Yue XU

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I am a fourth-year graduate student in the School of Information and Communication Engineering (SICE) at **Beijing University of Post and Telecommunication (BUPT)**, major in **Information Communication Engineering (ICE)**. My research interests include (deep) reinforcement learning, large-scale data analytics and system control, and data-driven wireless network management.

EDUCATION

Ph.D Candidate of ICE @ SICE of BUPT
Sep. 2015 - Now

- Visiting Researcher with the Department of Electrical and Computer Engineering in **University of California, Davis** (From Sep. 2016 to Sep. 2018). Funded by China Scholarship Council. Mentor: Shuguang Cui.
- Visiting Researcher with **Chinese University of Hong Kong, Shenzhen** (From Mar. 2016 to Aug. 2016). Mentor: Yin Feng, Shuguang Cui.

Bachelor of Communication Engineering @ SICE of BUPT
Sep. 2011 - Jul. 2015

- Pilot Class of SICE (Selected)
- Outstanding Graduate Thesis Award (Top 1%)

EXPERIENCE

Algorithm Engineer @ Search Department of Alibaba
Jul. 2019 - Sep. 2019

- Elected to the **Alibaba A-Star** Program.
- Deep reinforcement learning for sequential recommendation in E-commerce systems.

Research Assistant @ Shenzhen Research Institute of Big Data (SRIBD)
Oct. 2018 - Jun. 2019

- Wireless traffic prediction with scalable Gaussian process (GP).
- Load balancing for ultra-dense networks with deep reinforcement learning (DRL).

PUBLICATION

Preprint

1. **Y. Xu**, Z. Deng, M. Wang, W. Xu, A. So and S. Cui, "Voting-Based Multi-Agent Reinforcement Learning," arXiv preprint:1907.01385, May 2019. [Online]. Available: https://arxiv.org/abs/1907.01385

Journal

2. **Y. Xu**, F. Yin, W. Xu, J. Lin and S. Cui, "Wireless Traffic Prediction with Scalable Gaussian Process: Framework, Algorithms, and Verification," in *IEEE Journal on Selected Areas in Communications (**JSAC**)*, vol. 37, no. 6, pp. 1291-1306, June 2019.

3. W. Xu, **Y. Xu**, Y. Xu, C. Lee, Z. Feng, P. Zhang and J. Lin, "Data-Cognition-Empowered Intelligent Wireless Networks: Data, Utilities, Cognition Brain, and Architecture," in **IEEE Wireless Communications**, vol. 25, no. 1, pp. 56– 63, February 2018.

4. **Y. Xu**, Z. Wang, W. Xu, J. Lin and S. Cui, "Load Balancing for Ultra-Dense Networks with Deep Reinforcement Learning under Multiple Behavior Policies," in **IEEE Internet of Things Journal**, August 2019, to appear.

5. Z. Wang, L. Li, **Y. Xu**, H. Tian and S. Cui, " Handover Control in Wireless Systems via Asynchronous Multiuser Deep Reinforcement Learning," in **IEEE Internet of Things Journal**, vol. 5, no. 6, pp. 4296–4307, June 2018.

6. A. Xie, F. Yin, **Y. Xu**, B. Ai, T. Chen and S. Cui, "Distributed Gaussian Processes Hyperparameter Optimization for Big Data Using Proximal ADMM," in **IEEE Signal Processing Letters**, vol. 26, no. 8, pp. 1197-1201, August 2019.

7. W. Xu, S. Li, **Y. Xu**, X. Lin, " Underlaid-D2D-assisted cooperative multicast based on social networks," in **Peer-to-Peer Networking and Applications**, vol. 9, no. 5, pp. 923–935, September 2016.

8. W. Xu, S. Li, **Y. Xu**, Z. Feng, J. Lin,x " Energy-efficient layered video multicast over OFDM-based cognitive radio systems," in **International Journal of Distributed Sensor Networks**, vol. 11, no. 10, pp. 1-12, October 2015.

9. H. Cui, S. Tang, F. Sun, **Y. Xu**, X. Yang, " Topological embedding feature based resource allocation in network virtualization," in *Mathematical Problems in Engineering*, vol. 2014, pp. 1-10, August 2014.

Conference

10. **Y. Xu**, F. Yin, W. Xu, J. Lin and S. Cui, "Scalable Gaussian Process Using Inexact ADMM for Big Data," in *IEEE International Conference on Acoustics, Speech, and Signal Processing (**ICASSP**)*, Brighton, UK, May 2019, to appear.
11. **Y. Xu**, F. Yin, W. Xu, J. Lin and S. Cui, "Distributed Gaussian Process: New Paradigm and Application to Wireless Traffic Prediction," in *IEEE International Conference on Communications (**ICC**)*, Shanghai, China, May 2019, to appear. in *IEEE International Conference on Communications (**ICC**)*, 2019.
12. **Y. Xu**, Z. Wang, W. Xu, J. Lin and S. Cui, " Deep Reinforcement Learning Based Mobility Load Balancing Under Multiple Behavior Policies," in *IEEE International Conference on Communications (**ICC**)*, Shanghai, China, May 2019, to appear.
13. **Y. Xu**, F. Yin, W. Xu, J. Lin and S. Cui, " High-Accuracy Wireless Traffic Prediction: A GP-Based Machine Learning Approach," in *IEEE Global Communications Conference (**GLOBECOM**)*, Singapore, December 2017, pp. 1–6.
14. Z. Wang, L. Li, **Y. Xu**, H. Tian and S. Cui, " Handover Optimization via Asynchronous Multi-User Deep Reinforcement Learning," in *IEEE International Conference on Communications (**ICC**)*, Kansas City, MO, May 2018, pp. 1-6.
15. W. Xu, B. Li, **Y. Xu** and J. Lin, " Lower-Complexity Power Allocation for LTE-U Systems: A Successive Cap-Limited Waterfilling Method," in *IEEE Vehicular Technology Conference (**VTC Spring**)*, Glasgow, Scotland, May 2015, pp. 1-6.

RESEARCH

PROJECT ON DRL BASED MOBILITY MANAGEMENT IN WIRELESS NETWORKS
UC DAVIS, BUPT

- Proposed an off-policy DRL-based mobility load balancing (MLB) algorithm to solve the large-scale load balancing problem for ultra-dense networks (UDNs). The algorithm explores with multiple behavior policies under an asynchronous parallel learning framework, where traditional methods could be exploited to guided the learning process so as to improve the learning efficiency [12].
- Proposed a two-layer MLB architecture to handle the large-scale load balancing problem for UDNs in a self-organized manner [4].

PROJECT ON SCALABLE GAUSSIAN PROCESS BASED PREDICTION MODEL
CUHKSZ, UC DAVIS, BUPT

- Proposed a GP based wireless traffic prediction model tailored for the 4G wireless system [13].
- Proposed a parallel GP prediction model based on the ADMM framework and the Gauss-Seidel method [10].
- Proposed a distributed GP prediction model based on the ADMM framework and the cross-validation method [11].
- Proposed a C-RAN based scalable GP prediction architecture to support the data-driven network scheduling and the adaptive resource configuration in practical wireless systems [3].

PROJECT ON VOTING BASED MULTI-AGENT REINFORCEMENT LEARNING
PRINCETON, CUHK, UC DAVIS, BUPT

- Proposed a voting based multi-agent reinforcement learning (MARL) algorithm, where distributed learning achieves the same convergence rate as centralized learning [1].

AWARDS & ACTIVITIES

- National Scholarship, BUPT Outstanding Graduate Thesis Award (2015), Silver Award in Beijing "Challenge Cup" College Student Business Plan Competition (2014), Silver Award in National College Student Business Plan Competition (2014), Meritorious (First) Prize in Mathematical Contest in Modeling (2014), Second Prize in BUPT College Student Business Plan Competition (2014), BUPT National College Student Innovation Project (2013).
- Excellent Student Cadre, The Union Minister of Liaison Department in BUPT, Monitor of the Pilot Class, Host of the Graduation Party, Host of the Campus Singer Competition, Member of the Glee Club.

SKILLS

PROGRAMMING & FRAMEWORK	Python, TeX, MATLAB, Tensorflow, PyTorch.
LANGUAGES	English (TOEFL: 106 = 28+27+24+27), Chinese (native speaker).