

Xueru Zhang

CONTACT INFORMATION	595 Dreese Laboratories 2015 Neil Avenue Columbus, OH 43210	Phone: +1 (734) 548-1967 E-mail: zhang.12807@osu.edu Homepage: xueruzhang.github.io
APPOINTMENTS	The Ohio State University , Columbus, OH	
	• Assistant Professor, Department of Computer Science & Engineering	09/2021-
	• Faculty Affiliate, Translational Data Analytics Institute	10/2021-
EDUCATION	University of Michigan , Ann Arbor, MI	
	• Ph.D. in Electrical Engineering and Computer Science	01/2017 - 08/2021
	Advisor: Mingyan Liu	
	Thesis: <i>Socially Responsible Machine Learning: On the Preservation of Individual Privacy and Fairness</i>	
	Committee: Yiling Chen, Alfred Hero, Mingyan Liu, Atul Prakash, Aaron Roth	
	• M.Sc. in Electrical Engineering and Computer Science	09/2015 - 12/2016
	Beihang University (BUAA) , Beijing, China	
	• B.Eng. in Electronic and Information Engineering	09/2011 - 06/2015
RESEARCH INTERESTS	◦ Societal Aspects of Artificial Intelligence (Privacy, Security, and Algorithmic Fairness) ◦ Machine Learning, Sequential Decision-Making, Distributed Optimization ◦ Economics, Game Theory	
AWARDS	• Ethics Circle Fellow , The Ohio State University 2022 • ProQuest Distinguished Dissertation Award , Finalist, University of Michigan 2021 • Caltech Young Investigators Forum , Engineering and Applied Science, Caltech 2021 • Towner Prize for Outstanding Ph.D. Research , Finalist, University of Michigan 2020 • S. Lipschitz, M. A. Host and A. O. Smith Awards , Finalist, University of Michigan 2020 • EECS Rising Stars 2020 , University of California, Berkeley 2020 • Rackham Predoctoral Fellowship , University of Michigan 2020 • ITA Graduation Day Invited Talk , University of California, San Diego 2020 • Outstanding Graduate of Beijing (Top 5%) , Beijing, China 2015 • First-Class Academic Scholarship , BUAA, China 2012, 2013, 2014 • Merit Student of Beijing (1/295) , Beijing, China 2014 • Baosteel Education Scholarship (1/3591) , China 2013 • National Scholarship (Top 2%) , China 2012	
CONFERENCE PUBLICATIONS	1. Fair Sequential Selection Using Supervised Learning Models. M. Khalili, X. Zhang , M. Abroshan <i>In the 35th Conference on Neural Information Processing Systems (NeurIPS), 2021.</i> 2. Cardiac Complication Risk Profiling for Cancer Survivors via Multi-View Multi-Task Learning. T. Pham, C. Yin, L. Mehta, X. Zhang , and P. Zhang <i>In the IEEE International Conference on Data Mining (ICDM), regular paper, 2021.</i> 3. How Do Fair Decisions Fare in Long-Term Qualification? X. Zhang* , R. Tu*, Y. Liu, M. Liu, H. Kjellström, K. Zhang and C. Zhang <i>In the 34th Conference on Neural Information Processing Systems (NeurIPS), 2020.</i>	

4. [Group Retention when Using Machine Learning in Sequential Decision Making: the Interplay between User Dynamics and Fairness.](#)
X. Zhang*, M. Khalili*, C. Tekin and M. Liu
In the 33rd Conference on Neural Information Processing Systems (NeurIPS), 2019.
5. [Improving the Privacy and Accuracy of ADMM-based Distributed Algorithms.](#)
X. Zhang, M. Khalili and M. Liu
In the 35th International Conference on Machine Learning (ICML), 2018.
6. [Improving Fairness and Privacy in Selection Problems.](#)
M. Khalili, **X. Zhang**, M. Abroshan and S. Sojoudi
In the 35th AAAI Conference on Artificial Intelligence (AAAI), 2021.
7. [Contract Design for Purchasing Private Data Using a Biased Differentially Private Algorithm.](#)
M. Khalili*, **X. Zhang*** and M. Liu
In the 14th Workshop on the Economics of Networks, Systems and Computation (NetEcon), 2019.
8. [Incentivizing Effort in Interdependent Security Games Using Resource Pooling.](#)
M. Khalili, **X. Zhang** and M. Liu
In the 14th Workshop on the Economics of Networks, Systems and Computation (NetEcon), 2019.
9. [Effective Premium Discrimination for Designing Cyber Insurance Policies with Rare Losses.](#)
M. Khalili, **X. Zhang** and M. Liu
In the 10th Conference on Decision and Game Theory for Security (GameSec), 2019.
10. [Recycled ADMM: Improve Privacy and Accuracy with Less Computation in Distributed Algorithms.](#)
X. Zhang, M. Khalili and M. Liu
In the 56th Annual Allerton Conference on Communication, Control, and Computing (Allerton), 2018.
11. [Public Good Provision Games on Networks with Resource Pooling.](#)
M. Khalili, **X. Zhang** and M. Liu
In the International Conference on Network Games Control and Optimization (NetGCoop), 2018.
12. [A Robust Energy and Emissions Conscious Cruise Controller for Connected Vehicles with Privacy Considerations.](#)
C. Huang, **X. Zhang**, R. Salehi, T. Ersal and A. Stefanopoulou
ASME Automotive and Transportation Systems **Best Paper Award Finalist**
In 2020 American Control Conference (ACC), 2020.
13. [Recycled ADMM: Improving the Privacy and Accuracy of Distributed Algorithms.](#)
X. Zhang, M. Khalili and M. Liu
In IEEE Transactions on Information Forensics and Security (TIFS), 2019.
14. [Predictive Cruise Control with Private Vehicle-to-Vehicle Communication for Improving Fuel Consumption and Emissions.](#)
X. Zhang*, C. Huang*, M. Liu, A. Stefanopoulou and T. Ersal
In IEEE Communications Magazine, 2019.
15. [Long-Term Impacts of Fair Machine Learning.](#)
X. Zhang, M. Khalili and M. Liu
In Ergonomics in Design: The Quarterly of Human Factors Applications, 2019.
16. [Resource Pooling for Shared Fate: Incentivizing Effort in Interdependent Security Games through Cross-investments.](#)
M. Khalili, **X. Zhang** and M. Liu
In IEEE Transactions on Control of Network Systems (TCNS), 2020.
17. [Designing Contracts for Trading Private and Heterogeneous Data Using a Biased Differentially Pri-](#)

JOURNAL
PUBLICATIONS

	<p>vate Algorithm.</p> <p>M. Khalili*, X. Zhang* and M. Liu</p> <p><i>In IEEE Access, 2021.</i></p>	
BOOK CHAPTERS	<p>18. Fairness in Learning-Based Sequential Decision Algorithms: A Survey.</p> <p>X. Zhang and M. Liu</p> <p><i>Springer Studies in Systems, Decision and Control, Handbook on RL and Control, 2020.</i></p>	
SUBMITTED PAPERS	<p>19. Fairness Interventions as (Dis)incentives for Strategic Manipulation.</p> <p>X. Zhang, M. Khalili, K. Jin, P. Naghizadeh and M. Liu</p> <p>20. Making Cheating Less Appealing: Incentivizing Honesty in Strategic Classification Problems.</p> <p>K. Jin, X. Zhang and M. Liu</p> <p>21. Differentially Private Real-Time Release of Sequential Data.</p> <p>X. Zhang, M. Khalili and M. Liu</p> <p>(* indicates equal contribution)</p>	
TEACHING	<p>Instructor, The Ohio State University</p> <ul style="list-style-type: none"> o CSE 5539: Fairness in Machine Learning o CSE 5523: Machine Learning <p>Guest Lecturer</p> <ul style="list-style-type: none"> o CSE 6521: Artificial Intelligence, The Ohio State University <p>Graduate Student Instructor, University of Michigan</p> <ul style="list-style-type: none"> o EECS 501: Probability and Random Processes 	<p><i>Fall 2021</i></p> <p><i>Spring 2022</i></p> <p><i>Fall 2021</i></p> <p><i>Winter 2020</i></p>
ACADEMIC SERVICES	<p>Journal and Conference Reviewer</p> <ul style="list-style-type: none"> o Journal of Machine Learning Research (JMLR) o International Conference on Machine Learning (ICML) o AAAI Conference on Artificial Intelligence (AAAI) o International Conference on Learning Representations (ICLR) o IEEE Access o IET Intelligent Transport Systems o American Control Conference (ACC) o Conference on Decision and Game Theory for Security (GameSec) o IEEE Transaction on Information Forensics and Security (TIFS) o Conference on Neural Information Processing Systems (NeurIPS) o IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) o Conference on Decision and Control (CDC) <p>Session Chair/Leader</p> <ul style="list-style-type: none"> o Session: Fairness and bias in ML and NLP session o Session: People, AI, and Fairness, Physics and Machine Learning <p>Workshop Organizer</p> <ul style="list-style-type: none"> o Workshop on Socially Responsible Machine Learning <p>Others</p> <ul style="list-style-type: none"> o Judge, poster session, TDAI Fall Forum, The Ohio State University o Reviewer, NSF Graduate Research Fellowship Program (GRFP) o Discussant, <i>ECE Communications and Signal Processing Seminar</i>, University of Michigan o – Enabling Fast and Robust Federated Learning 	<p><i>2022</i></p> <p><i>2021, 2022</i></p> <p><i>2021</i></p> <p><i>2021, 2022</i></p> <p><i>2021</i></p> <p><i>2021</i></p> <p><i>2022</i></p> <p><i>2021</i></p> <p><i>2020</i></p> <p><i>2020, 2021</i></p> <p><i>2019</i></p> <p><i>2019, 2020</i></p> <p><i>07/2020</i></p> <p><i>02/2020</i></p> <p><i>04/2022</i></p> <p><i>07/2021</i></p> <p><i>11/2021</i></p> <p><i>2022</i></p> <p><i>2020</i></p>

– Connections between Online Learning and Differential Privacy

INVITED TALKS	Long-Term Impact of Fair Machine Learning	12/2021
	◦ Machine Learning Symposium , Computer Science Department, USC	
	Fair Machine Learning with Human in Feedback Loops	06/2021
	◦ Caltech Young Investigators Forum , Engineering and Applied Science, Caltech	
	Trustworthy Machine Learning: On the Preservation of Individual Privacy and Fairness	2021
	◦ Emory University, <i>Department of Computer Science</i>	
	◦ Ohio State University, <i>Department of Computer Science & Engineering</i>	
	◦ Purdue University, <i>School of Industrial Engineering</i>	
	◦ Purdue University, <i>Department of Computer Science</i>	
	◦ Pennsylvania State University, <i>College of Information Sciences & Technology</i>	
	Human-Centric Machine Learning: On the Preservation of Individual Privacy and Fairness	07/2020
	◦ Shanghai Jiao Tong University, China	
	Human-Centric Machine Learning	02/2020
	◦ Graduation Day , <i>Information Theory and Applications Workshop</i> , UCSD	
WORKSHOP AND POSTER	How Do Fair Decisions Fare in Long-Term Qualification?	
	◦ <i>Engineering Graduate Symposium (EGS)</i> , University of Michigan	02/2021
	◦ <i>NeurIPS Workshop</i> , Consequential Decision Making in Dynamic Environments	12/2020
	◦ <i>EECS Rising Stars Workshop</i> , UC Berkeley	11/2020
	◦ Conference on Neural Information Processing Systems (NeurIPS)	12/2020
	Group Retention when Using Machine Learning in Sequential Decision Making: the Interplay between User Dynamics and Fairness	
	◦ <i>ICML Workshop</i> , Women in Machine Learning (WiML)	07/2020
	◦ <i>Information Theory and Applications Workshop</i> , UCSD	02/2020
	◦ Conference on Neural Information Processing Systems (NeurIPS), Vancouver	12/2019
	Long Term Impact of Fair Machine Learning in Sequential Decision Making: Representation Disparity and Group Retention	
	◦ ACM conference on Economics and Computation (EC), Phoenix	06/2019
	◦ <i>EC Workshop</i> , Mechanism Design for Social Good (MD4SG), Phoenix	06/2019
	Using Resource Pooling to Obtain More Efficient Equilibrium in Interdependent Security Games	
	◦ ACM conference on Economics and Computation (EC), Phoenix	06/2019
	Improving the Privacy and Accuracy of ADMM-Based Distributed Algorithms	
	◦ International Conference on Machine Learning (ICML), Stockholm	07/2018
	Differential Privacy of ADMM-based Distributed Machine Learning Algorithms	
	◦ <i>Engineering Graduate Symposium (EGS)</i> , University of Michigan	11/2017
SKILLS	PYTHON, PYTORCH, TENSORFLOW, MATLAB, C/C++, HTML, CCS	
REFERENCES	Available upon request.	