

Education	Nanyang Technological University , Singapore	2011-2016
	Doctor of Philosophy (Ph.D.), Electrical and Electronic Engineering - Thesis: <i>Augmented Distributed Optimization for Networked Systems</i> - Advisor : Prof. Yeng Chai Soh and Prof. Lihua Xie (IEEE Fellow, IFAC Fellow)	
	Shandong University , Jinan, China	2005-2009
	Bachelor of Science (B.Sc.), Mechanical Engineering	
Research Interests	<ul style="list-style-type: none">- Distributed Optimization and Learning- Distributed Feedback Optimization- Data Privacy and Algorithm Security- Multi-Robot Systems	
Academic Positions	Zhejiang University , Hangzhou, China	9/2019-Present
	Assistant Professor, College of Control Science and Engineering	
	Purdue University , West Lafayette, USA	9/2018-8/2019
	Postdoctoral Scholar, School of Industrial Engineering; Host: Prof Gesualdo Scutari	
	Arizona State University , Phoenix, USA	10/2017-8/2018
	Postdoctoral Scholar, Department of Electrical and Computer Engineering; Host: Prof Angelia Nedich and Prof Anna Scaglione	
	Nanyang Technological University , Singapore	8/2016-9/2017
	Research Fellow, School of Electrical and Electronic Engineering	

Publications Journal Articles and ML Conferences

- JM21 Yan Huang, Xiang Li, Yipeng Shen, Niao He, **Jinming Xu**, “Achieving Near-Optimal Convergence for Distributed Minimax Optimization with Adaptive Stepsizes,” **The 38th Annual Conference on Neural Information Processing Systems (NeurIPS)**, 2024.
- JM20 Zehan Zhu, Ye Tian, Yan Huang, **Jinming Xu** and Shibo He, “Robust Fully-Asynchronous Methods for Distributed Training over General Architecture,” **IEEE Transactions on Signal and Information Processing over Networks**, 2024.
- JM19 Zehan Zhu, Yan Huang, Xin Wang and **Jinming Xu**, “PrivSGP-VR: Differentially Private Variance-Reduced Stochastic Gradient Push with Tight Utility Bounds,” **International Joint Conference on Artificial Intelligence (IJCAI)**, 2024.
- JM18 Yan Huang, **Jinming Xu**, Wenchao Meng, Hoi-To Wai and Li Chai, “Distributed Optimization with Personalization: A Flexible Algorithmic Framework,” **IEEE Transactions on Automatic Control (Regular)**, 2024.
- JM17 Chengcheng Zhao, Ruijie Ma, Mengzhi Wang, **Jinming Xu** and Lin Cai, “Safeguard Vehicle Platooning Based on Resilient Control Against False Data Injection Attacks,” **IEEE Transactions on Intelligent Transportation Systems**, 2024
- JM16 Changzhi Yan, Zehan Zhu, Youcheng Niu, Cong Wang and Cheng Zhuo, **Jinming Xu**, “PerfTop: Towards Performance Prediction of Distributed Learning over General Topology,” **Journal of Parallel and Distributed Computing**, 2024

- JM15 Xiaojie Qiu, Wenchao Meng, **Jinming Xu** and Qinmin Yang, “Reduced-order Observer-based Resilient Control for MASSs with Time-varying Delay against DoS Attacks”, **IEEE Transactions on Industrial Cyber-Physical Systems**, 2024
- JM14 Weiyang Sun, **Jinming Xu** and Jiming Chen, “Identifiability and Identification of Switching Dynamical Networks: A Data-based Approach,” **IEEE Transactions on Control of Network Systems**, 2023. DOI: 10.1109/TCNS.2023.3333412
- JM13 Jinyu Pan, Xuezhong Lin, **Jinming Xu**, Yiran Chen and Cheng Zhuo, “Lithography Hotspot Detection Based on Heterogeneous Federated Learning with Local Adaptation and Feature Selection,” **IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems**, 2023. DOI: 10.1109/TCAD.2023.3332841
- JM12 Yan Huang, Ying Sun, Zehan Zhu, Changzhi Yan and **Jinming Xu**, “Tackling Data Heterogeneity: A New Unified Framework for Decentralized SGD with Sample-induced Topology,” In Proceedings of **the 39th International Conference on Machine Learning (ICML, Spotlight)**, PMLR 162:9310-9345, 2022.
- JM11 **Jinming Xu**, Ye Tian, Ying Sun and Gesualdo Scutari, “Distributed Algorithms for Composite Optimization: Unified Framework and Convergence Analysis,” **IEEE Transactions on Signal Processing**, vol. 69, pp. 3555-3570, 2021. [\[pdf\]](#)
- JM10 Tie Ding, Shanying Zhu, Cailian Chen, **Jinming Xu** and Xinping Guan, “Differentially Private Distributed Resource Allocation via Deviation Tracking,” **IEEE Transactions on Signal and Information Processing over Networks**, vol. 7: 222-235, 2021.
- JM09 Yongyang Xiong, **Jinming Xu**, Keyou You, Jianxing Liu, and Ligang Wu, “Privacy Preserving Distributed Online Optimization over Unbalanced Digraphs via Subgradient Rescaling,” **IEEE Transactions on Control of Network Systems**, vol. 7, no. 3, pp. 1366-1378, 2020. [\[pdf\]](#)
- JM08 Shi Pu, Wei Shi, **Jinming Xu** and Angelia Nedich, “Push-Pull Gradient Methods for Distributed Optimization in Networks,” **IEEE Transactions on Automatic Control (Regular)**, vol. 66, no. 1, pp. 1-16, 2020; online available. [\[pdf\]](#)
- JM07 **Jinming Xu**, Ye Tian, Gesualdo Scutari and Ying Sun, “Accelerated Primal-Dual Algorithms for Distributed Optimization over Networks,” In Proceedings of the **23rd International Conference on Artificial Intelligence and Statistics (AISTATS)**, Italy, pp. 2381-2391, 2020. [\[pdf\]](#)
- JM06 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, “A Dual Splitting Approach for Distributed Resource Allocation with Regularization,” **IEEE Transactions on Control of Network Systems**, vol. 6, no. 1: 403-414, 2019. [\[pdf\]](#)
- JM05 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, “A Bregman Splitting Scheme for Distributed Optimization over Networks,” **IEEE Transactions on Automatic Control (Regular)**, vol. 63, no. 11, pp. 3809-3824, 2018. [\[pdf\]](#)
- JM04 Shanying Zhu, Cailian Chen, **Jinming Xu**, Lihua Xie and Johansson Karl Henrik, “Mitigating Quantization Effects on Distributed Sensor Fusion: A Least Squares Approach,” **IEEE Transactions on Signal Processing**, vol. 66, no. 13, pp. 3459-3474, 2018. [\[pdf\]](#)
- JM03 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, “Convergence of Asynchronous Distributed Gradient Methods over Stochastic Networks,” **IEEE Transactions on Automatic Control (Regular)**, vol. 63, no. 2, pp. 434-448, 2018. [\[pdf\]](#)
- JM02 **Jinming Xu** and Yeng Chai Soh, “A Distributed Simultaneous Perturbation Approach for Large-scale Dynamic Optimization Problems,” **Automatica (Regular)** 72 (2016):194-204.
- JM01 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

- C25 Jiacheng He, Fangguo Zhao, Shaohao Zhu, Shuo Li and **Jinming Xu**, “Priority-Based Deadlock Recovery for Distributed Swarm Obstacle Avoidance in Cluttered Environments,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.
- C24 Shaohao Zhu, Jiacheng Zhou, Anjun Chen, Mingming Bai, Jiming Chen and **Jinming Xu**, “MAexp: A Generic Platform for RL-based Multi-Agent Exploration,” *IEEE International Conference on Robotics and Automation (ICRA)*, 2024.
- C23 Weiyang Sun, **Jinming Xu** and Jiming Chen, “Topology Reconstruction of Heterogeneous Networked Dynamical Systems with Unknown Input Matrices,” In *Proceedings of The 2024 American Control Conference (ACC)*, Toronto, ON, Canada, 2024
- C22 Yuyang Shen, Jin Zhou, Danzhe Xu, Fangguo Zhao, **Jinming Xu**, Jiming Chen and Shuo Li, “Aggressive Trajectory Generation for A Swarm of Autonomous Racing Drones,” *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2023.
- C21 Jianhui Li, Youcheng Niu, Shuang Li, Yuzhe Li, **Jinming Xu**, and Junfeng Wu, “Inducing Desired Equilibrium in Taxi Repositioning Problem with Adaptive Incentive Design,” In *Proceedings of 62nd IEEE Conference on Decision and Control (CDC)*, Singapore, 2023.
- C20 Youcheng Niu, Ying Sun, Yan Huang and **Jinming Xu**, “A Loopless Distributed Algorithm for Personalized Bilevel Optimization,” In *Proceedings of 62nd IEEE Conference on Decision and Control (CDC)*, Singapore, 2023.
- C19 Yan Huang and **Jinming Xu**, “On the Computation-Communication Trade-Off with A Flexible Gradient Tracking Approach,” In *Proceedings of 62nd IEEE Conference on Decision and Control (CDC)*, Singapore, 2023.
- C18 Zehan Zhu, Yan Huang, Chengcheng Zhao and **Jinming Xu**, “Asynchronous Byzantine-Robust Stochastic Aggregation with Variance Reduction for Distributed Learning,” In *Proceedings of 62nd IEEE Conference on Decision and Control (CDC)*, Singapore, 2023.
- C17 Zemin Liu, Mingming Bai, Jiacheng He, Xiufang Shi and **Jinming Xu**, “Accurate and Robust State Estimation via Fusion of Visual-Inertial-UWB with Time Synchronization,” In *Proceedings of IEEE 49th Industrial Electronics Conference (IECON)*, 2023
- C16 Yan Huang, **Jinming Xu**, Wenchao Meng and Hoi-To Wai, “Stochastic Gradient Tracking Methods for Distributed Personalized Optimization over Networks,” In *Proceedings of 61st IEEE Conference on Decision and Control (CDC)*, Cancun, Mexico, 2022.
- C15 Weiyang Sun, **Jinming Xu**, and Jiming Chen, “On Necessary and Sufficient Conditions for Identifiability and Identification of Switching Dynamical Networks,” In *Proceedings of 61st IEEE Conference on Decision and Control (CDC)*, Cancun, Mexico, 2022.
- C14 Xuezhong Lin, Jingyu Pan, **Jinming Xu**, Yiran Chen and Cheng Zhuo, “Lithography Hotspot Detection via Heterogeneous Federated Learning with Local Adaptation,” *27th Asia and South Pacific Design Automation Conference (ASP-DAC)*, pp. 166-171, 2022.
- C13 Zishun Liu, Shanying Zhu, **Jinming Xu**, and Cailian Chen, “A Decentralized Algorithm for Coordination Between Economic Dispatch and Demand Response in Multi-Energy Systems,” In *Proceedings of 60th IEEE Conference on Decision and Control (CDC)*, Austin, USA, 2021.
- C12 Yixian Zhao, Jiashuai Chen, **Jinming Xu**, and Shuai Liu, “Multi-Robot Area Coverage and Environment Estimation Based on the Mixture of Gaussian Processes,” In *Proceedings of IEEE International Conference on Unmanned Systems (ICUS)*, 2021
- C11 **Jinming Xu**, Ye Tian, Ying Sun and Gesualdo Scutari, “A unified algorithmic framework for distributed composite optimization,” In *Proceedings of 59th IEEE Conference on Decision and Control (CDC)*, Jeju, Korea, pp. 2309-2316, 2020.
- C10 Zhibin Wang, **Jinming Xu**, Shanying Zhu, and Cailian Chen, “A dual splitting method for distributed economic dispatch in multi-energy systems,” In *Proceedings of 21st IFAC World Congress*, Berlin (Virtual), Germany, pp. 12566-12571, 2020.

- C09 **Jinming Xu**, Ying Sun and Gesualdo Scutari, “A Unified Contraction Analysis of a Class of Distributed Algorithms for Composite Optimization,” In *Proceedings of IEEE 8th International Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, 2019.
- C08 Shi Pu, Wei Shi, **Jinming Xu**, Angelia Nedich, “A Push-Pull Gradient Method for Distributed Optimization in Networks,” In *Proceedings of 57th IEEE Conference on Decision and Control (CDC)*, 2018.
- C07 **Jinming Xu**, Shanying Zhu, Yeng Chai Soh and Lihua Xie, “A Dual Splitting Algorithm for Distributed Resource Allocation Problems,” In *Proceedings of 56th IEEE Conference on Decision and Control (CDC)*, 2017.
- C06 Shanying Zhu, **Jinming Xu**, Cailian Chen, Xinping Guan and Binqiang Xue, “DINS: A Scheme for Distributed Sensor Fusion over Fading Channels,” *IFAC-PapersOnLine* 50(1), 2017: 14284-14289.
- C05 **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.
- C04 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.
- C03 Shanying Zhu, Shuai Liu, **Jinming Xu**, Yeng Chai Soh, and Lihua Xie, “Averaging based distributed estimation algorithm for rate-constrained sensor networks with additive quantization model,” In *Proceedings of 54th IEEE Conference on Decision and Control (CDC)*, 2015.
- C02 **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.
- C01 **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.

Professional Services Activities

- Guest Editor for Journal of Control Theory and Applications
- Associated Editor for CDC 2024/2023 • ACC 2024/2023 • ICCA 2019/2020/2022
- Session (Co)-Chair for CDC 2024/2023/2022/2021 • SIAM OPT 2021 • CCC 2021/2022
- Program Chair for Global Automation ECR Workshop 2019; TPC members for ICPADS 2020 • CACRE 2020

Reviews

- Journals: IEEE Transactions on Automatic Control • Automatica • SIAM Journal on Optimization • IEEE Trans. Signal Processing • IEEE Trans. Control Network Systems • IEEE Trans. Signal and Information Processing • IEEE Trans. Network Science and Engineering • IEEE Trans. Neural Networks and Learning Systems • IEEE Trans. Pattern Analysis and Machine Intelligence • IEEE Trans. Systems, Man and Cybernetics: Systems • IEEE Trans. Cybernetics • IEEE Signal Processing Letters • IEEE Control Systems Letters • Information Science • Annual Reviews in Control
- Conferences: NIPS, ICML, ICLR, AISTATS, CDC, ACC, IFAC, ICASSP, ECC,...

Memberships

- IEEE Member (since 2011) • IEEE Control Systems Society (since 2013).