

Mahesh Kumar

Smith School of Business
4321 Van Munching Hall
University of Maryland
College Park, MD 20742
<http://www.smith.umd.edu/dit/faculty/kumar.html>

Tel: (301) 405-7053 (off)
(617) 308-1378 (cell)
Fax: (301) 405-8655
Email: mahkumar@rhsmith.umd.edu

Education

- 2003 **Operations Research Center, Massachusetts Institute of Technology**
Ph.D. in Operations Research
Dissertation Title: Error-based Clustering and Its Application to Sales Forecasting in Retail Merchandising
Thesis committee: James B. Orlin, Nitin R. Patel, and Glen L. Urban
- 1999 **Indian Institute of Technology, Bombay, India**
Bachelor of Technology in Computer Science & Engineering

Academic Employment

- 2007 - **Smith School of Business, University of Maryland at College Park**
Current Assistant Professor, Dept. of Decision & Information Technologies
- Rutgers Business School, Rutgers University**
2004-2007 Assistant Professor, Dept. of Management Science & Information Systems
- 2003-2004 **Sloan School of Management, MIT**
Post-doctoral Associate, Operations Research Center & Marketing Dept.

Research Interests

Data Mining, Applied Statistics, Retail Management, and Operations Research

Awards & Honors

1. Principal Investigator, Blanche & Irwin Lerner Center for Pharmaceutical Management Research Grant, "Optimization for Patients Recruitment in Multi-center Clinical Trials," 2006.
2. Principal Investigator, Research Resource Committee Grant at Rutgers Business School, "Reducing Demand Forecast Error in Retail Merchandising using Dynamic Clustering," 2005.
3. Best Student Paper Award at the Ninth International Conference on Statistics, Combinatorics and Related Areas (SCRA), 2002
4. Bronze Medal at the Thirty-fifth International Mathematical Olympiad, Hong-Kong, 1994

Journal Publications

1. Using Clustering to Improve Sales Forecasts in Retail Merchandising, *Annals of Operations Research*, 2009 (forthcoming).
2. Scale-Invariant Clustering using Minimum Volume Ellipsoids, *Computers & Operations Research*, Volume 35(4), 1017-1029, 2008.
3. Clustering Data with Measurement Errors, *Computational Statistics & Data Analysis*, Volume 51(12), 6084-6101, 2007.

Book Chapter Publication

1. Clustering Data with Measurement Errors, *Statistical Methods in E-Commerce Research (Editors: Wolfgang Jank and Galit Shmueli)*, Wiley & Sons, 245-268, 2008.

Conference Proceedings Publications

1. Using Clustering to Improve Sales Forecasts in Retail Merchandising, *Proceedings of Workshop on Artificial Intelligence and Data Mining*, 2006.
2. Scheduling the Production and Transportation Operations subject to Dynamic Arrivals, *The 2nd Multidisciplinary International Conference on Scheduling: Theory and Applications (MISTA)*, 2005.
3. Clustering Seasonality Patterns in the Presence of Errors, *Proceedings of the ACM International Conference on Knowledge Discovery and Data Mining*, 557-563, 2002.

Patent

Methods for Estimating the Seasonality of Groups of Similar Items of Commerce Data Sets based on Historical Sales Data Values and Associated Error Information, *U.S. Patent # 6,834,266* (2004).

Referee for

1. Information Systems Research
2. Computational Optimization and Applications
3. Statistical Methods in eCommerce Research
4. Optimization Methods and Software
5. IEEE Transactions on Semiconductor Manufacturing

Conference Presentations

1. "Optimization for Patient Recruitment in Multi-center Clinical Trials," *INFORMS Annual Meeting*, Washington DC, October 2008.
2. "Understanding the Drivers of Conversion Rate for Internet Retailers," *INFORMS Annual Meeting*, Seattle, November 2007
3. "Using Clustering to Improve Sales Forecasts in Retail Merchandising," *INFORMS Annual Meeting*, Pittsburgh, November 2006.
4. "Utilize Data Clustering to Drive Forecast Accuracy", *Merchandising Innovation and Excellence Conference*, Chicago, May 2006.
5. "Profit Smoothing and Product Pricing," *INFORMS Annual Meeting*, San Francisco, November 2005.
6. "Clustering of Statistical Model Parameters Using Error-based Clustering," *IFORS Triennial Conference*, Hawaii, July 2005.
7. "Dynamic Scheduling in a Supply Chain Environment," *The 2nd Multidisciplinary Conference on Scheduling: Theory and Applications*, New York City, July 2005.
8. "A dynamic Clustering Algorithm for Sales Forecasting," *INFORMS Annual Meeting*, Denver, November 2004.
9. "The Dream Versus Reality of CRM," *Marketing Science Conference*, The Netherlands, June 2004.
10. Trust-based Market Experimentation and Sequential Design of Internet Sites, *Marketing Science Conference*, The Netherlands, June 2004.
11. "A Three-Stage Process for Sales Forecasting in Retail Merchandising," *INFORMS Annual Conference*, Atlanta, GA, October 2003.
12. "Using Clustering for Improved Sales Forecast in Retail Industry," *INFORMS Annual Conference*, Atlanta, GA, October 2003.
13. "Clustering Data with Measurement Errors," *Ninth International Conference on Statistics, Combinatorics and Related Areas*, India, December 2002.
14. "Improving Regression Tree Solution using Error-based Clustering," *Ninth International Conference on Statistics, Combinatorics and Related Areas*, India, December 2002.
15. "Clustering Data with Measurement Errors," *INFORMS Annual Conference*, San Jose, CA, November 2002.
16. "Clustering Seasonality Patterns in the Presence of Errors," *Eighth ACM International Conference on Knowledge Discovery and Data Mining*, Edmonton, Canada, July 2002.
17. "Clustering Seasonality Patterns in the Presence of Errors," *INFORMS Annual Conference*, Miami, Fl, November 2001.

Invited Talks

1. Smith School of Business, University of Maryland at College Park, 2006
2. Rutgers Center for Operations Research, Rutgers University, June 2005
3. Massachusetts Institute of Technology, May 2005
4. Wharton Business School, University of Pennsylvania, February 2004
5. University of Illinois at Urbana-Champaign, February 2004
6. Marshall Business School, University of Southern California, January 2004
7. G.E. Research Lab, Bangalore, India, January 2003
8. IBM Research Lab, New Delhi, India, January 2003
9. Indian Institute of Management, Ahmedabad, India, December 2002
10. Indian Institute of Technology, Mumbai, India, December 2002
11. S.P. Jain Institute of Management Research, Mumbai, India, Dec. 2002
12. IBM Research Lab, Hawthorne, NY, August 2002

Teaching Experience

1. Multivariate Statistics, Spring 2008 & Spring 2009
(PhD required course at Smith School of Business)
2. Data Models and Decision Analysis, Spring 2008 & Fall 2009
(MBA core course at Smith School of Business)
3. Data Models, 2006-2007
(MBA core course at Rutgers Business School)
4. Production and Operations Management, 2004-2006
(Undergraduate required course at Rutgers Business School)
5. Introduction to Management Science (Teaching Assistant), 1999 & 2002
(Undergraduate required course at Sloan School of Management)

PhD Thesis Committees

- Since 2005 Understanding the Drivers of Conversion Rate for Internet Retailers
Student: Adam Fleischhacker, Rutgers Business School
- 2004-2007 Impact of Information Sharing on Supply Chain Performance
Student: Chunxing Fan, Rutgers Business School
- 2004-2005 Mechanisms and Methods for Inventory Control in Supply Chains
Student: Zhaoqiong Qin, New Jersey Institute of Technology

Industry Experience & Consulting

- 2006 **SAS Institute**, Cary, NC, *Consultant*
- 2003-04 **Reflexis Systems**, Cambridge, MA, *Consultant*
- 2003-04 **ProfitLogic Inc.**, Cambridge, MA, *Consultant*
- 2002 **IBM T.J. Watson Research Center**, Hawthorne, NY, *Summer Scientist*
- 2001 **ProfitLogic Inc.**, Cambridge, MA, *Summer Associate*
- 2000 **McKinsey & Company**, Amsterdam, Netherlands, *Summer Associate*
- 1999 **ICICI Ltd.**, Bombay, India, *Summer Analyst*