

# Pengyi Shi

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## EDUCATION

- **Georgia Institute of Technology**, Atlanta, GA, August 2007 – December 2013  
Ph.D. in Industrial Engineering (minor in Statistics)  
*Thesis title*: “Stochastic modeling and decision making in two healthcare applications: inpatient flow management and pandemic response”  
*Advisors*: Professors Jim Dai and Pinar Keskinocak
- **Peking University**, Beijing, China, September 2003 – June 2007  
B.Eng in Applied Mathematics and Mechanics and B.A. in Economics (double major)

## EMPLOYMENT

- **Purdue University**, West Lafayette, IN, January 2014 – Present  
Assistant Professor of Management, Krannert School of Management

## PAPERS PUBLISHED

- [P1]. J. G. Dai, **P. Shi**, “A Two-time-scale Approach to Time-varying Queues in Hospital Inpatient Flow Management”, forthcoming at *Operations Research*, 2016
- [P2]. **P. Shi**, M. Chou, J. G. Dai, D. Ding, and J. Sim, “Models and Insights for Hospital Inpatient Operations: Time-Dependent ED Boarding Time,” *Management Science*, 62(1):1-28, 2016
- [P3]. **P. Shi**, F. Dexter, R. H. Epstein, “Comparing Policies for Case Scheduling within One Day of Surgery by Markov Chain Models.” *Anesthesia & Analgesia*<sup>1</sup>, 122:526-538, 2016
- [P4]. F. Dexter, **P. Shi**, R. H. Epstein. “Descriptive Study of Case Scheduling and Cancellations within One Week of the Day of Surgery,” *Anesthesia & Analgesia*, 115(5): 1188-1195, 2012
- [P5]. **P. Shi**, P. Keskinocak, J. L. Swann, B. Y. Lee, “The Impact of Mass Gatherings and Holiday Travelling on the Course of an Influenza Pandemic: A Computational Model,” *BMC Public Health*<sup>2</sup>, 10, p. 778, 2010
- [P6]. **P. Shi**, P. Keskinocak, J. L. Swann, B. Y. Lee, “Modeling Seasonality and Viral Mutation to Predict the Course of an Influenza Pandemic,” *Epidemiology and Infection*<sup>3</sup>, 138(10), p. 1472-1481, 2010

## WORKING PAPERS

- [W1]. J. Feng, **P. Shi**, “Steady-state Diffusion Approximations for Discrete-time Queue in Hospital Inpatient Flow Management,” under review.
- [W2]. J. G. Dai, **P. Shi**, “Inpatient Bed Overflow: An Approximate Dynamic Programming Approach,” under review.

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<sup>1</sup> 2014 Impact Factor: 3.47

<sup>2</sup> 2012 Impact Factor: 2.08

<sup>3</sup> 2012 Impact Factor: 2.87

## OTHER PAPERS

- J. G. Dai, **P. Shi**, “Technical Note for Discrete-Time Diffusion Approximations Motivated from Hospital Inpatient Flow Management,” August 2015, arXiv:1508.05148
- **P. Shi**, J. G. Dai, D. Ding, J. Ang, M. Chou, X. Jin and J. Sim, “Patient Flow from Emergency Department to Inpatient Wards: Empirical Observations from a Singaporean Hospital,” July, 2013, Available at SSRN (ID: 2517050)
  - This is a 69-page document on a comprehensive empirical study of inpatient flow management

## INVITED SEMINARS

- “Inpatient Overflow Policies: An Approximate Dynamic Programming Approach”
  - Sauder School of Business, University of British Columbia, March, 2017
- “Steady-state Approximation for Discrete Queue in Hospital Inpatient Flow Management”
  - Joint seminar between Industrial Engineering INFORMS student chapter and Operations Management, Purdue University, December, 2016
- “A Two-time-scale Approach to Time-varying Queues for Hospital Inpatient Flow Management”
  - Krannert School of Management, Purdue University, March, 2014
  - Systems Engineering and Engineering Management, Chinese University of Hong Kong, August 2014
  - Industrial and Systems Engineering, National University of Singapore, July 2014
- “Data-driven Modeling and Decisions for Hospital Inpatient Flow Management”
  - Yale School of Management, January 2013
  - Industrial and Systems Engineering, University of Wisconsin Madison, January 2013
  - Krannert School of Management, Purdue University, January 2013
  - Industrial and Systems Engineering, University of Southern California, February 2013

## PRESENTATIONS

- “Identify Optimal Overflow Policies Using Approximate Dynamic Programming”
  - INFORMS Applied Probability Society Conference, Evanston, IL, June 2017
  - POMS Annual Conference, Seattle, WA, May 2017
  - INFORMS Annual Meeting, Nashville, TN, November 2016
- “Steady-state Approximation for Discrete Queue in Hospital Inpatient Flow Management”
  - INFORMS Annual Meeting, Nashville, TN, November 2016
  - MSOM Annual Conference, Auckland, New Zealand, 2016
  - POMS Annual Conference, Orlando, FL, May 2016
  - INFORMS Annual Meeting, Philadelphia, PA, November 2015
- “Overflow Policies for ED Patients Awaiting Inpatient Beds”
  - POMS Annual Conference, Washington D.C., May 2015
  - INFORMS Annual Meeting, San Francisco, CA, November 2014
  - HealthOPT Workshop, Chicago, IL, September 2014
  - INFORMS Annual Meeting, Minneapolis, MN, October 2013
- “A Two-time-scale Approach to Time-varying Queues for Hospital Inpatient Flow Management”
  - POMS International Conference, Singapore, July 2014
  - MSOM Annual Conference, Seattle, WA, June 2014
  - POMS Annual Conference, Atlanta, GA, May 2014

- INFORMS Healthcare Conference, Chicago, IL, June 26, 2013
- POMS Annual Conference, Dever, CO, May 3, 2013
- INFORMS Annual Meeting, Phoenix, AZ, October 15, 2012
- “Inpatient Flow Management in a Singaporean Hospital,” Applied Probability Seminar, School of Industrial and Systems Engineering, Georgia Institute of Technology, February 10, 2012
- “The Impact of Mass Gatherings and Holiday Travelling on the Course of an Influenza Pandemic”
  - INFORMS Annual Meeting, Austin, TX, November 7, 2010
  - Annual Conference of Society of Medical Decision Making, Toronto, Canada, October 25, 2010 (20% acceptance rate for oral presentation)
- “Modeling Seasonality and Viral Mutation to Predict the Course of an Influenza Pandemic,” INFORMS Annual Meeting, San Diego, CA, October 11, 2009

## TEACHING EXPERIENCES

- Instructor for undergraduate and MBA core courses at Krannert School of Management
  - MGMT 66000 *Introduction to Operations Management* (MBA core), Spring 2017
  - MGMT 36100 *Operations Management* (undergraduate core), Spring 2014, Fall 2014, Spring 2015, Spring 2016, Spring 2017
- Teaching assistant for undergraduate courses at Georgia Tech
  - ISyE 3232 *Stochastic Manufacturing Systems*, Summer 2008
  - ISyE 4803 *Advanced Stochastic Systems*, Spring 2008 and Fall 2009
- Guest lecture for undergraduate and graduate courses at Georgia Tech
  - HS 6000 *Introduction to Healthcare Delivery*, April 2011
  - BME 1300 *Problems in Biomedical Engineering*, November 2009
  - ISYE 4803 *Humanitarian Applications of OR/MS*, September 2009

## AWARDS AND HONORS

- Doug and Maria DeVos Faculty Support Award in Global Supply Chain Management, Krannert School of Management, Purdue University, 2014
- PRF international travel grant, Purdue University, 2014 and 2016
- Undergraduate Outstanding and Distinguished Teachers, Krannert School of Management, Purdue University, Spring 2014, Spring 2015, Spring 2016
- INFORMS Future Academician Doctoral Colloquium, Phoenix, AZ, 2012
- George Fellowship, Health System Institute, Georgia Tech, 2010-2011
- John Morris Fellowship, Department of Industrial and Systems Engineering, Georgia Tech, 2007-2009
- Chun-Tsung Scholar, sponsored by Nobel Laureate Tsung-Dao Lee, Peking University, 2005-2006
- Canon Grants for Elite Students, Peking University, 2005-2006
- China Economic Research Fellowship, Peking University, 2005-2006
- Dean’s List for Excellent Study Grade, Peking University, 2003-2005

## EDITORIAL EXPERIENCE

- Reviewer for *Management Science*, *Operations Research*, *Manufacturing & Service Operations Management*, *Production and Operations Management*, *Stochastic Systems*, *IIE Transactions*, *Flexible Services and Manufacturing*

## **EXTRAMURAL SERVICE**

- Track chair
  - INFORMS Annual Conference, MSOM/Healthcare SIG track (2016)
  - POMS Annual Conference, Healthcare Operations Management track (2015)
- Session chair
  - INFORMS Annual Conference (2014-2017)
  - POMS Annual Conference (2014- 2017)
  - POMS International Conference (2014)
  - INFORMS Healthcare Conference (2013)
- Judges
  - INFORMS Pierskalla Best Paper Competition (2016)
  - MSOM Best Student Paper Competition (2016)
  - INFORMS Healthcare Conference Best Student Paper Competition (2015)
  - POMS College of Healthcare Operations Management Best Paper Competition (2014-2017)
- Councilor for Healthcare Application Society at INFORMS, 2014-2016