

# Yuanzhang Xiao

---

CONTACT INFORMATION	Hawaii Advanced Wireless Technologies (HAWT) Institute University of Hawaii at Manoa, Honolulu, HI 96822	Homepage: <a href="http://yuanzhangxiao.com/">http://yuanzhangxiao.com/</a> E-mail: <a href="mailto:xyz.xiao@gmail.com">xyz.xiao@gmail.com</a> Cell Phone: (+1) 213 210 5456
RESEARCH INTERESTS	<b>Theory</b> Deep learning, reinforcement learning, game theory, optimization <b>Applications</b> Wireless communications (e.g., 5G, Internet of things) Socio-technological networks (e.g., sharing economy, crowdsourcing) Smart grids (e.g., electricity markets, renewable energy, electric vehicles)	
ACADEMIC EMPLOYMENT	<b>University of Hawaii at Manoa, USA</b> Assistant Professor in Hawaii Advanced Wireless Technologies (HAWT) Institute	<b>Aug. 2017 – present</b>
	<b>Northwestern University, USA</b> Postdoctoral Fellow in Department of Electrical Engineering and Computer Science • Advisor: Prof. Ermin Wei	<b>May 2015 – Jul. 2017</b>
	<b>University of California, Los Angeles, USA</b> Postdoctoral Fellow in Department of Electrical Engineering • Advisor: Prof. Mihaela van der Schaar	<b>Jul. 2014 – Apr. 2015</b>
EDUCATION	<b>University of California, Los Angeles, USA</b> Ph.D. in Electrical Engineering • Dissertation: Optimal sequential resource sharing and exchange in multi-agent systems • Advisor: Prof. Mihaela van der Schaar	<b>Sep. 2009 – Jun. 2014</b>
	<b>Tsinghua University, Beijing, China</b> M.E. in Electronic Engineering • Thesis title: Limited-feedback precoding for giga-bit wireless transmission systems • Advisor: Prof. Shidong Zhou	<b>Sep. 2006 – Jun. 2009</b>
	<b>Tsinghua University, Beijing, China</b> B.E. in Electronic Engineering	<b>Sep. 2002 - Jun. 2006</b>
PROPOSALS	<b>co-PI</b> , NSF Phase II IUCRC at University of Hawaii: Center for Electromagnetic Compatibility (CEMC); University of Hawaii in Electromagnetic Technologies (Award Number: <b>1822213</b> )	
PUBLICATIONS	<b><i>Invited book chapters</i></b> [Ch2] <b>Yuanzhang Xiao</b> and Mihaela van der Schaar, “Cognitive Radio Networks for Delay-Sensitive Applications: Games and Learning,” <i>Handbook of Cognitive Radio</i> , Ed. W. Zhang, J. Huang and X. Chen, Springer, 2017.  [Ch1] <b>Yuanzhang Xiao</b> and Mihaela van der Schaar, “Optimal Repeated Spectrum Sharing by	

Delay-Sensitive Users,” *Cloud Radio Access Networks: Principles, Technologies, and Applications*, Ed. T. Quek, M. Peng, O. Simeone and W. Yu, Cambridge University Press, 2016.

#### ***Journal papers submitted***

[JS2] **Yuanzhang Xiao**, Chaithanya Bandi, and Ermin Wei , “Efficiency of Supply Function Equilibrium in Electricity Markets,” *submitted*. Available [here](#). Conference versions in [Asilomar 2015](#) and [GlobalSIP 2016](#).

[JS1] (*authors listed alphabetically in this paper*) Mihaela van der Schaar, **Yuanzhang Xiao**, and William Zame, “Endogenous Matching in a Dynamic Assignment Model with Adverse Selection and Moral Hazard,” *Submitted*. Available [here](#).

#### ***Journal papers accepted***

[JA17] **Yuanzhang Xiao** and Mihaela van der Schaar, “Dynamic Stochastic Demand Response With Energy Storage,” *IEEE Transactions on Smart Grid*, forthcoming. Available [here](#).

[JA16] **Yuanzhang Xiao**, Florian Dörfler, and Mihaela van der Schaar, “Incentive Design in Peer Review: Rating and Repeated Endogenous Matching,” *IEEE Transactions on Network Science and Engineering*, forthcoming. Available: <http://arxiv.org/abs/1411.2139>

[JA15] (*authors are listed alphabetically in this paper*) Mihaela van der Schaar, **Yuanzhang Xiao**, and William Zame, “Efficient Outcomes in Repeated Games with Limited Monitoring,” *Economic Theory*, vol. 60, no. 1, pp. 1-34, Sep. 2015. **Featured as the lead article**.

[JA14] **Yuanzhang Xiao** and Mihaela van der Schaar, “Socially-Optimal Design of Service Exchange Platforms with Imperfect Monitoring,” *ACM Transactions on Economics and Computation*, vol. 3, no. 4, Jul. 2015.

[JA13] Kartik Ahuja, **Yuanzhang Xiao**, and Mihaela van der Schaar, “Efficient Interference Management Policies for Femtocell Networks,” *IEEE Transactions on Wireless Communications*, vol. 14, no. 9, pp. 4879–4893, Sep. 2015.

[JA12] Kartik Ahuja, **Yuanzhang Xiao**, and Mihaela van der Schaar, “Distributed Interference Management Policies for Heterogeneous Small Cell Networks,” *IEEE Journal on Selected Areas in Communications, Special Issue on Heterogeneous Cellular Networks*, vol. 33, no. 6, pp. 1112–1126, Jun. 2015. **Featured in IEEE Spotlight on “Clearing the Air for 5G Wireless”**.

[JA11] **Yuanzhang Xiao** and Mihaela van der Schaar, “Optimal Foresighted Multi-User Wireless Video,” *IEEE Journal of Selected Topics in Signal Processing, Special issue on Visual Signal Processing for Wireless Networks*, vol. 9, no. 1, pp. 89–101, Feb. 2015.

[JA10] **Yuanzhang Xiao**, William Zame, and Mihaela van der Schaar, “Technology Choices and Pricing Policies in Public and Private Wireless Networks,” *IEEE Transactions on Wireless Communications*, vol. 13, no. 12, pp. 6606–6618, Dec. 2014.

[JA9] Mahnoosh Alizadeh, **Yuanzhang Xiao**, Anna Scaglione, and Mihaela van der Schaar, “Dynamic Incentive Design for Participation in Direct Load Scheduling Programs,” *IEEE Journal of Selected Topics in Signal Processing, Special issue on Signal Processing in Smart Electric Power Grid*, vol. 8, no. 6, pp. 1111–1126, Dec. 2014.

[JA8] Linqi Song, **Yuanzhang Xiao**, and Mihaela van der Schaar, “Demand Side Management in Smart Grids using a Repeated Game Framework,” *IEEE Journal on Selected Areas in Communications, Special Issue on Smart Grid Communications*, vol. 32, no. 7, pp. 1412–1424, Jun.

2014.

[JA7] Jie Xu, Yiannis Andreopoulos, **Yuanzhang Xiao** and M. van der Schaar, “Non-stationary Resource Allocation Policies for Delay-constrained Video Streaming: Application to Video over Internet-of-Things-enabled Networks,” *IEEE Journal on Selected Areas in Communications, Special Issue on Adaptive Media Streaming*, vol. 32, no. 4, pp. 782–794, Apr. 2014.

[JA6] **Yuanzhang Xiao** and Mihaela van der Schaar, “Energy-efficient Nonstationary Spectrum Sharing,” *IEEE Transactions on Communications*, vol. 62, no. 3, pp. 810–821, Mar. 2014. **Selected as Qualcomm Innovation Fellowship Finalist in 2013.**

[JA5] Luca Canzian, **Yuanzhang Xiao**, William Zame, Michele Zorzi, Mihaela van der Schaar, “Intervention with Private Information, Imperfect Monitoring and Costly Communication,” *IEEE Transactions on Communications*, vol. 61, no. 8, pp. 3192–3205, Aug. 2013.

[JA4] Luca Canzian, **Yuanzhang Xiao**, William Zame, Michele Zorzi, Mihaela van der Schaar, “Intervention with Complete and Incomplete Information: Application to Flow Control,” *IEEE Transactions on Communications*, vol. 61, no. 8, pp. 3206–3218, Aug. 2013.

[JA3] **Yuanzhang Xiao** and Mihaela van der Schaar, “Dynamic Spectrum Sharing Among Repeatedly Interacting Selfish Users With Imperfect Monitoring,” *IEEE Journal on Selected Areas in Communications, Special issue on Cognitive Radio Series*, vol. 30, no. 10, pp. 1890–1899, Nov. 2012. **Selected as Qualcomm Innovation Fellowship Finalist in 2012.**

[JA2] **Yuanzhang Xiao**, Jaeok Park, and Mihaela van der Schaar, “Repeated Games With Intervention: Theory and Applications in Communications,” *IEEE Transactions on Communications*, vol. 60, no. 10, pp. 3123–3132, Oct. 2012.

[JA1] **Yuanzhang Xiao**, Jaeok Park, and Mihaela van der Schaar, “Intervention in Power Control Games with Selfish Users,” *IEEE Journal of Selected Topics in Signal Processing, Special issue on Game Theory In Signal Processing*, vol. 6, no. 2, pp. 165–179, Apr. 2012.

#### *Conference papers*

[CA28] Qiulin Lin, Hanling Yi, John Pang, Minghua Chen, Adam Wierman, Michael Honig, and **Yuanzhang Xiao**, “Competitive Online Optimization Under Inventory Constraints,” accepted to *ACM Sigmetrics*, 2019.

[CA27] **Yuanzhang Xiao** and Yin Sun, “A Dynamic Jamming Game for Real-Time Status Updates,” in *Proc. IEEE International Conference on Computer Communications (INFOCOM) Workshop on Age of Information*, 2018.

[CA26] Chang Liu, **Yuanzhang Xiao**, Ermin Wei and Randall Berry, “Competition and Investment in On-Demand Networking Technology,” in *Proc. IEEE/IFIP Wireless On-Demand Network Systems and Services Conference (WONS)*, 2017. Available [here](#).

[CA25] **Yuanzhang Xiao**, Chaithanya Bandi, and Ermin Wei, “Supply Function Equilibrium in Power Markets: Mesh Networks,” *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, 2016.

[CA24] **Yuanzhang Xiao**, Chaithanya Bandi, and Ermin Wei, “Robust Supply Function Bidding in Electricity Markets With Renewables,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2016.

[CA23] **Yuanzhang Xiao** and Mihaela van der Schaar, “Optimal Intervention for Incentivizing

the Adoption of Commercial Electric Vehicles,” accepted by *IEEE Global Conference on Signal and Information Processing* (GlobalSIP), 2015. **(invited)**

[CA22] Chang Liu, **Yuanzhang Xiao**, Ermin Wei and Randall Berry, “Investment and Competition with Positive Externalities in Open Networks,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2015. **(invited)**

[CA21] **Yuanzhang Xiao**, Chaithanya Bandi, and Ermin Wei, “Efficiency of Supply Function Equilibrium in Networked Markets,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2015. **(invited)**

[CA20] **Yuanzhang Xiao** and Mihaela van der Schaar, “Decentralized Foresighted Energy Purchase and Procurement With Renewable Generation and Energy Storage,” in *Proc. IEEE Conf. on Decision and Control (CDC)*, 2014.

[CA19] **Yuanzhang Xiao**, Florian Dörfler, and Mihaela van der Schaar, “Rating and Matching in Peer Review Systems,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2014.

[CA18] **Yuanzhang Xiao**, K. Ahuja, and Mihaela van der Schaar, “Spectrum Sharing For Delay-Sensitive Applications With Continuing QoS Guarantees,” in *Proc. IEEE Globecom*, 2014. **(selected as one of the best 50 papers out of 2000+ submitted papers)**

[CA17] **Yuanzhang Xiao** and Mihaela van der Schaar, “Optimal Foresighted Packet Scheduling and Resource Allocation for Multi-user Video Transmission in 4G Cellular Networks,” in *Proc. IEEE ICASSP 2014*.

[CA16] Linqi Song, **Yuanzhang Xiao**, and Mihaela van der Schaar, “Non-stationary Demand Side Management Method for Smart Grids,” in *Proc. IEEE ICASSP 2014*.

[CA15] **Yuanzhang Xiao** and Mihaela van der Schaar, “Distributed Demand-Side Management Among Foresighted Decision Makers in Power Networks,” in *Proc. Asilomar Conf. on Signals, Systems, and Computers*, 2013 **(invited)**.

[CA14] Mahnoosh Alizadeh, **Yuanzhang Xiao**, Anna Scaglione, and Mihaela van der Schaar, “Incentive Design for Direct Load Control Programs,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2013.

[CA13] **Yuanzhang Xiao** and Mihaela van der Schaar, “Spectrum Sharing Policies for Heterogeneous Delay-Sensitive Users: A Novel Design Framework,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2013.

[CA12] **Yuanzhang Xiao** and Mihaela van der Schaar, “Nonstationary Resource Sharing with Imperfect Binary Feedback: An Optimal Design Framework for Cost Minimization,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2013.

[CA11] Luca Canzian, **Yuanzhang Xiao**, M. Zorzi, and M. van der Schaar, “Game Theoretic Design of MAC Protocols: Pricing and Intervention in Slotted-Aloha,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2013.

[CA10] **Yuanzhang Xiao** and Mihaela van der Schaar, “Energy-efficient Nonstationary Power Control in Cognitive Radio Networks,” in *Proc. IEEE Globecom*, 2013.

[CA9] **Yuanzhang Xiao**, Yu Zhang, and Mihaela van der Schaar, “Socially-Optimal Design of Crowdsourcing Platforms With Reputation Update Errors,” in *Proc. IEEE ICASSP*, May 2013.

[CA8] **Yuanzhang Xiao\*** and Mihaela van der Schaar, “Distributed Spectrum Sharing Policies for Selfish Users with Imperfect Monitoring Ability,” in *Proc. Asilomar Conf. on Signals, Systems, and Computers*, 2012 (**invited**).

[CA7] **Yuanzhang Xiao\*** and Mihaela van der Schaar, “Repeated Resource Sharing Among Selfish Players With Imperfect Binary Feedback,” in *Proc. Allerton Conf. on Communication, Control, and Computing*, 2012.

[CA6] **Yuanzhang Xiao**, Jaeok Park, and Mihaela van der Schaar, “Design and Analysis of Intervention Mechanism In Power Control Games,” in *Proc. IEEE GLOBECOM*, Dec. 2011.

[CA5] **Yuanzhang Xiao**, William R. Zame, and Mihaela van der Schaar, “Technology Choices and Pricing Policies in Wireless Networks,” in *Proc. GameNets*, Apr. 2011.

[CA4] Yin Sun, **Yuanzhang Xiao**, Ming Zhao, Xiaofeng Zhong, Shidong Zhou, and Ness B. Shroff, “Joint power and channel resource allocation for F/TDMA decode and forward relay networks,” in *Proc. IEEE GLOBECOM*, Dec. 2009.

[CA3] Peng Xu, **Yuanzhang Xiao**, and Ming Zhao, “ICI analysis of MIMO-OFDM systems with independent phase noise at both transmit and receive antennas,” in *Proc. IEEE WiCOM*, Sept. 2009.

[CA2] **Yuanzhang Xiao**, Wei Miao, Ming Zhao, Shidong Zhou, and Jing Wang, “Limited-feedback Modified Block Diagonalization for Multiuser MIMO Downlink With Time-Varying Channels,” in *Proc. IEEE ICC*, June 2009.

[CA1] **Yuanzhang Xiao** and Shidong Zhou, “Downlink Linear Max-MSE Transceiver Design for Multiuser MIMO Systems Via Dual Decomposition,” in *Proc. IEEE VTC*, May 2008.

TEACHING	Instructor, EE 342 Probability and Statistics, University of Hawaii	Fall 2018
	Instructor, EE 442 Digital Communications, University of Hawaii	Spring 2018
	Instructor, EE 617 Convex Optimization, University of Hawaii	Fall 2017
	Guest Lecturer, EECS 422 Random Processes, Northwestern University	Winter 2016
	Guest Lecturer, EE218 Network Economics and Game Theory, UCLA	Winter 2015
	Teaching Assistant, EE113 Digital Signal Processing, UCLA	Spring 2011, Spring 2012
	Teaching Assistant, EE238 Multimedia Communications and Processing, UCLA	Fall 2011
	Teaching Assistant, EE218 Network Economics and Game Theory, UCLA	Winter 2011
HONORS AND AWARDS	Top 50 papers out of 2000+ submissions in IEEE Globecom Conference,	2014
	Dissertation Year Fellowship, UCLA,	2013–2014
	Qualcomm Innovation Fellowship Finalist,	2012, 2013
	University Fellowship, UCLA,	2009
	Scholarship for Academic Excellence, Tsinghua University,	2003–2005
	Scholarship for Freshmen, Tsinghua University,	2002
PROFESSIONAL EXPERIENCE	First prize, China Mathematics Olympiad in provinces,	2001
	Technical reviewer for IEEE Journal on Selected Areas in Communications, IEEE Transactions on Power Systems, IEEE Transactions on Mobile Computing, IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Circuits and Systems I,	

IEEE ICC, IEEE VTC, IEEE WCNC, GameNets, IEEE Globecom, IEEE GlobalSIP.  
Volunteer for IEEE ICC 2008.