Jinming Xu

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Education

Nanyang Technological University, Singapore 2011-2016

Doctor of Philosophy (PhD), Electrical and Electronic Engineering

- Thesis: *Augmented Distributed Optimization for Networked Systems*
- Advisor: Prof. Yeng Chai Soh (Co: Prof. Lihua Xie)

Shandong University, Jinan, China 2005-2009

Bachelor of Science (BSc), Mechanical Engineering

- Ranking: *9/204*
- Excellent Undergraduate Thesis Award (*top 5%*), 2009

Research Interests

- Distributed optimization and control, and its application into large-scale signal processing, machine learning and networked dynamic systems.

Academic Positions

- Research Fellow, *Nanyang Technological University*, Singapore, 9/2016-Present,
- Project Officer, *Nanyang Technological University*, Singapore, 8/2015-8/2016,
- Research Assistant, *Zhejiang University*, China, 9/2009-8/2011.

Honors & Awards

- NTU RSS Scholarship, 2011
- Excellent Undergraduate Thesis Award (*top 5%*), 2009
- Outstanding Student Scholarship (*top 5%*), 2006-2008

Project Experience

Distributed Optimization for Sensor Networks [J2, J3, C2, C3, C4] 5/2013-Present

- Developed *two novel distributed algorithms* for multi-agent optimization problems,
- Achieved the *best convergence rates* for the proposed algorithms,
- Applied to large-scale sensor networks for sensor fusion under random link failures.

Distributed Optimization for Large-scale Dynamic Systems [J1, C1] 8/2011-8/2015

- Designed a *new distributed scheme* for optimization of large-scale networked systems,
- Proposed a *primal-dual* extremum seeking approach accounting for *unknown constraints*,
- Applied the proposed scheme to wind farms for energy maximization.

Occupancy Modeling for Optimal HVAC Control [J4] 9/2012-5/2013

- Proposed *new stochastic models* for occupancy modeling and prediction,
- Designed *distributed model predictive control schemes* for large-scale HVAC systems.

Publications

Journal Articles

J1 **Jinming Xu** and Yeng Chai Soh, "A Distributed Simultaneous Perturbation Approach for Large-scale Dynamic Optimization Problems," *Automatica* 72 (2016): 194-204 (Regular).

J2 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, "A Bregman Splitting Algorithm for Distributed Optimization Problems over Networks," submitted to *IEEE Transactions on Signal Processing* (Regular, revised and resubmitted, arxiv).

J3 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, "Convergence of Asynchronous Distributed Gradient Methods over Stochastic Networks," submitted to *IEEE Transactions on Automatic Control* (Regular, revised and resubmitted).

J4 Zhenghua Chen, **Jinming Xu**, Yeng Chai Soh, "Modeling Regular Occupancy in Commercial Buildings Using Stochastic Models", *Energy and Buildings* 103 (2015): 216-223.

Conference Proceedings

C1 **Jinming Xu** and Yeng Chai Soh, "Distributed Extremum Seeking Control of Networked Large-scale Systems under Constraints," In *Proceedings of 52nd IEEE Conference on Decision and Control (CDC)*, 2013.

C2 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, "Augmented Distributed Gradient Methods for Multi-agent Optimization under Uncoordinated Constant Stepsizes," In *Proceedings of 54th IEEE Conference on Decision and Control (CDC)*, 2015.

C3 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, "A Forward-Backward Bregman Splitting Scheme for Regularized Distributed Optimization Problems," accepted by *55th IEEE Conference on Decision and Control (CDC)*, 2016.

C4 Shanying Zhu, **Jinming Xu**, Cailian Chen and Xinping Guan, "A Least Square Approach for Distributed Sensor Fusion in Bandwidth-constrained Sensor Networks," In *Proceedings of 41st IEEE Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2016.

C5 Shanying Zhu, **Jinming Xu**, Cailian Chen, Xinping Guan and Binqiang Xue, "DINS: A Scheme for Distributed Sensor Fusion over Fading Channels," submitted to *International Federation of Automatic Control (IFAC)*, 2017.

Professional Activities

- Publication Reviewing: IEEE Transactions on Automatic Control ● NetSys ● CDC ● etc.
- Memberships: IEEE Member (since 2011) ● IEEE Control Systems Society (since 2013).

References Available upon request.