Fei Peng

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Employment and Experience

Facebook, Inc. **Seattle, WA**
Machine Learning Software Engineer 07/2017 – current

Optimized Markets, Inc. **Pittsburgh, PA**
Director of Engineering 10/2015 – 07/2017
- Within the CMU spin-off, took responsibility for the R&D efforts in developing market-leading systems for advertising sales, scheduling, and pricing with optimization and machine learning tools
- Achieved 20-30% revenue lift in tests conducted for one of the largest U.S. cable companies. Performed exploratory studies for several customers with multi-billion ad footprint
- Interacted with customers in gathering requirements, supporting and tracking project progress, and collecting feedback

Computer Science Dept., Carnegie Mellon University **Pittsburgh, PA**
Research Associate 12/2013 – 09/2015
- Worked on NSF-funded Accelerating Innovation Research project for developing electronic markets for TV and cross-media advertising. Meanwhile consulted for Optimized Markets
- Designed and incorporated the state-of-the-art in optimization and artificial intelligence technologies to achieve market clearing efficiency and allow expressive bidding languages

FedEx Services **Memphis, TN**
Senior Revenue Management Analyst 07/2013 – 11/2013
- Led the customer segmentation study for all customers in Asia-Pacific, to gain insight in their spending patterns and determine the automated individual pricing policy

Industrial&Operations Engineering, Univ. of Michigan **Ann Arbor, MI**
Research Assistant 12/2009 – 05/2013
- Developed novel models and techniques for radiation therapy treatment plan optimization problems, taking into account the latest advancements in treatment equipment and tackling uncertainty during treatment
- Designed algorithms that achieved state-of-the-art plan quality while shortening the planning time for treatments, dramatically outperforming existing commercial systems
- Collaborated with teams engineers and scientists in UM and UC San Diego hospital systems

Schlumberger-Doll Research **Cambridge, MA**
Math & Modeling Intern 06/2012 – 08/2012
- Performed exploratory research study for robust optimization methods
- Investigated optimization schemes applicable to a wide variety of problems in and out of oilfield production systems

ABB (China) Limited **Beijing, China**
Supply Chain Management Intern 07/2007 – 09/2007
- Led individual Car Leasing Project involving all 25 branches in Mainland China
- Surveyed and evaluated qualifications and quotes of major car leasing companies. Recommended qualified leasing suppliers for each branch to the VP

Education

University of Michigan **Ann Arbor, MI**
Ph.D., Industrial&Operations Engineering / Operations Research (08/2013)
M.S., Industrial&Operations Engineering (08/2010)

Beihang University **Beijing, China**
B. Mgmt., Industrial Engineering (07/2008)
B. S. Minor, Applied Mathematics (07/2008)

Publications and Invited Presentations

Journal Articles / Refereed Conference Proceedings

- F. Peng, T. Sandholm. Optimal learning of large Bayesian network structure using integer programming. Working paper
- F. Peng, T. Sandholm. Scalable segment abstraction method for advertising campaign admission and inventory allocation optimization. In *Proceedings of the 25th International Joint Conference on Artificial Intelligence (IJCAI)*, 2016.
- F. Peng, S. Jiang, H. E. Romeijn, and M. Epelman. VMATC: VMAT with Constant Gantry Speed and Dose Rate. *Physics in Medicine and Biology* 60 (2015), 2955-2979
- F. Peng, A. Cohn, O. Gusikhin, and D. Perner. Algorithms for the Hybrid Fleet Vehicle Routing Problem. In *Proceedings of the 1st International Conference on Vehicle Technology and Intelligent Transport Systems* (2015)
- Z. Tian, F. Peng, M. Folkerts, J. Tan, X. Jia, and S. Jiang. Multi-GPU implementation of a VMAT treatment plan optimization algorithm. *Medical Physics* 42, 2841 (2015)
- F. Peng, X. Jia, X. Gu, M. Epelman, H. E. Romeijn, and S. Jiang. A New Column Generation Based Algorithm for VMAT Treatment Plan Optimization. *Physics in Medicine and Biology* 57 (2012), 4569-4588

Book Chapters

- Z. Tian, Q. Gautier, X. Gu, C. Men, F. Peng, M. Zarepisheh, Y. J. Graves, A. Uribe-Sanchez, X. Jia, and S. B. Jiang. SCORE System for Online Adaptive Radiotherapy.
- F. Peng, Z. Tian, H. E. Romeijn, and C. Men. VMAT Treatment Plan Optimization. Chapters in: *Applications of GPU-based High Performance Computing in Radiation Therapy*, Xun Jia and Steve Jiang, editors. Taylor and Francis (2015)

Conference Presentations

- Oral presentations: IJCAI 2016; INFORMS 2009, 2010, 2011, 2012; SIAM Conference on Optimization 2011.
- Poster presentations: IJCAI 2016; INFORMS 2012.

Other

- Automated allocation of media campaign assets to time and program in digital media delivery systems, T. Sandholm, F. Peng, J. Dickerson, *U.S. Patent 9,699,502*, July 2017
- F. Peng, K. Rashid, and B. Couet, Robust optimization methods for oilfield problems under uncertainty. *Tech Report OFSR/2012/132/MMC*, Schlumberger-Doll Research

Teaching

IOE Department, University of Michigan **Ann Arbor, MI**
Graduate Student Instructor F11 – F12, W13
IOE441 Production and Inventory Control
IOE310 Introduction to Optimization Methods

Fellowships and Awards

- Gold Medalist among 46 teams, LINKS Global Supply Chain Management Simulation, 2012
- IOE Bonder Fellowship for Applied Operations Research (sole winner with full fellowship), 2010 – 2011
- Engineering Graduate Symposium Technical Session Award ($500), Nov 2010
- IOE Department Fellowship (full fellowship), 2009 – 2010

Technical/Programming Skills

- Programming languages and frameworks
  - Experienced: C, C++, Python; Ruby-on-Rails
  - Familiar: Java, Javascript, Ruby, SAS; Electron, AngularJS
- Machine learning tools: Tensorflow, Xgboost, Scikit-learn
- Technical computing software and solvers: AMPL, Coin-OR, Cplex, Gurobi, Matlab
- Parallel computing: CUDA, OpenMP
- Database query writing (SQL)
- Unix operating system and script writing