

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Industrial and Operations Engineering

Brian T. Denton, associate professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering, and associate professor of urology, without tenure, Department of Urology, Medical School, is recommended for promotion to professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering, and professor of urology, without tenure, Department of Urology, Medical School.

Academic Degrees:

- Ph.D. 2001 McMaster University, Department of Management Science/Systems, Hamilton, ON, Canada
M.Sc. 1996 York University, Department of Physics and Astronomy, Toronto, ON, Canada
B.Sc. 1994 McMaster University, Department of Physics, Hamilton, ON, Canada

Professional Record:

- 2014-present Associate Professor (without tenure), Department of Urology, University of Michigan
2012-present Associate Professor (with tenure), Department of Industrial and Operations Engineering, University of Michigan
2010-2012 Associate Professor (with tenure), Department of Industrial and Systems Engineering, North Carolina State U., Raleigh, NC
2007-2010 Assistant Professor, Department of Industrial and Systems Engineering, North Carolina State U., Raleigh, NC
2007-present Fellow, Cecil C. Sheps Research Center, University of North Carolina, Chapel Hill, NC
2007-2009 Visiting Researcher, Department of Health Science Research, Mayo Clinic, Rochester, MN
2007-2012 Affiliate Faculty Member, Operations Research Program, North Carolina State University, Raleigh, NC
2005-2007 Assistant Professor, Mayo College of Medicine, Rochester, MN
2005-2007 Senior Associate Consultant, Mayo Clinic, Rochester, MN
2003-2005 Senior Engineer, IBM, Burlington, VT
2001-2003 Advisory Engineer, IBM, Burlington, VT

Summary of Evaluation:

Teaching: Professor Denton is truly an excellent teacher. At the University of Michigan, he has taught IOE 512 (Dynamic Programming) and IOE 543 (Scheduling) three times with average Q1/Q2 scores of over 4.5 for each. In addition, he is supervising five Michigan Ph.D. students and has graduated eight others from North Carolina State and one from Arizona State University. He also works extensively with undergraduates, involving them in his research program. Two of these undergraduates have been lead authors of refereed papers. Letters received from undergraduate and graduate students are uniformly strong. They often refer to his ability to use real world examples in

class. He is described as an “awesome professor.” One student referred to Professor Denton as “one of the best teachers and mentors I have ever had in my life.” In 2015, he received the Jon R. and Beverly S. Holt Award for Teaching Excellence.

Research: Professor Denton’s research is in stochastic programming and Markov decision processes with applications in health care delivery systems and medical decision-making related to chronic diseases. He has brought a degree of rigor to these application domains that is truly unique. His over 40 refereed publications have appeared in the top operations research/industrial engineering journals (including *Operations Research*, the *INFORMS Journal on Computing*, *Manufacturing and Service Operations Management*, and *Production and Operations Management*) as well as top medical journals (including *Cancer*, *Diabetes Care*, *Urology*, and *Medical Decision Making*). Google Scholar identifies nearly 2000 citations to his work and assigns him an h-index of 20. At the most recent INFORMS meeting, one of his students won two different poster competitions. He won the same competition the previous year. His research has been well funded with an NSF CAREER award as well as with six other NSF awards (including two current grants), and funding from the Mayo Foundation and the Center for Disease Control. He holds 27 patents.

Service: Professor Denton’s service to the department and to the profession has been exemplary. He was recently elected president-elect of INFORMS, a professional society of 11,000 members. He has served as the secretary of INFORMS (an executive committee position) since 2012. He served as the program chair for the INFORMS annual meeting in 2011. He is an associate editor of *Operations Research*, one of the flagship journals in the field and has served as an associate or department editor for numerous other journals. Within the department, he chairs the faculty search committee and has served on the elected department committee as well.

Recent and Significant Publications:

- Gose, A. and Denton, B.T., “Sequential Bounding Methods for Two-Stage Stochastic Programs,” *INFORMS Journal on Computing* (in press), 2015.
- Zhang, Y., McCoy, R.G., Mason, J., Smith, S.A., Shah, N. and Denton, B.T., “Second-Line Agents for Glycemic Control for Type 2 Diabetes: Are Newer Agents Better?” *Diabetes Care*, 37:5 1338-1345, 2014.
- Zhang, J., Denton, B.T., Balasubramanian, H., Inman, B. and Shah, N., “Optimization of Prostate Biopsy Decisions,” *Manufacturing and Service Operations Management*, 14(4), 529-547, 2012.
- Zhang, J., Denton, B.T., Balasubramanian, H., Inman, B. and Shah, N., “Estimating the True Value of PSA Tests for Prostate Cancer Detection,” *Medical Decision Making*, 32(2), 337-349, 2012.
- Denton, B.T., Miller, A., Balasubramanian, H. and Huschka, T., “Optimal Allocation of Surgery Blocks to Operating Rooms Under Uncertainty,” *Operations Research*, 58(4), 802-816, 2010.

External Reviewers:

Reviewer A: “... he is viewed as first among his peers in healthcare systems engineering.”

Reviewer B: “There are only a few scholars that manage to have impact both in theory and in practise, which clearly places Brian in a rather unique position.”

Reviewer C: “He has made important contributions to very real problems in healthcare operations and at the same time, he has managed to make important theoretical contributions.”

Reviewer D: "... he addresses important real-world issues, brings to bear appropriate optimization modeling and solution methods, and demonstrates the effectiveness and value of the research with real or realistic data."

Reviewer E: "Dr. Denton obviously knows how to deal with theory as well as application."

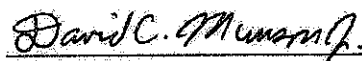
Reviewer F: "Dr. Denton is an expert in applying stochastic modeling and optimization methodologies to problems in healthcare delivery and medical decision making."

Reviewer G: "... Professor Denton is among the best in his age and cohort in his areas of interest and in OR/MS ... he is well on his way to becoming a major player nationally and internationally in his field."


Reviewer H: "Dr. Denton is one of [sic] pioneers who are vigorously introducing Operations Research methodologies to health care system management, ..."

Reviewer I: "Professor Denton stands in the top 5% of his contemporaries who are working in the same fields. This is the strongest statement that I can make about anyone with any degree of precision."

Summary of Recommendation: Professor Denton is a very productive industrial engineer who has made significant contributions to the field of healthcare and the treatment and diagnosis of patients with chronic diseases. He is a very strong teacher and an excellent research mentor. It is with the support of the College of Engineering Executive Committee that we recommend Brian T. Denton for promotion to professor of industrial and operations engineering, with tenure, Department of Industrial and Operations Engineering, College of Engineering, and professor of urology, without tenure, Department of Urology, Medical School.



David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering



Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School

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