control Conference, 2016.

35. Sindri Magnússon, Chinwendu Enyioha, Kathryn Heal, **Na Li**, Carlo Fischione, and Vahid Tarokh, “Convergence of Limited Communications Gradient Methods”, *American Control Conference (ACC)*, 2016.
36. Masoud Badieli Khuzani, Xin Zhan, Reza Azimi, Sherief Reda and **Na Li**, “DiBA: Distributed Power Budget Allocation for Large-Scale Computing Clusters”, *IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid)*, 2016. (acceptance rate, 20%)
37. Sindri Magnússon, Chinwendu Enyioha, Kathryn Heal, **Na Li**, Carlo Fischione, and Vahid Tarokh, “Distributed Resource Allocation Using One-Way Communication with Applications to Power Networks”, *Conference on Information Sciences and Systems (CISS)*, 2016.
38. Hao Zhu, **Na Li**, “Asynchronous Local Voltage Control in Power Distribution Networks”, *IEEE Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2016.
39. Guannan Qu, Dave Brown, **Na Li**, “Distributed Greedy Algorithm for Satellite Assignment Problem with Submodular Utility Function”, *5th IFAC Workshop on Estimation and Control of Networked Systems (NecSys’15)*, 2015.
40. Masoud Badieli, **Na Li**, Adam Wierman, “Online Convex Optimization with Ramp Constraints”, *Proceedings of 54th IEEE Conference on Decision and Control*, 2015.
41. Xuan Zhang, Antonis Papachristodoulou, **Na Li**, “Distributed Optimal Steady-state Control Using Reverse- and Forward- Engineering”, *Proceedings of 54th IEEE Conference on Decision and Control*, 2015.
42. **Na Li**, “A Market Design for Electricity Distribution Networks”, *Proceedings of 54th IEEE Conference on Decision and Control*, 2015.
43. Xuan Zhang, **Na Li**, Antonis Papachristodoulou, “Achieving Real-time Economic Dispatch in Power Networks via a Saddle Point Design Approach”, *Power & Energy Society General Meeting*, 2015.
44. Qingqing Huang, Leilai Shao, **Na Li**, “Dynamic Fault Diagnosis in Power Grids Using Hidden Markov Models”, *Proceedings of American Control Conference*, 2015.
45. Ariana Minot, **Na Li**, “Distributed State Estimation”, *Proceedings of American Control Conference*, 2015.
46. **Na Li**, Changhong Zhao Lijun Chen, Steven Low, “Connecting Automatic Generation Control and Economic Dispatch from an Optimization View”, *Proceedings of American Control Conference*, 2014.
47. **Na Li**, Guannan Qu, Munther Dahleh, “Real-time decentralized voltage control in distribution networks”, *52nd Annual Allerton Conference on Communication, Control, and Computing*, 2014.
48. Minghui Zhu, **Na Li**, “Stability Constrained Incentive Mechanisms for Distributed Frequency Control of Power Grid”, *Proceedings of 53rd IEEE Conference on Decision and Control*, 2014.
49. Minghui Zhu, **Na Li**, Wenbo Shi, Rajit Gadh, “Distributed Access Control of Volatile Renewable Energy Resources”, *Power & Energy Society General Meeting* 2014.
50. Lingwen Gan, **Na Li**, Ufuk Topcu, Steven Low, “Optimal Power Flow in Distribution Networks”, *Proceedings of 52nd IEEE Conference on Decision and Control*, 2013.
51. **Na Li**, Lingwen Gan, Lijun Chen, Steven Low, “An Optimization-based Demand Response in Radial Distribution Networks”, *IEEE Workshop on Smart Grid Communications: Design for Performance*, 2012.
52. **Na Li**, Lijun Chen, Steven Low, “Demand Response in Radial Distribution Networks: Distributed Algorithm (Invited Paper)”, *Asilomar Conference on Signals, Systems and Computers*, 2012.
53. **Na Li**, Lijun Chen, Steven Low, “Exact Convex Relaxation for Radial Networks Using Branch Flow Models”, *IEEE International Conference on Smart Grid Communications*, 2012.

54. Rui Huang, Tiana Huang, Rajit Gadh and **Na Li**, “Solar Generation Prediction Using the ARMA Model in a Laboratory-level Micro-grid”, *IEEE International Conference on Smart Grid Communications*, 2012.
55. Lingwen Gan, **Na Li**, Ufuk Topcu, Steven Low, “Branch Flow Model for Radial Networks: Convex Relaxation”, *Proceedings of the 51st IEEE Conference on Decision and Control*, 2012.
56. **Na Li**, Jason Marden, “Designing Games for Distributed Optimization with a Time-Varying Communication Graph” *Proceedings of the 51st IEEE Conference on Decision and Control*, 2012.
57. **Na Li**, Jason Marden, “Designing Games for Distributed Optimization”, *Proceedings of the 50th IEEE Conference on Decision and Control*, 2011. **Best Student Paper Award Finalist**
58. **Na Li**, Lijun Chen, Steven H. Low, “Optimal Demand Response based on Utility Maximization in Power Networks” *IEEE Power Engineering Society General Meeting*, 2011.
59. Lijun Chen, **Na Li**, Steven H. Low, “On the Interaction between Load Balancing and Speed Scaling”, *Information Theory and Applications Workshop*, 2011.
60. Lijun Chen, **Na Li**, Steven H. Low and John C. Doyle, “Two Market Models for Demand Response in Power Networks”, *IEEE International Conference on Smart Grid Communications*, 2010.
61. **Na Li**, Jason Marden, “Designing Games to Handle Coupled Constraints”, *Proceedings of the 49th IEEE Conference on Decision and Control*, 2010.
62. **Na Li**, Jason Marden, Jeff S. Shamma, “Learning Approaches to the Witsenhausen Counterexample from a View of Potential Games”, *Proceedings of the 48th IEEE Conference on Decision and Control*, 2009.

Invited Talks and Presentations

- TBD, Plenary talk in 2020 American Control Conference, 2020.
- TBD, Invited talk (Plenary-like) in SICE International Symposium on Control Systems 2020, Japan, March 2020.
- TBD, IMBS workshop on Game Theory and Distributed Control, The Institute for Mathematical Behavioral Sciences at UC Irvine, 2020.
- TBD, the MIT Distinguished Seminar Series in Computational Science and Engineering, 2019.
- TBD, Robot Learning Workshop at Lehigh University, October 2019.
- “Distributed Zero-Order Algorithms for Nonconvex Multi-Agent Optimization”, 57th Allerton Conference on Communication, Control, and Computing, September 2019.
- Three invited talks at Informs Annual Meeting, 2019.
- Panelist in NSF CAREER Awardees Session at the IEEE Power & Energy Society General Meeting, August 5-8, 2019.
- Panelist of *Optimization methods for unbalanced power distribution systems* at Power & Energy Society General Meeting, August 2019.
- “Online optimization with limited prediction: Fundamental Limits and Fast Algorithms”, Workshop on Control, Optimization, and Machine Learning in American Control Conference (ACC), July 2019.
- “The role of Prediction in Online Decision Making”, JST-NSF- RCN Workshop on Distributed Energy Management Systems, Japan, June 2019.
- Dagstuhl Seminar on Control of Networked Cyber-Physical Systems, Schloss Dagstuhl, Germany, May 2019.
- “Distributed Decision-Making in Networked Systems with Limited Communication”, Princeton University, May 2019.
- “The Role of Prediction and Learning in Online Decision Making”, *The mathematics of energy systems*, Isaac Newton Institute for Mathematical Sciences, UK, April, 2019.

- “Distributed Decision-Making in Networked Systems with Limited Communication”, Washington University, St Louis, March 2019.
- “Distributed Decision-Making in Networked Systems with Limited Communication”, Purdue University, March 2019.
- “Online optimization with limited prediction: Fundamental Limits and Fast Algorithms”, ITA workshop, 2019.
- “Distributed Decision-Making in Networked Systems with Limited Communication”, DTC seminar, University of Minnesota, January 2019.
- “Matrix Completion Embedded PDIP Method for SDP Relaxation of Large-scale OPF Problems”, Informs Annual Meeting, Nov, 2018.
- Panelist in *Panel: Getting started: How to develop a research agenda, set up a lab, and build a team*, Rising Stars: An Academic Career Workshop for Women in EECS, MIT, Oct, 2018.
- “Learning, Selection, and Control in Residential Demand Response for Grid Reliability”, NSF workshop on Real Time Data Analytics, Portland, OR, August, 2018.
- “Limited Communication Gradient Methods for Distributed Resource Allocation Optimization”, Workshop of *Interdisciplinary Approaches for Control of Large scale Complex Systems* in American Control Conference (ACC), June 2018.
- “Limited Communication Gradient Methods for Distributed Resource Allocation Optimization”, Workshop of *Mathematical and Computational Challenges in Real-Time Decision Making* in Simons Institute of Berkeley, May 2018.
- “Distributed Coordination in Multi-Agent Network Systems: Algorithms, Fundamental Limits, and Applications”, Iowa State University, April 2018.
- “Distributed Coordination in Multi-Agent Network Systems: Algorithms, Fundamental Limits, and Applications”, University of California, Berkeley, April 2018.
- “Learning and Targeting the Right Customers for Residential Demand Response: A Case Study and A Multi-Armed Bandit Approach”, Workshop of *Societal Networks* in Simons Institute of Berkeley, March 2018.
- “Distributed Coordination in Multi-Agent Network Systems: Algorithms, Fundamental Limits, and Applications”, UPenn, December 2017.
- “Distributed Coordination in Multi-Agent Network Systems: Algorithms, Fundamental Limits, and Applications”, University of California, Santa Barbara, November 2017.
- “Voltage regulation using limited communication” Workshop on Electric Energy Systems and OR-Analytics, Georgia Tech, November 2017.
- “A Sequential Convex Optimization Approach to Optimal Power Flow and Its Variations”, INFORMS annual meeting, October 2017.
- “Distributed Coordination in Multi-Agent Systems: Algorithms, Fundamental Limits, and Applications”, Boston University, September 2017.
- “Distributed Coordination in Multi-Agent Systems: Algorithms, Fundamental Limits, and Applications”, Yale University, September 2017.
- “Harness smoothness to accelerate distributed optimization”, AFSOR D & C Annual Review, September 2017.
- “Distributed Energy Management under Limited Communication”, MIT September, 2017.
- “Distributed Resource Allocation under Limited Communication”, Rutgers, August 2017.

- "Mechanism Design for Reliability in Demand Response with Uncertainty", Production and Operations Management Society (POMS) Annual Conference, May 2017.
- "Parallelized Interior Point Method for Security Constrained Optimal Power Flow (SCOPF)", INFORMS Computing Society Conference, January, 2017.
- "Voltage Regulation Using Limited Communication", INFORMS Computing Society Conference, January 2017.
- "Parallelized Interior Point Method for Security Constrained Optimal Power Flow (SCOPF)", INFORMS Annual Meeting, Nov 2016.
- "Market Design in Transforming Future Electric Distribution Networks", University of Maryland, College Park, October 2016.
- "Distributed Energy Management with Limited Communication", Worcester Polytechnic Institute (WPI), October 2016.
- "Distributed Energy Management in Power Networks", Harvard SEAS/HBS symposium on the Internet of Things, September, 2016.
- "Market Design in Transforming Future Electric Distribution Networks", the inaugural Resnick Institute Young Investigators Symposium, The Resnick Sustainability Institute at Caltech, September 2016.
- "Distributed Energy Management with Limited Communication", ETH Zurich, June 2016.
- "Distributed Control for Achieving Optimal Steady State", DFG-JST-RCN-NSF, May 2016.
- "A Market Mechanism for Electric Distribution Networks", Production and Operations Management Society (POMS) Annual Conference, May 2017.
- "Distributed Energy Management with Limited Communication", North Carolina State University, Apr. 2016.
- "Distributed Energy Management with Limited Communication", University of Southern California, Mar. 2016.
- "Connecting Distributed Control and Distributed Optimization in the Power Grid", Tsinghua University, Dec. 2015.
- "Connecting Distributed Control and Distributed Optimization in the Power Grid", Young Researchers Workshop on Distributed Energy Management Systems Toward International Collaborations between NSF, NRF and JST CREST projects, Osaka, Japan, Dec. 2015.
- "Distributed Energy Management with Limited Communication", Workshop on Power Systems and Markets, Penn State University, Nov. 2015.
- "Distributed Energy Management with Limited Communication", Computer Engineering Seminar Series, Brown University, Nov. 2015.
- "Demand Response Using Supply Function Bidding", Informs Annual Meeting, Nov. 2015.
- "A Market for Electricity Distribution Networks", Informs Annual Meeting, Nov. 2015.
- "Connecting Distributed Control and Distributed Optimization in the Power Grid", KAUST Conference on Human-Machine Networks and Intelligent Infrastructure, Oct. 2015.
- "Distributed Control and Decision Making Over Networks", Institute for Mathematics and its Applications (IMA), University of Minnesota in Minneapolis, Sep. 2015.
- "Distributed Mechanism in Electricity Distribution Networks", Panel session in IEEE Power and Energy Society General Meeting, Jul. 2015.
- "Fully-Decentralized and Robust Voltage Control in Distribution Networks", SIAM Conference on Control and Its Application, France, Jul. 2015.

- “Distributed Optimal Steady-state Control Using Reverse- and Forward- Engineering”, Los Alamos National Lab, May. 2015.
- “Distributed Optimal Steady-state Control Using Reverse- and Forward- Engineering”, Rensselaer Polytechnic Institute, May. 2015.
- “Robust Efficiency and Actuator Saturation Explain Heart Rate Control and Variability”, MIT CIR seminar, Apr. 2015.
- “Real-time Decentralized and Robust Voltage Control in Distribution Networks”, ITA Workshop in San Diego, Feb. 2015.
- “Distributed Algorithm and Mechanism in Smart Grid”, Harvard University Center for Environment(HUCE) Graduate Consortium seminar, Oct. 2014.
- “Distributed Optimization and Control in Smart Grid”, Workshop on Urban Research, Harvard-MIT-University of Madrid, Oct. 2014.
- “Distributed Energy Management in Power Networks”, New England ISO, Mar. 2014.
- “Connecting AGC and Economic Dispatch from an Optimization Point of View”, NSF Workshop: Role of Distributed Coordination in Resilient & Fine-Grain Control of Power Grids, Feb. 2014.
- “Distributed Energy Management in Power Networks”, Cornell University, Mar. 2013.
- “Robust Efficiency and Actuator Saturation Explain Healthy Heart Rate Control and Variability”, University of California–San Diego, Mar. 2013.
- “Distributed Energy Management in Power Networks”, University of Michigan–Ann Arbor, Mar. 2013.
- “Distributed Energy Management in Power Networks”, University of Wisconsin– Madison, Mar. 2013.
- “Distributed Energy Management in Power Networks”, Harvard University, Mar. 2013.
- “Distributed Energy Management in Power Networks”, University of Illinois, Urbana-Champaign, Mar. 2013.
- “Distributed Energy Management in Power Networks”, Georgia Institute of Technology, Feb. 2013.
- “Distributed Energy Management in Power Networks”, Carnegie Mellon University, Feb. 2013.
- “Designing Games for Distributed Optimization”, ITA Workshop in San Diego, “Graduation Day”, Feb. 2013.
- “Distributed Energy Management in Power Networks”, University of California–San Diego, Jan. 2013.
- “Robust Efficiency and Actuator Saturation Explain Healthy Heart Rate Control and Variability”, Rising Stars in EECS: an Academia Career Workshop for Women, MIT, Nov. 2012.