

## ZHENG ZHANG

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**EDUCATION** PhD candidate in Industrial Engineering and Management at Shanghai Jiao Tong University since Sept 2012, Shanghai, China.

Visiting PhD student in Industrial and Operations Engineering at University of Michigan since Aug 2014, Ann Arbor, US.

B.Eng. in Industrial Engineering, Huazhong University of Science and Technology, Wuhan, China, 2010.

**RESEARCH** Theories

**INTERESTS** Stochastic programming, Simulation optimization, Integer programming

Applications

Appointment scheduling, Operating room scheduling

**RESEARCH** Project: Resource planning and optimization in health service, 2012.1~present

**EXPERIENCE** Description: This project is granted by the national natural science foundation of China (71131005), in order to balance between demands and supply, improve utilization of health care resources and effectively control emergencies. My responsibilities include planning and scheduling of critical health resources (e.g., operating room, surgeon), including stochastic appointment and sequencing scheduling, real-time control, and operating room allocation.

Project: Resource planning and scheduling control of mobile service networks, 2012.1~2014.12

Description: This project is granted by the national natural science foundation of China (61104173), in order to concern problems of optimizing resource planning while considering the features of mobile service, e.g., random demands and skill requirements. Mathematic programming and Discrete Event System will be used comprehensively to tackle the complex problems. My responsibilities include the facility location and serviceman routing in the home

care service.

Project: Radiotherapy whole process optimization with uncertainties, 2013.1~present

Description: This project is granted by the specialized research fund for the doctoral program of higher education (20120073110040) in order to optimize the patients' radiotherapy schedules and to integrally concern the pretreatment and treatment by using scientific techniques such as mathematical programming and simulation. My responsibilities include patient scheduling with considering preferences, uncertain arrivals and setup times.

Project: How to reserve capacity of critical medical resources, 2012.1~2014.12

Description: This project is granted by the specialized research fund for the doctoral program of higher education (20110073120048), in order to concern the scarcity of critical medical resources and their sharing between various classes of patients. It considers the capacity allocation of resources such as MRI, CT, operating rooms and wards by mixing patients from different disciplines. My responsibilities include case-mix of long term surgery scheduling, i.e., allocate operating room time to various surgery groups.

**PEER REVIEWED PUBLICATIONS** **Z. Zhang**, XL Xie and N. Geng. Dynamic Surgery Assignment of Multiple Operating Rooms with Planned Surgeon Arrival Times, *IEEE Transactions on Automation Science and Engineering*, 2014, 11(3), pp. 680-691.

**Z. Zhang** and XL Xie, Simulation-based Optimization for Surgery Appointment Scheduling of Multiple Operating Rooms, *IIE Transactions*, 2015. DOI: 10.1080/0740817X.2014.999900.

**Z. Zhang**, XL Xie and N. Geng. Simulation-based Surgery Appointment Sequencing and Scheduling of Multiple Operating Rooms, *10<sup>th</sup> IEEE International Conference on Automation Science and Engineering*, August 18-22, 2014, Taipei, Taiwan, pp.399-404.

**Z. Zhang**, XL Xie and N. Geng. Promise Surgery Start Times and Implementation Strategies, *8<sup>th</sup> IEEE International Conference on Automation Science and Engineering*, August 20-24, 2012, Seoul, Korea, pp. 184-190 (EI: 20130415934354).

**Z. Zhang**, XL Xie and N. Geng. Multi-objective Operating Room Allocation, *Journal of Shanghai Jiao Tong University (Science)*, 2012, 46(12), pp. 1983-1988, In Chinese. (EI: 20130515973011).

**PAPERS IN PROGRESS**

Operating Room Allocation for Overtime Control with Chance Constraints, with Brian Denton and Xiaolan Xie

Appointment Scheduling Problem When the Server Responds to Congestion, with Bjorn Berg, Brian Denton and Xiaolan Xie

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Mixed Integer Simulation Optimization Problem, with Xiaolan Xie

**PRESENTATIONS AND POSTERS** The 2014 INFORMS Annual Meeting, “Operating Room Allocation for Overtime Control with Chance Constraints”, Poster, San Francisco, US, Nov. 9-12.

The 2013 Postgraduate Student Forum on Industrial Engineering of Tsinghua University, “Surgery Appointment Scheduling of Multiple Operating Rooms”, Presentation, Xibaipo, China, Dec. 2013.

The 39<sup>th</sup> annual meeting of the EURO Working Group on Operational Research Applied to Health Services, “Simulation-based Surgery Appointment Scheduling”, Presentation, Istanbul, Turkey, Jul. 2013.

The 8<sup>th</sup> IEEE International Conference on Automation Science and Engineering, “Promise Surgery Start Times and Implementation Strategies”, Presentation, Seoul, Korea, Aug. 2012.

The 2012 INFORMS International Conference, “Promise Surgery Start Times and Real Time Surgery Rescheduling”, Presentation, Beijing, China, Jun. 2012.

The 2011 Postgraduate Student Forum on Industrial Engineering of Tsinghua University, “Multi-objective Operating Room Allocation”, Presentation, Beijing, China, Oct. 2011 (Best Paper Award).

**AWARDS** Chinese Government Scholarship for oversea studying, 2014

Desay SV Scholarship, 2013

Excellent PhD Freshman Scholarship at Shanghai Jiao Tong University, 2013

Showa Denko Scholarship (1<sup>st</sup> Price), 2012

Excellent Student Award at Shanghai Jiao Tong University, 2012

**GPA** PhD. Courses: 3.79/4.0, Major Courses: 3.82/4.0

Master Courses: 3.62/4.0, Major Courses: 3.67/4.0

Undergraduate Courses: 86.6/100

**LANGUAGE** Chinese mandarin: native speaker

**SKILLS** English: proficient written and verbal skills

**COMPUTER** Operations System: Linux, Windows

**SKILLS** Programming Language: C++, C#.Net, Matlab, Latex

Optimization Software: IBM Cplex, Gurobi, Local Solver

**INTERESTS**      Badminton, Billiards, Cycling

**REFERENCES**      Xiaolan Xie (Email: [xie@sjtu.edu.cn](mailto:xie@sjtu.edu.cn))  
Professor of Department of Industrial Engineering and Management  
Shanghai Jiao Tong University, Shanghai, 200240, China  
Dr. Xie is my PhD advisor

Brian T. Denton (Email: [btdenton@umich.edu](mailto:btdenton@umich.edu))  
Associate Professor of Department of Industrial and Operations Engineering  
University of Michigan, Ann Arbor, MI, 48109-2117, US  
Dr. Denton is my PhD advisor