

## **Brendan Patrick Hogan**

University of Virginia, Systems and Information Engineering  
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### **Education**

#### **Ph.D. Student, Systems and Information Engineering**

University of Virginia, Charlottesville, VA  
Pursuing research in end-to-end analysis of distributed sensor networks  
Advisor: Ellen Bass

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

College of William and Mary, Williamsburg, VA  
Thesis: "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  
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

#### **Instructor**, Systems Robotics Design Camp, University of Virginia, Summer 2007

- Planned and implemented curriculum for enrichment course, two sessions of 20 instruction hours each

#### **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

## Industry Experience

**Consultant**, The MITRE Corporation, McLean, VA, Fall 2005 - Present

For the Center for Advanced Aviation System Development (CAASD):

- Performed simulation studies of Traffic Flow Management actions in the National Airspace System
- Developed prototype airport performance metrics

**Sr. Simulation Modeling Engineer**, The MITRE Corporation, McLean, VA, Fall 2002 - Summer 2005

As part of the Center for Advanced Aviation System Development (CAASD):

- Implemented a forecasting procedure for predicting future flight activity
- Performed systems engineering analyses for sponsors at the Air Traffic Control System Command Center

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

- Compared current highway standards for intersections with and without signals
- 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
- Delivered presentations and prepared written reports for the sponsor

**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

## Archival Journal 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, 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, 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.

## Peer Reviewed Conference Publications

B. Hogan and E. Bass, "Toward an Evaluation Framework for Gap Filling Radars in Adaptive Distributed Sensor Networks," *2011 IEEE International Conference on Systems, Man, and Cybernetics*, Anchorage, AK, October 2011, (accepted).

E. Bass, B. Hogan, D. Rude, C. League, P. Marsh, L. Lemon, B. Philips, D. Westbrook, J. Brotzge, and R. Riley, "A Method for Investigating Real-time Distributed Weather Forecaster-Emergency Manager Interaction," *2011 IEEE International Conference on Systems, Man, and Cybernetics*, Anchorage, AK, October 2011, (accepted).

C. League, B. Philips, E. Bass, J. Brotzge, D. Rude, B. Hogan, E. Cravens, J. Tankersley, and L. Kuhlman, "CASA Alert! How new radar technology supported emergency management decision-making and enhanced communications during the May 10, 2010 Oklahoma tornado outbreak," *2011 National Severe Weather Workshop*, Norman, OK, March 2011.

B. Hogan, E. Bass, and D. Westbrook, "A Human-Automation Interaction Focused Framework to Evaluate Resource Allocation Strategies in Adaptive Distributed Sensor Networks," *2010 IEEE International Conference on Systems, Man, and Cybernetics*, Istanbul, Turkey, October 2010, pp. 1755-1762.

S. Shresta, M. Merkle, K. Hatton, P. Railsback, B. Hogan, T. Topiwala, K. Levin, and J. DeArmon, "Modeling Time-Based Flow Management under Conditions of Transient Disruptions to Arrival Capacity," *2010 Integrated Communications, Navigation and Surveillance (ICNS) Conference*, Herndon, VA, May 2010.

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 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.

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, 2010

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**

- “Tomorrow’s Professor Today,” University of Virginia Teaching Resource Center, Fall 2006 - Spring 2010
- “New Horizons in Teaching and Research,” University of Virginia, May 2007
- “Discrete Choice Analysis,” École Polytechnique Fédérale de Lausanne, March 2007
- “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