Zhen Qiu
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EDUCATION

Columbia University, Fu Foundation School of Engineering and Applied Science   **New York, NY**
Ph.D. in Operations Research (GPA: 4.0/4.0)   Expected Aug 2015
- Thesis advisor: Cliff Stein, Yuan Zhong
- Areas of study: Approximation Algorithms, Scheduling, Network Algorithms, Combinatorial Optimization, Dynamic Optimization, Stochastic Systems, Machine Learning, Quantitative Finance

University of Hong Kong   **Hong Kong**
B.Sc. in Actuarial Science (GPA: 3.85/4.0)   Jun 2009
- *Honors*: First Class Honors, Dean's Honors List (2006 - 2009), 3-year Merit-based Full Scholarship (among 6 recipients out of over 5,000 candidates), Overseas Research Fellowship, Overseas Exchange Scholarship, Shu Ping Scholarship (awarded to top 0.1% students in China for academic excellence)

EXPERIENCE

ARPA-E Project, U.S. Department of Energy   **New York, NY**
Research Assistant, Columbia University, in conjunction with AutoGrid Systems and Lawrence Berkeley National Labs   Jan 2012 - Apr 2013
- Developed a robust algorithm to optimize personalized price signals to be sent to more than 1 million customers in minutes to manage real-time demand for energy across the electrical grid
- Integrated the algorithm into the automated control software DROMS-RT in C++

Columbia University   **New York, NY**
Teaching Assistant, Department of Industrial Engineering and Operations Research   Sept 2009 - Present
- Serve as the head TA for core courses in PhD and financial engineering programs
- Lead recitations and occasionally lectures to classes as large as 200 persons, prepare solutions, hold office hours and grade exams

American International Assurance   **Hong Kong**
Actuarial Intern, Regional Accident and Health Home Office   Sept 2008 - Jan 2009
- Conducted experience study on lapse rate, expense, claim rate and usage to revise actuarial assumptions
- Utilized actuarial models to price accident and health insurance products
- Examined profitability of new insurance business using Excel and Prophet
- Managed policy and claim databases and checked data integrity and accuracy using FoxPro

RESEARCH

Research Interests
- Design and analysis of approximation algorithms for scheduling large-scale datacenter jobs
- Dynamic optimization under uncertainty with applications in electricity markets

Publication
- "Minimizing the Total Weighted Completion Time of Coflows in Datacenter Networks", with C. Stein and Y. Zhong, ACM Symposium on Parallelism in Algorithms and Architectures (SPAA), 2015.
    - Innovated the first polynomial time approximation algorithm to schedule communications in datacenter jobs under data-parallel computation frameworks such as MapReduce
    - Calibrated the algorithm on a Facebook trace and demonstrated near-optimal performance
- "Near-optimal Execution Policies for Demand-response Contracts in Electricity Markets", with V. Goyal and G. Iyengar, IEEE Conference on Decision and Control (CDC), 2013.
    - Presented a data driven near-optimal algorithm for the demand-response contract execution problem based on a sample average approximation dynamic program and provided a sample complexity bound
    - Demonstrated empirically that a $(1+ \epsilon)$ - approximation is achievable for significantly smaller number of samples than the theoretical bound

SKILLS

Computing & Programming: C/C++, Perl, MATLAB, R, STATA, FoxPro, LATEX, Excel
Languages: Mandarin and Cantonese (native), English (fluent), Japanese (advanced), German (intermediate)
Certificates: CFA Level 1, SOA exams: Probability, Financial Mathematics, Financial Economics, Life Contingencies, Construction and Evaluation of Actuarial Models, VEE