

Brendan Patrick Hogan

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Education

Ph.D. Candidate, Systems and Information Engineering

University of Virginia, Charlottesville, VA
Passed comprehensive exams October 2007
Pursuing research in airspace congestion management through dynamic pricing and user incentives
Advisor: Ellen Bass

M.S. Computational Operations Research/Computer Science, May 2002

College of William and Mary, Williamsburg, VA
Project: "A General Simulation Model for Traffic Intersection Performance"
Advisor: Larry Leemis

B.S. Mathematics and Physics, May 2000

St. Lawrence University, Canton, NY

Awards

Chancellor's Graduate Student Fellowship, Virginia Community College System, Spring 2008
Ph.D. Student Partial Fellowship, École Polytechnique Fédérale de Lausanne DCA Course, Spring 2007
Finalist, The MITRE Corporation 2005 Best Paper Competition
Early Career Profile, American Mathematical Society, Spring 2005
Special Recognition Award, The MITRE Corporation, Spring 2005
Excellence in Tutoring Award, St. Lawrence University, Spring 2000
Pi Mu Epsilon, National Mathematics Honorary Society, Spring 1999

Teaching Experience

Adjunct Instructor, Math Department, Piedmont Virginia Community College, Spring 2008

- Taught two sections of a 4 credit hour developmental math course with total enrollment of 36 students
- Responsible for course preparation, delivery, and grading

Instructor, Center for Talented Youth, Johns Hopkins University, Summers 2002, 2003, 2004

- Responsible for curriculum development, and selecting textbooks and course materials
- Mentored teaching assistants and assessed student performance with written evaluations
- Planned and implemented appropriately challenging lessons for gifted young students
 - Mathematical Excursions, Bristol, RI, 2002, two sessions of 105 instruction hours each
 - Flight Science, Alexandria, VA, 2003, one session of 64 instruction hours
 - Flight Science, Chestertown, MD, 2004, one session of 90 instruction hours

Teaching Assistant, Systems and Information Engineering, University of Virginia, Spring 2006

- Conducted review sessions for up to 30 students of Discrete Event Simulation
- Graded assignments and consulted on applied simulation projects

Teaching Assistant, Math Department, College of William and Mary, Fall 2000-Spring 2002

- Taught calculus labs to complement lectures given by professor
- Graded papers and held tutoring sessions to help struggling students

Peer Tutor, Academic Skills Office, St. Lawrence University, Fall 1997-Spring 2000

Industry Experience

Sr. Simulation Modeling Engineer, The MITRE Corporation, McLean, VA, Fall 2002-Present

- Worked in MITRE's Center for Advanced Aviation System Development (CAASD) full-time, then in a part-time consultant role since entering grad school in Fall 2005
- Performed simulation studies of Traffic Flow Management actions in the National Airspace System
- Implemented a forecasting procedure for predicting future flight activity
- Performed quick-turnaround analyses for sponsors at Air Traffic Control System Command Center

Research Assistant, Virginia Transportation Research Council, Charlottesville, VA, Summer 2002

- Studied current highway standards for signalized and unsignalized intersections
- Implemented a simulation model for analysis of threshold turn conditions

Analyst, Systems Planning and Analysis, Alexandria, VA, Summer 2001

- Obtained security clearance at the secret level for access to classified information
- Assisted in simulation studies for multiple Department of Defense contracts

NSF REU Program in Industrial Mathematics, Worcester Polytechnic Institute, Summer 1999

- Applied various mathematical techniques to a shape optimization problem for a local company
- Presented results in both presentations to the company and a written report

Physics Intern, Xerox Corporation, Webster, NY, Summer 1998

- Conducted experiments and organized data related to the study of powder mechanics
- Presented the results at a Development Technology Council Seminar for approx. 100 representatives from manufacturing and research departments

Publications

D. Bhadra and B. Hogan, "Choice of Route Networks: A Qualitative Model for Over-Land and Over-Water Routes," *Journal of Aircraft*, Vol. 45, No. 1, January-February 2008, pp. 56-63.

D. Bhadra and B. Hogan, "Choice of Route Networks by Market Pairs: Do Jet Fuel Prices and Airspace Design Matter?," *Proceedings of AIAA 6th Aviation Technology, Integration, and Operations (ATIO) Conference*, Wichita, KS, September 2006.

D. Bhadra, B. Hogan, and R. Schaufele, "Improving Aviation Forecasts for FAA's En Route Facilities," *Journal of Air Traffic Control*, Vol. 48, No. 2, April-June 2006, pp. 42-47.

D. Bhadra and B. Hogan, "A Preliminary Analysis of the Evolution of US Air Transportation Network," *Proceedings of AIAA 5th Aviation Technology, Integration, and Operations (ATIO) Conference*, Arlington, VA, September 2005.

D. Bhadra, J. Gentry, B. Hogan, and M. Wells, "Future Air Traffic Timetable Estimator," *Journal of Aircraft*, Vol. 42, No. 2, March-April 2005, pp. 320-328.

B. Hogan and L. Wojcik, "Traffic Flow Management Modeling and Operational Complexity," *Proceedings of the 2004 Winter Simulation Conference*, R. G. Ingalls, M. D. Rossetti, J. S. Smith, and B. A. Peters, eds., Washington, DC, December 2004, pp. 1305-1311.

D. Bhadra, J. Gentry, B. Hogan, and M. Wells, "Building the Time Table from Bottom Up Demand: A Microeconomic Approach," *Proceedings of the 13th Federal Forecasters' Conference*, Washington, DC, October 2003.

Other Conference Presentations

- B. Hogan, D. Bhadra, and T. Berry, "Market Outsourcing Practices of Mainline US Carriers," INFORMS 2007 Annual Meeting, Seattle, WA, November 2007.
- B. Hogan, "A Characterization of Days of the Week in the National Airspace System," INFORMS 2006 Annual Meeting, Pittsburgh, PA, November 2006.
- D. Bhadra and B. Hogan, "A Qualitative Choice Model of the U.S. Airline Network," INFORMS 2005 Annual Meeting, San Francisco, CA, November 2005.
- D. Bhadra, B. Hogan, M. Wells, D. Chin, and D. Knorr, "Retrieving Value of the US Air Traffic Control Services and Its Significance," INFORMS 2005 Annual Meeting, San Francisco, CA, November 2005.
- D. Bhadra and B. Hogan, "US Airline Network: A Framework of Analysis and Preliminary Results," AGIFORS Scheduling and Strategic Planning Conference, Seattle, WA, May 2005.

Professional Affiliations

- Institute for Operations Research and the Management Sciences (INFORMS)
President, University of Virginia Student Chapter, 2006 - 2008
INFORMS Student Chapter Annual Award, *Magna Cum Laude*, 2006, 2007
Member, 2003 - Present
- American Institute of Aeronautics and Astronautics (AIAA)
Member, University of Virginia Student Chapter, 2006 - Present
Professional Member, 2005 - Present
- Human Factors and Ergonomics Society (HFES)
Member, University of Virginia Student Chapter, 2006 - Present
- Transportation Research Forum (TRF)
Member, 2005 - 2006

Academic Service

- Session Presenter, "Tips and Techniques for Grading Student Writing," August Teaching Workshop, UVA, 2008
- Reviewer, *Proceedings of the 2006 IEEE International Conference on Systems, Man, and Cybernetics*
- Session Chair, Systems and Information Engineering Design Symposium, 2006
- Volunteer Math Tutor, Charlottesville High School, 2006, 2007
- Course Mentor for Flight Science, Center for Talented Youth, Johns Hopkins University, 2005
- Session Chair, Winter Simulation Conference, 2004
- Curriculum Committee for Flight Science, Center for Talented Youth, Johns Hopkins University, 2004
- Reviewer, *Applied Stochastic Models in Business and Industry*, 2002
- Secretary, Pi Mu Epsilon Honorary Society St. Lawrence U. Chapter, 1999-2000

Professional Development

- "New Horizons in Teaching and Research," University of Virginia, May 2007
- "Discrete Choice Analysis," École Polytechnique Fédérale de Lausanne, March 2007
- "Tomorrow's Professor Today," University of Virginia Teaching Resource Center, Fall 2006 - Present
- "Tools for Discovering Patterns: A Survey of Modern Data Mining Algorithms," Elder Research, Sept. 2004
- "Sector Design and Analysis Tool (SDAT) Training," Federal Aviation Administration, August 2004
- "Presenting Data and Information," Edward Tufte, May 2004
- "Private Pilot Ground School," Dulles Aviation, June 2003
- "Communication, Navigation, Surveillance/Air Traffic Management," MITRE Aviation Institute, March 2003
- "Introduction to Air Traffic Management," MITRE Aviation Institute, January 2003