Fang Liu

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Education

Aug. 2014 - Present	Ph.D. in Electrical and Computer Engineering at The Ohio State University, Columbus, OH, 43202, USA **Overall GPA:** 4.0/4.0
Sep. 2010 - Jul. 2014	B.S. in Information Engineering at Dept. of Electronic Engineering Shanghai Jiao Tong University (SJTU), P. R. of China **Overall GPA:** 92/100 **Major GPA:** 94/100 **Rank:** 3/223

Publications

- **Fang Liu**, Zhiyong Chen, Bin Xia, "V2V Data Dissemination with Network Coding in Two-Way Road Networks," *IEEE Transactions on Vehicular Technology*, 2014.
- **Fang Liu**, Zhiyong Chen, Bin Xia and Hui Liu, "V2V Data Dissemination with Network Coding in Two-Way Road Networks," posted on *Wireless Club in Institute of Wireless Communication Technologies*, Nov. 2013. (poster)
- Longwei Wang, Hao Feng, **Fang Liu**, Zhiyong Chen and Bin Xia, "Pushing and Caching in Hybrid Wireless Networks," posted on *Wireless Club in Institute of Wireless Communication Technologies*, Nov. 2012. (Best Poster Award)

Research Interests

Communications and Networks
- Wireless communication systems, ad hoc networks, network coding, modeling and analysis.
- Resource allocation, multi-armed bandit, social networks, online advertising.

Research Activities

Information Processing Systems Lab (IPS), OSU Aug. 2014 - Present

Research topic: **Multi-armed Bandit, Online Social Networks**
Advisors: ***Dr. Swapna Buccapatnam and Prof. Ness Shroff***

Aug. 2014 - Present **Stochastic Multi-armed Bandit with Side Observations**

- Generalized a framework for stochastic multi-armed bandit problem with side observations. The structure of the side observations can be described by a general bipartite graph between actions and base-arms.
- Proposed a general version of epsilon-greedy algorithm, epsilon-LP, for the bandit problem. Analyzed the expected performance upper bound of the algorithm.
- Proposed a general version of Upper Confidence Bound, UCB-like algorithm, that is UCB-LP, for the bandit problem. Analyzed the expected performance upper bound of the algorithm.

Institute of Wireless Communication Technologies (IWCT), SJTU Sep. 2012 - Jul. 2014

Research topic: **Vehicular Ad-hoc Networks, Network Coding**
Advisors: ***Dr. Zhiyong Chen, Prof. Bin Xia and Prof. Hui Liu***

Mar. 2013 - Jul. 2014 **Vehicle-to-Vehicle Data Dissemination with Network Coding**

- Proposed a data dissemination scheme in two-way road vehicular networks. Network coding was applied to enhance the efficiency of broadcasting.
- Focused on performance analysis of data dissemination. Several closed form solutions were deducted, including velocity of dissemination and average benefits from the opposite lane.
- Such a scheme took the advantage of two-way road networks, which constitutes a necessary complement to the current data dissemination models.

Research topic: **Push-based Converged Networks**
Advisors: ***Prof. Bin Xia and Prof. Hui Liu***
Sponsors: **Huawei Technologies Co., Ltd**
National Special Science and Technology Project of China

Jul. 2013 - Jul. 2014 **Patents in Push-based Converged Networks**

- Co-applying three patents with Huawei Technologies Co., Ltd, two on efficient hybrid transmission based on characterizing the type of services, the distribution of service requests, etc., one on efficient error packet recovery with random network coding.

Jan. 2013 - Mar. 2013 **Prototype in Push-based Converged Networks**

- Developed a prototype to support pushing via broadcasting and supplementary transmission via unicasting. The prototype is running on the hybrid wireless campus networks in SJTU, including a server and several clients.
- Focused on the client APP developed on the **Android** smart phone, supporting simultaneous IP packet transmission via two different radio interfaces, error packet recovery, and live video play functionality.

Sep. 2012 - Dec. 2012 **Pushing and Caching in Hybrid Wireless Networks**

- Investigated the existing hybrid networks, such as LTE eMBMS and DVB-H. The attributes of content were considered, including popularity distribution and file size.
- Proposed a joint design of content analysis and load balancing to fulfill effective pushing and caching, which was aimed to meet the cellular challenges.

Selected Honors

Scholarships

- Litton Fellowship 2014
- First Prize of SCSK Corporation Scholarship (Top 4%) 2013
- Academic Excellence Scholarship of SJTU (Top 5%) 2012,2013
- Dongshi Dongfang Scholarship (Top 2%) 2012
- National Scholarship (**Highest Scholarship Honor**) (Top 1%) 2011

Awards

- Merit Student of Shanghai Jiao Tong University 2013

- The Best Poster Award of Wireless Club in IWCT 2012
- Submarine Prototype Contest of SEIEE*, Third Prize 2012
- First Prize of Physics Olympic Contest in China 2011

Standard Test

TOEFL: 105 (Reading 30 Listening 27 Speaking 20 Writing 28)
GRE: Verbal 157 Quantitative 170 Analytical Writing: 3.5

Skills

Program languages: C/C++, JAVA, XML, Matlab, VHDL, LabVIEW, Python
Developing experience: Android with Eclipse, Xilinx Spartan3E, Digilent Nexys3 with ISE, EDA with MAX+Plus II, NI MyDAQ with LabVIEW, ARM Cortex M3, ad hoc network on Linux.

* School of Electronic Information and Electrical Engineering, SJTU