

## **JANE NICHOLS HAGSTROM**

### **EDUCATION**

1980            Ph.D., Operations Research, University of California, Berkeley.  
1977            M.S., Operations Research, University of California, Berkeley.  
1970            M.A.T., Mathematics, Harvard University.  
1967            B.A., Mathematics, Brown University.

### **ACADEMIC APPOINTMENTS**

2006-present    Professor Emerita and Instructor, Department of Information and Decision Sciences,  
University of Illinois at Chicago.  
2003-2005      Professor, Department of Information and Decision Sciences, University of Illinois at  
Chicago.  
1995-2005      Associate Professor (0%), Urban Transportation Center, University of Illinois at  
Chicago.  
1986-2003      Associate Professor, Department of Information and Decision Sciences, University of  
Illinois at Chicago.  
1997(fall)      Visiting Scholar, Mathematics Department, University of Washington.  
1980-1986      Assistant Professor, Department of Information and Decision Sciences, University of  
Illinois at Chicago.  
1972(winter)    Lecturer, Mathematics Department, California State University at Hayward.

### **NONACADEMIC EMPLOYMENT**

1977(summer)    Engineer, Guy F. Atkinson Construction Co., South San Francisco.  
1971-1976      Mathematics Teacher, Alameda High School, Alameda, CA.  
1969-1971      Mathematics Teacher, Hamilton Junior High School, Seattle.  
1969(summer)    Systems Programmer, Northwest Computing, Seattle.  
1967-1968      Scientific Programmer, Draper Laboratories, Cambridge, MA.

### **ADMINISTRATIVE/PROFESSIONAL CONTRIBUTIONS**

1989-1990      Acting Department Head  
1998-2000,      Departmental Director of Undergraduate Studies  
1986-1987  
1997-2000,      Member, Executive Committee of the College  
1990-1994  
1991-2000,      Member, Departmental Advisory Committee  
1984-1990  
1998-2000,      Coordinator, Departmental Computer Services  
1995-1997  
1983-present    At various times, chair of departmental Ad Hoc Committee on Management Information  
Systems, Ad Hoc Committee on Operations Management

## SERVICE RECOGNITION

2002 Recipient of UIC College of Business Administration Alumni Service Award

## EDUCATIONAL/PROFESSIONAL CONTRIBUTIONS

1980-present Co-chair, thesis committee for master's degree (1), member, thesis committee for Ph.D. (11), member, thesis committee for master's degree (2)

1980-present Instructor, Statistics I, Statistics II, Introduction to Information Systems, Introductory Programming (PL/I, Pascal, C++), Linear Programming, Nonlinear Programming, Decision Analysis, Dynamic Programming, Simulation, Advanced Mathematical Programming, Quantitative Decision Models, Advanced Mathematics for Business, Introduction to Operations Management, Business Analysis Using Spreadsheets

2003-present Organizer and Presenter of Workshops on Excel for Graduate Students

2001-2002 Presenter at Campus Instructional Technology Laboratory Conference on Online Education

2000-2002 Director of Online Instructional Development for the College of Business Administration

2000, 2001 Presentations at InfORMS national meeting on effective documentation of spreadsheets

2001 Example site for *Web Design Principles*, Illinois Online course.

1998-2000, Advisor to Information and Decision Sciences Student Organization

1986-1995

1999 Presenter at Illinois Campuses Faculty Summer Institute on Learning Technologies

1994-1998 Instructor in UIC Faculty Computer Camp

1994-1998 University Honors College Fellow

1997 Instructor for College of Business Administration Workshops in Technology

1995-1996 Member, UIC Multimedia Committee

1992-1994 Member, UIC Advisory Committee on Academic Computing

1988-1990 Member, UIC Task Force on Advanced Computing in Graduate Education

1992-1993 Member, Undergraduate Business Curriculum Implementation Committee

1980-1981 Member, Committee on PhD in Industrial Engineering and Operations Research

## FUNDED CURRICULUM DEVELOPMENT

1998 Participant, Faculty Summer Institute on Learning Technologies of the Illinois Campuses. Expenses paid.

1996 ***Innovative Use of the Spreadsheet Environment: Interactive Coaching on Building Business Models***, with S. Chen and A. Saharia. (8 VBA + help file tutorials at <ftp://www.uic.edu/pub/depts/idsc/hagstrom/450/selfstudy/>) To be used in 3 courses, 1996-1997. Funding from Council for Excellence in Teaching and Learning (\$10,000). Supplement from Center for Research in Information Management (\$1500).

1995 ***Management Science Using Common Software Tools - materials on the WEB***. Used in IDS 450, 1995-present. Excel and MS Project software. Funding from Dean's Venture 2000 Fund (\$6000).

## CURRICULUM DEVELOPMENT

2003-2005 ***Laboratory Manual for Introductory Operations Management***, with Robert Abrams. 9 labs, 40 pages. Used in IDS 355, Introduction to Operations Management, from 2003-present.

2004-2005 ***Business Analysis Using Spreadsheets***, a course for all undergraduate business students who have completed our introductory laboratories on Excel. Teaches Excel techniques for effective data analysis, modeling, and reporting. Introduces Visual Basic for Applications to enable automation of spreadsheets.

Jane Hagstrom

- 1999-2003      *Laboratory Exercises and Notes for Systems Simulation*. 9 labs, 100 pages. Used in IDS 420, 1999-2003, Arena, ProModel software.
- 2000-2001      Completed courses concerning online instruction offered by Illinois Online: *Web Design Principles, Student Assessment in Online Courses, Instructional Design for Online Courses, Encouraging Communication in Online Courses*.
- 1997              *Quantitative Decision Models for Business*. (23 pages) Used in IDS 450, 1998-1999.
- 1995              *The Business Student's Guide to Dimensional Analysis*. (18 pages) Used in IDS 435, IDS 450, 1994-1999.
- 1994              *Laboratory Manual for Introductory Programming and Program Design*. (33 pages) Used in IDS 201, 1991-1995. Pascal, C++ languages.
- 1993              *Notes and Examples for Nonlinear Programming*. (57 pages) Used in IDS 436, 1992, 1994. Gino, Lindo, Speakeasy software.

## PROFESSIONAL SOCIETIES

Institute for Operations Research and the Management Sciences, Chicago Chapter of InfORMS, SIGS on Education, Spreadsheets.

## RESEARCH/PROFESSIONAL CONTRIBUTIONS

- 1999-2009,      Associate Editor, **Networks**.  
1990-1992
- 1980-present      Referee for NSF, **Combinatorics, Probability and Computing, Management Science, Probability in the Engineering and Informational Sciences, Operations Research, Networks, IEEE Transactions on Reliability, Naval Research Logistics, Transportation Science**, and others.
- 1983-present      Session Organizer for InfORMS National Meeting (6 times).
- 1986-1987      Cluster Organizer for ORSA/TIMS National Meeting, St. Louis, 1987.
- 1981-1983      Bulletin Editor for TIMS/ORSAs National Meeting, Chicago, 1983.

## TECHNICAL PROJECTS

- 2009              *Pivot Power*: Excel tools using VBA with class modules. Implements simplex pivot and facilitates visual presentation.
- 2005-present      *NetScene*: Powerpoint tools using VBA with class modules. Facilitates creation and manipulation of visual aspects of small and medium-size networks.
- 1994-present      Design and construction of Web sites for 8 of my courses. Used Blackboard, MS Frontpage, and Dreamweaver.
- 1994-2000      Design and construction of the Department web site. Worked with students on all aspects.
- 1994-1998      9 tutorials on management science techniques using MS Excel, VBA, and HelpBreeze. Supervised graduate students and wrote code and help files.
- 1992              Prototype of interface for entry of data concerning a road intersection. Used Borland Pascal and Object Windows Library.
- 1988-1990      Software allowing a user to enter a network structure by drawing. Used Borland Pascal and Object Windows Library.
- 1978-1988      Network algorithm demos. Used Pascal and APL.
- 1969              Interactive calculator program for engineers. Assisted in writing Assembler code.
- 1967-1968      Apollo Project simulation programs. Assisted in writing Fortran code.

## PUBLICATIONS

- 2006 *Improving traffic flows at no cost*, with R. A. Abrams. **Mathematical and Computational Models for Congestion Charging**. S. Lawphongpanich, D. W. Hearn, and M. J. Smith, Editors. Springer, 1-22. (Invited Contribution)
- 2001 *Bounding system reliability*, with S. M. Ross. **System and Bayesian Reliability**. Y. Hayakawa, T. Irony, and M. Xie, Editors. World Scientific Press, 15-34. (Invited Contribution)
- 2001 *Characterizing Braess's Paradox for traffic networks*, with R. A. Abrams. **Proceedings of IEEE 2001 Conference on Intelligent Transportation Systems** 837-842. (Invited Presentation)
- 1998 *Two-path subsets: Efficient counting and applications to performability analysis*, with M. O. Ball and J. S. Provan. **Discrete Applied Mathematics** **85**: 25-45.
- 1995 *Threshold reliability of networks with small failure sets*, with M. O. Ball and J. S. Provan. **Networks** **25**: 101-116.
- 1994 *Maximum likelihood genetic sequence reconstruction from oligo content*, with R. Hagstrom, R. Overbeek, M. Price, and L. Schrage. **Networks** **24**: 297-302.
- 1991 *Computing rooted communication reliability in an almost acyclic digraph*, **Networks** **21**: 581-593.
- 1990a *Computing the probability distribution of project duration in a PERT network*, **Networks** **20**: 231-244.
- 1990b *Directed network reliability: domination and computing coefficients of the success-marginal expansion*, **Networks** **20**: 65-78.
- 1988 *Computational complexity of PERT problems*, **Networks** **18**: 139-147.
- 1987 *System reliability analysis in the presence of dependent component failures*, with K. Mak, **Probability in the Engineering and Informational Sciences** **1**: 425-440.
- 1986 *Computing network reliability with dependent failures*, with K. Mak, **Proceedings of the 17th Annual Conference on Modeling and Simulation**, W. G. Vogt and M. H. Mickle, Editors, Pittsburgh, April, 1793-1798.
- 1984 *Using the decomposition tree for directed network reliability computation*, **IEEE Transactions on Reliability** **R-33**: 390-396.
- 1984 *Note on independence of arcs in antiparallel for network flow problems*, **Networks** **14**: 567-570.
- 1983 *Using the decomposition-tree of a network in reliability computation*, **IEEE Transactions on Reliability** **R-32**: 71-78.
- 1981 *Combinatorial properties of directed graphs useful in computing network reliability*, with A. Satyanarayana, **Networks** **11**: 357-366.

- 1981 *A new algorithm for the reliability analysis of multi-terminal networks*, with A. Satyanarayana, **IEEE Transactions on Reliability R-30**: 325-334.

## TECHNICAL REPORTS AND MEETING PRESENTATIONS

- 1999 *Traffic equilibrium: Link flows, path flows and weakly/strongly acyclic solutions*, with Paul Tseng, Department of Information and Decision Sciences, University of Illinois at Chicago. Invited presentation to InfORMS National Meeting, Cincinnati, April.
- 1998a *Computing tolls and checking equilibrium for traffic flows*, Department of Information and Decision Sciences, University of Illinois at Chicago. Under revision.
- 1998b *A note on function inversion for the algorithm of Bertsekas, Polymenakos, and Tseng for network flow problems with convex, separable costs*, Department of Information and Decision Sciences, University of Illinois at Chicago.
- 1998c *Braess's paradox when travel demand is large*, with R. A. Abrams, Department of Information and Decision Sciences, University of Illinois at Chicago. Invited presentation to CORS/InfORMS National Meeting, Montreal, April. Invited presentation (1997) to Optimization Seminar Series, Mathematics Department, University of Washington.
- 1989 *Redundancy, substitutes and complements in system reliability*, Department of Information and Decision Sciences, University of Illinois at Chicago. Presented at CORS/TIMS/ORSA National Meeting, Vancouver, May.
- 1986 *Computational complexity issues in determining network reliability in the presence of dependent failures*, Working Paper No. 86-22, College of Business Administration, University of Illinois at Chicago.
- 1983a *Reliability computation on a probabilistic network with path length criterion*, with Prabhat Kumar, Department of Information and Decision Sciences, University of Illinois at Chicago.
- 1983b *Combinatorial properties for directed network reliability with a path length criterion*, Working Paper No. 82-14, College of Business Administration, University of Illinois at Chicago.
- 1981 *Computing rooted communication reliability is #P-complete*, invited presentation to ORSA/TIMS National Meeting, Houston, October.

## FUNDED RESEARCH

- 1993 *Solving user-equilibrium traffic flow models*. Urban Transportation Center Visitor, University of Illinois at Chicago, one month summer salary.
- 1984-1987 *Correlation of component states and computation of probability distributions for system performance measures*, Principal Investigator with King-Tim Mak, NSF Grant ECS-8407332, \$125,989.
- 1982-1984 *Research Initiation: Analysis and development of algorithms for network reliability*, Principal Investigator, NSF Grant ECS-8205230, \$48,594.