



Xiang Li

Postdoctoral Researcher
Department of Mechanical and Materials Engineering
University of Cincinnati, Ohio, US
+1 513 394 9787
li5xi@ucmail.uc.edu
[My Homepage](#)

OVERVIEW

Age 30, Interests: Industrial AI, Deep Learning, Fault Diagnosis, Prognosis, Optimization

EXPERIENCE

Postdoctoral Researcher 2019.5-

Department of Mechanical and Materials Engineering, University of Cincinnati, US

- Collaborating Supervisor: [Jay Lee](#) (UC).

Assistant Professor 2017.5-

Department of Mechanics, College of Sciences, Northeastern University, China

Visiting Scholar 2015.9-2016.9

School of Engineering, University of California at Merced, US

EDUCATION

Ph.D. in General Mechanics 2012.9-2017.1

Tianjin University, China

Studies of Dynamics and Intelligent Development in Transportation System

B.S. in Engineering Mechanics 2008.9-2012.7

Tianjin University, China

Double Bachelor Degree in Engineering Management

RESEARCHES

Intelligent Condition Monitoring

Deep learning, rotating machines and components, bearings, pumps, ball screws, robot arms, gearboxes, nuclear reactor, cutting wheels, etc.

Additive Manufacturing

Process monitoring, quality analysis, parameter identification, direct energy deposit, thermal monitoring images, microstructure identification, etc.

Multi-Objective Optimization

Transportation system, rotor system design, squeeze film damper, automatic driving, control optimization, etc.

PEER-REVIEWED JOURNAL PAPERS [My Google Scholar]

First author & Corresponding author

25. **Xiang Li***, Xiaodong Jia, Yinglu Wang, Shaojie Yang, Haodong Zhao, Jay Lee, “[Industrial Remaining Useful Life Prediction by Partial Observation Using Deep Learning with Supervised Attention](#)”, *IEEE/ASME Transactions on Mechatronics*, 2020, Accepted in press.
24. Moslem Azamfar, **Xiang Li***, Jay Lee, “[Deep Learning-Based Domain Adaptation Method for Fault Diagnosis in Semiconductor Manufacturing](#)”, *IEEE Transactions on Semiconductor Manufacturing*, 2020, **0**, 0.
23. **Xiang Li***, Xiaodong Jia, Qibo Yang, Jay Lee, “[Quality Analysis in Metal Additive Manufacturing with Deep Learning](#)”, *Journal of Intelligent Manufacturing*, 2020, Accepted in press.
22. Moslem Azamfar, **Xiang Li***, Jay Lee, “[Intelligent Ball Screw Fault Diagnosis Using A Deep Domain Adaptation Methodology](#)”, *Mechanism and Machine Theory*, 2020, **151C**, 103932.
21. **Xiang Li**, Xiao-Dong Jia, Wei Zhang, Hui Ma, Zhong Luo, and Xu Li*, “[Intelligent cross-machine fault diagnosis approach with deep auto-encoder and domain adaptation](#)”, *Neurocomputing*, 2020, **383**, 235-247.
20. **Xiang Li***, Wei Zhang, and Qian Ding, “[Cross-Domain Fault Diagnosis of Rolling Element Bearings Using Deep Generative Neural Networks](#)”, *IEEE Transactions on Industrial Electronics*, 2019, **66:7**, 5525-5534.
19. **Xiang Li**, Wei Zhang, Qian Ding, and Xu Li*, “[Diagnosing Rotating Machines with Weakly Supervised Data Using Deep Transfer Learning](#)”, *IEEE Transactions on Industrial Informatics*, 2020, **16 (3)**, 1688-1697.
18. **Xiang Li***, Wei Zhang, Nan-Xi Xu, and Qian Ding, “[Deep Learning-Based Machinery Fault Diagnostics with Domain Adaptation Across Sensors At Different Places](#)”, *IEEE Transactions on Industrial Electronics*, 2020, **67 (8)**, 6785-6794.
17. Wei Zhang, **Xiang Li***, and Qian Ding, “[Deep residual learning-based fault diagnosis method for rotating machinery](#)”, *ISA Transactions*, 2019, **95**, 295-305.
16. Wei Zhang, **Xiang Li***, Xiao-Dong Jia, Hui Ma, Zhong Luo, and Xu Li, “[Machinery fault diagnosis with imbalanced data using deep generative adversarial networks](#)”, *Measurement*, 2020, **152**, 107377.
15. **Xiang Li***, Wei Zhang, and Qian Ding, “[Deep learning-based remaining useful life estimation of bearings using multi-scale feature extraction](#)”, *Reliability Engineering & System Safety*, 2019, **182**, 208-218.

14. **Xiang Li***, Wei Zhang, and Qian Ding, “[Understanding and Improving Deep Learning-Based Rolling Bearing Fault Diagnosis with Attention Mechanism](#)”, *Signal Processing*, 2019, **161**, 136-154.
13. **Xiang Li***, Qian Ding, and Jian-Qiao Sun, “[Remaining useful life estimation in prognostics using deep convolution neural networks](#)”, *Reliability Engineering & System Safety*, 2018, **172**, 1-11.
12. **Xiang Li**, and Jian-Qiao Sun*, “[Signal Multiobjective Optimization for Urban Traffic Network](#)”, *IEEE Transactions on Intelligent Transportation Systems*, 2018, **19:11**, 3529-3537.
11. **Xiang Li***, Wei Zhang, Qian Ding, and Jian-Qiao Sun, “[Multi-Layer domain adaptation method for rolling bearing fault diagnosis](#)”, *Signal Processing*, 2019, **157**, 180-197.
10. **Xiang Li***, Wei Zhang, Qian Ding, and Jian-Qiao Sun, “[Intelligent rotating machinery fault diagnosis based on deep learning using data augmentation](#)”, *Journal of Intelligent Manufacturing*, 2019, **0**, 1-1.
9. **Xiang Li***, Wei Zhang, and Qian Ding, “[A robust intelligent fault diagnosis method for rolling element bearings based on deep distance metric learning](#)”, *Neurocomputing*, 2018, **310**, 77-95.
8. **Xiang Li***, and Jian-Qiao Sun, “[Intersection multi-objective optimization on signal setting and lane assignment](#)”, *Physica A: Statistical Mechanics and its Applications*, 2019, **525**, 1233-1246.
7. **Xiang Li***, and Jian-Qiao Sun, “[Turning Lane and Signal Optimization at Intersections with Multiple Objectives](#)”, *Engineering Optimization*, 2019, **51:3**, 484-502.
6. **Xiang Li***, and Jian-Qiao Sun, “[Multi-objective Optimal Predictive Control of Signals in Urban Traffic Network](#)”, *Journal of Intelligent Transportation Systems: Technology, Planning, and Operations*, 2019, **23:4**, 370-388.
5. **Xiang Li**, and Jian-Qiao Sun*, “[Studies of vehicle lane-changing dynamics and its effect on traffic efficiency, safety and environmental impact](#)”, *Physica A: Statistical Mechanics and its Applications*, 2017, **467**, 41-58.
4. **Xiang Li**, and Jian-Qiao Sun*, “[Effects of vehicle–pedestrian interaction and speed limit on traffic performance of intersections](#)”, *Physica A: Statistical Mechanics and its Applications*, 2016, **460**, 335-347.
3. **Xiang Li**, and Jian-Qiao Sun*, “[Effects of turning and through lane sharing on traffic performance at intersections](#)”, *Physica A: Statistical Mechanics and its Applications*, 2016, **444**, 622-640.
2. **Xiang Li**, and Jian-Qiao Sun*, “[Studies of vehicle lane-changing to avoid pedestrians with cellular automata](#)”, *Physica A: Statistical Mechanics and its Applications*, 2015, **438**, 251-271.
1. **Xiang Li**, and Jian-Qiao Sun*, “[Effect of interactions between vehicles and pedestrians on fuel consumption and emissions](#)”, *Physica A: Statistical Mechanics and its Applications*, 2014, **416**, 661-675.

Co-author

7. Qibo Yang, Xiaodong Jia*, **Xiang Li**, Jianshe Feng, Wenzhe Li, “[Evaluating Feature Selection and Anomaly Detection Methods of Hard Drive Failure Prediction](#)”, *IEEE Transactions on Reliability*, 2020, **0**, 0.
6. Moslem Azamfar*, Jaskaran Singh, **Xiang Li**, Jay Lee, “[Cross-domain gearbox diagnostics under variable working conditions with deep convolutional transfer learning](#)”, *Journal of Vibration and Control*, 2020, **0**, 0.
5. Haoshu Cai, Jianshe Feng*, Feng Zhu, Qibo Yang, **Xiang Li** and Jay Lee, “[Adaptive Virtual Metrology Method Based on Just-in-time Reference and Particle Filter for Semiconductor Manufacturing](#)”, *Measurement*, 2021, **168**, 108338.
4. Haoshu Cai, Jianshe Feng*, Qibo Yang, Wenzhe Li, **Xiang Li** and Jay Lee, “[A virtual metrology method with prediction uncertainty based on Gaussian process for chemical mechanical planarization](#)”, *Computers in Industry*, 2020, **119**, 103228.
3. Wei Zhang, Bing-Bing Han, **Xiang Li**, Qian Ding* and Jian-Qiao Sun, “[Multiple-objective Design Optimization of Squirrel Cage for Squeeze Film Damper by Using Cell Mapping Method and Experimental Validation](#)”, *Mechanism and Machine Theory*, 2019, **132**, 66-79.
2. Qi Chen, **Xiang Li**, Zhi-Chang Qin, Shun Zhong, and Jian-Qiao Sun*, “[Switching control and time-delay identification](#)”, *Communications in Nonlinear Science and Numerical Simulation*, 2014, **19**, 4161-4169.
1. Zhi-Chang Qin, **Xiang Li**, Shun Zhong, and Jian-Qiao Sun*, “[Control experiments on time-delayed dynamical systems](#)”, *Journal of Vibration and Control*, 2014, **20**, 827-837.

BOOK CHAPTER

- **Xiang Li**, and Jian-Qiao Sun*, “[Defensive Driving Strategy and Control for Autonomous Ground Vehicle in Mixed Traffic](#)”, NEO 2016. Studies in Computational Intelligence, vol 731 (Springer, 2018), Maldonado Y., Trujillo L., Schütze O., Riccardi A., Vasile M. eds.

INTERNATIONAL CONFERENCE PAPERS

9. **Xiang Li***, Shahin Siahpour, Jay Lee, Yachao Wang and Jing Shi “[Deep Learning-Based Intelligent Process Monitoring of Directed Energy Deposition in Additive Manufacturing with Thermal Images](#)”, *Procedia Manufacturing*, 48: 643-649, 48th North American Manufacturing Research Conference (NAMRC), Cincinnati, OH, US, 2020.
8. Shaojie Yang, **Xiang Li***, Xiaodong Jia, Yinglu Wang, Haodong Zhao and Jay Lee “[Deep Learning-Based Intelligent Defect Detection of Cutting Wheels with Industrial Images in Manufacturing](#)”, *Procedia Manufacturing*, 48: 902-907, 48th North American Manufacturing Research Conference (NAMRC), Cincinnati, OH, US, 2020.
7. Qibo Yang, **Xiang Li***, Yinglu Wang, Abhijeet Ainapure and Jay Lee “[Fault Diagnosis of Ball Screw in Industrial Robots Using Non-Stationary Motor Current Signals](#)”, *Procedia Manufacturing*, 48: 1102-1108, 48th North American Manufacturing Research Conference (NAMRC), Cincinnati, OH, US, 2020.

6. Abhijeet Ainapure, **Xiang Li***, Jaskaran Singh, Qibo Yang and Jay Lee “[Enhancing Intelligent Cross-Domain Fault Diagnosis Performance on Rotating Machines with Noisy Health Labels](#)”, Procedia Manufacturing, 48: 940-946, 48th North American Manufacturing Research Conference (NAMRC), Cincinnati, OH, US, 2020.
5. Abhijeet Ainapure, **Xiang Li***, Jaskaran Singh, Qibo Yang and Jay Lee “[Deep Learning-Based Cross-Machine Health Identification Method for Vacuum Pumps with Domain Adaptation](#)”, Procedia Manufacturing, 48: 1088-1093, 48th North American Manufacturing Research Conference (NAMRC), Cincinnati, OH, US, 2020.
4. Yinglu Wang, Xiaodong Jia*, **Xiang Li**, Shaojie Yang, Haodong Zhao and Jay Lee “[A Machine Vision Based Monitoring System for the LCD Panel Cutting Wheel Degradation](#)”, Procedia Manufacturing, 48: 49–53, 48th North American Manufacturing Research Conference (NAMRC), Cincinnati, OH, US, 2020.
3. Nan-Xi Xu, and **Xiang Li***, “[Cross-Domain Machinery Fault Diagnosis Using Adversarial Network with Conditional Alignments](#)”, 2019 Prognostics and System Health Management Conference (PHM-Qingdao), Qingdao, China, 2019, 1-5.
2. **Xiang Li**, and Jian-Qiao Sun*, “[Multi-Objective Optimization at Isolated Intersections with Cellular Automata](#)”, Proceedings of Transportation Research Board 95th Annual Meeting, Washington D.C., US, 2016, 16-0675.
1. **Xiang Li**, and Jian-Qiao Sun*, “Multi-objective Optimal Control Design for Adaptive Cruise Control”, Proceedings of the 8th European Nonlinear Dynamics Conference, Vienna, Austria, 2014.

PHD DISSERTATION

- [Studies of Dynamics and Intelligent Development in Transportation System](#), 2017.

AWARDS

- 2018 Contribution Award, College of Sciences, Northeastern University
- 2016 National Scholarship for PhD, China
- 2015 Funding from China Scholarship Council
- 2015 Chen Yu-Shu Scholarship for PhD
- 2012 Chen Yu-Shu Scholarship for Bachelor