

Fangfei Chen

Education

The Pennsylvania State University, Ph.D. in Computer Science

expected in May 2012

GPA: 3.77/4

Tsinghua University, B.S. in Electrical Engineering

2006

GPA: 86/100

Skills

- Programming languages: Java, C, Python, C++, Perl
- Math tools: MATLAB, AMPL/CPLEX
- Linear Programming

Experience

Bell Laboratories, Alcatel-Lucent, USA

Summers of 2010, 2011

- Studied job-scheduling problem in MapReduce system by explicitly considering job precedence in Map, Shuffle and Reduce phases [1]. Implemented heuristics on top of linear programming solvers.
- Solved replica placement problem in building a Content Distribution Network in the Cloud [2]. Extracted user access pattern from Web traces and designed algorithms that place Web replica and redirect users.

Synway Information Engineering Co., China

2005/6 - 2005/8

- Designed circuits and programmed FPGA for a PCI board that transfers data between DSP chips and a PC using DMA, which makes it 10 times faster than without DMA.

The Pennsylvania State University, Ph.D. in Computer Science

2006 - present

- Study multi-resource allocation problem in which demands for resources are random variables. Model the problem as a stochastic Multi-dimensional Knapsack Problem and design algorithms to solve it.
- Studied broadcast scheduling problem in which joint utility of data is non-additive. Designed heuristics to optimally allocate time slots of a TDMA channel to users with correlated demands [4].
- Studied Converge-cast problem in sensor networks, where sensor data may be aggregated en-route towards a base station. Provided approximation algorithms for throughput maximization [5].
- Studied a mobile data access problem in which user may download data at different base stations. Modeled as a parallel-machine scheduling problem in order to assign users to their best locations [6, 7].
- Studied the problem of placing data in ad-hoc networks knowing the future information needs. Designed heuristics and conducted simulation-based study using Network Simulator 2 [8].
- Implemented and wrote drivers for a Multi-Backhaul Mobile Access Router, which switched between Wi-Fi and 3G connections automatically based on link quality [9].
- Developed APIs to take measurements such as RSSI from Wi-Fi and EVDO cards, using Linux driver and raw socket programming.

Tsinghua University

2005 - 2006

- Developed an HTTP tunnel with kernel drivers instead of application layer libraries.
- Implemented a test-bed for anti-spam techniques by mimicking spam behaviors.

Services

Reviewer , MILCOM 2011	2011
Reviewer , IEEE Transaction on Mobile Computing	2010
Web Administrator , IEEE SECON 2010	2009-2010
<ul style="list-style-type: none"> Coordinated with organizers and participants and maintained content on the conference Web site. 	
Volunteer , NSRC Industry Day, The Penn State University	2006-2010
<ul style="list-style-type: none"> Organized the annual Network and Security Research Center Industry Day, which aims to enhance industry/academia-partnering opportunities. 	

Awards

AT&T Graduate Fellowship	2011
IEEE MASS 2009 Student Travel Grant	2009
Tsinghua Second-class Scholarship	2003

Publications

1. F. Chen, M. Kodialam, and T. V. Lakshman, "Joint Scheduling of Processing and Shuffle Phases in MapReduce Systems," in IEEE INFOCOM, 2012, to appear.
2. F. Chen, K. Guo, J. Lin, and T. F. La Porta, "Intra-cloud Lightning: Building CDNs in the Cloud," in IEEE INFOCOM, 2012, to appear.
3. D. Pizzocaro, A. D. Preece, F. Chen, T. F. La Porta, and A. Bar-Noy, "A Distributed Architecture for Heterogeneous Multi Sensor-task Allocation," in IEEE DCOSS, 2011.
4. F. Chen, D. Pizzocaro, M. Johnson, A. Bar-Noy, A. Preece, and T. La Porta, "Broadcast Scheduling with Data Bundles," in Proceedings of SPIE, 2011.
5. F. Chen, M. P. Johnson, A. Bar-Noy, and T. F. La Porta, "Convergecast with Aggregatable Data Classes," under submission, 2011.
6. F. Chen, M. P. Johnson, Y. Alayev, A. Bar-Noy, and T. F. La Porta, "Who, When, Where: Timeslot Assignment to Mobile Clients," IEEE Transactions on Mobile Computing, 2011.
7. —, "Who, When, Where: Timeslot Assignment to Mobile Clients," in IEEE MASS, 2009.
8. F. Chen, M. P. Johnson, A. Bar-Noy, I. Fermin, and T. F. La Porta, "Proactive Data Dissemination to Mission Sites," in IEEE SECON, 2009.
9. Y. Sun, F. Chen, and T. F. La Porta, "Multiple Backhaul Mobile Access Router: Design and Experimentation," in IEEE ICC, 2008.