## 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

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

# Project Experience

Distributed Optimization for Sensor Networks [J2, 3, 5; C2, 3, 4, 6] 5/2013-Present

- Developed several novel distributed algorithms for multi-agent optimization problems,
- Achieved the *best convergence rates* for these proposed algorithms,
- Applied to large-scale (stochastic) networks for sensor fusion and resource allocation.

### Distributed Optimization for Networked Systems [J1; C1]

8/2011-8/2015

- Designed a new distributed derivative-free scheme for networked dynamic optimization,
- 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, "Convergence of Asynchronous Distributed Gradient Methods over Stochastic Networks," conditionally accepted by *IEEE Transactions on Automatic Control* (Regular).
- J3 Jinming Xu, Shanying Zhu, Yeng Chai Soh and Lihua Xie, "A Bregman Splitting Scheme for Distributed Optimization over Networks," submitted to *IEEE Transactions on Automatic Control (Regular)* http://arxiv.org/abs/1608.08031.

- J4 Zhenghua Chen, **Jinming Xu**, Yeng Chai Soh, "Modeling Regular Occupancy in Commercial Buildings Using Stochastic Models", *Energy and Buildings* 103 (2015): 216-223.
- J5 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, "A General Primal-Dual Splitting Algorithm for Distributed Composite Optimization," *Working Paper*.

#### **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," In *Proceedings of 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 *Proceed*ings 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," accepted by *International Federation of Automatic Control (IFAC)*, 2017.
- C6 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, "A Dual Splitting Algorithm for Distributed Resource Allocation Problems," submitted to CDC2017.

#### **Professional**

Activities

- Publication Reviewing: IEEE TAC IEEE TCNS NetSys CDC etc.
- Memberships: IEEE Member (since 2011) IEEE Control Systems Society (since 2013).

**References** Available upon request.