Anna C. Gilbert, associate professor of mathematics, with tenure, College of Literature, Science, and the Arts, and associate professor of electrical engineering and computer science, without tenure, College of Engineering, is recommended for promotion to professor of mathematics, with tenure, College of Literature, Science, and the Arts, and professor of electrical engineering and computer science, without tenure, College of Engineering.

Academic Degrees:

Ph.D.	1997	Princeton University
S.B.	1993	University of Chicago

Professional Record:

2008 – present	Associate Professor (without tenure), Department of Electrical Engineering and Computer Science, University of Michigan
2007 – present	Associate Professor, Department of Mathematics, University of Michigan
2004 – 2007	Assistant Professor, Department of Mathematics, University of Michigan
2002 – 2004	Principal Technical Staff Member, AT&T Labs-Research
2000	Visiting Instructor, Department of Mathematics, Stanford University
1998 – 2002	Senior Technical Staff Member, AT&T Labs-Research
1997 – 1998	Postdoctoral Research Associate, Yale University and AT&T Labs-Research

Summary of Evaluations:

Teaching – Professor Gilbert is a first-rate classroom instructor. She plays an important role meeting the high student demand for applied mathematics courses. She has also been active in course development, redesigning a graduate course on Fourier analysis, incorporating more applications and more modern material. She is also a founding member of the interdisciplinary Informatics Program, which connects mathematics, statistics, and computer science. Two of her students have completed their dissertations and she is supervising two more. She has supervised several undergraduate research projects.

Research – Professor Gilbert has made major contributions to the treatment of massive data sets. Her work addresses efficient means of sampling such data, rapid algorithms for extracting useful information, and techniques for summarizing the important features of data in small synopses. Her work has served as the foundation for numerous developments in mathematical theory and in real-world applications. She has collaborated with researchers in biomedical engineering on procedures for magnetic resonance imaging (MRI) and with researchers in electrical engineering on analog-to-digital conversions at very low sampling rates. Professor Gilbert was awarded the 2008 National Academy of Sciences Award for Initiatives in Research. Her work is excellent and she is a leader in her field.

<u>Recent and Significant Publications:</u>
"The very small world of the well-connected," with X. Shi, et al., *Proceedings of the Association for Computing Machinery Conference on Hypertext and Hypermedia*, 2008.
"Combining geometry and combinatorics: A unified approach to sparse signal recovery," with R. Berinde, et al., *Proceedings of the 46th Annual Allerton Conference on Communication, Control, and Computing*, 2008, pp. 795–805.
"Signal recovery from random measurements via orthogonal matching pursuit," with J. Tropp, *Institute of Electrical and Electronics Engineers (IEEE) Transactions on Information Theory*, 53, 2007, pp. 4655–4666.
"One sketch for all: Fast algorithms for compressed sensing," with M. Strauss, et al., *Proceedings of the Association for Computing Machinery Conference on Theory of Computation*, 2007, pp. 237–246.

<u>Service</u> – Professor Gilbert has served on several major committees in her department, including the Executive Committee, Personnel Committee, and Graduate Admissions and Fellowships Committee. She serves on the Steering Committee of the Informatics Program and is its Mathematics Department advisor. She has served on the External Liaison Committee with the College of Engineering. Outside the University, she has organized conferences and workshops, and serves on the editorial boards of several journals.

<u>External Reviews:</u>
Reviewer (A)
"I am delighted to write this recommendation for Prof. Anna Gilbert…I hold her in extremely high regard – she is a very strong applied mathematician and an academic leader. … Anna is a literal font of ideas. Not only is she an extremely creative person, but she also has strong analytical and implementation skills to test and critique her ideas rapidly."

Reviewer (B)
"…the candidate is an accomplished and appreciated leading scientist, who fully deserves the highest rank of professorship, in any academic institution worldwide. … I believe that her strong leadership comes from her unique perspective; that is, by understanding both the mathematics, and the problems posed by the data deluge…she is laying the foundation of the field by formulating and solving the most significant problems."

Reviewer (C)
"…she has become an expert in manipulating difficult concepts… …she truly deserves to become a full professor in a highly ranked institution."

Reviewer (D)
"…she has been productive in some very active fields and is well respected as a scholar. … Gilbert and co-authors are…among the top-few [sic] rated people in the problem areas they work in… …several hundred papers have been written on the topic of 'Compressed Sensing' in the last 5 years and of the top 15 most cited such papers I would guess she has written two or three."

Reviewer (E)
"...Gilbert is developing streaming algorithms which are working on the fly. These algorithms are crucial to the security monitoring of The Net. Here the results obtained by Anna Gilbert are so important and innovative that she was awarded the *2008 National Academy of Sciences Award for Initiatives in Research*. ... She is an outstanding scientist with a deep and broad vision of the future of her field."

Reviewer (F)
"Gilbert's ability to connect advanced mathematics with real-world problems is truly outstanding. ...Gilbert is one of the brightest, most creative, and most influential researchers in our area. There is no doubt she would be promoted to the rank of professor with tenure in the Department of Mathematics [at my university]..."
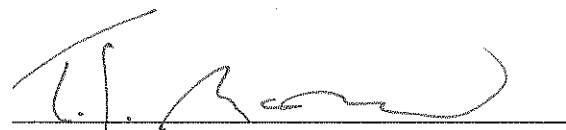
Reviewer (G)
"Anna is held in very high regard for her leadership in the study of algorithms for massive data sets, and especially for her work on compressive sensing and data streaming algorithms. Anna has contributed several deep and fundamental insights to this study which have led to further breakthrough results."
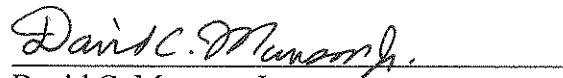
Reviewer (H)
"Anna continues to be a leader in the field of compressed sensing, both in theory and in practice; in particular, her work...could well lead to the most significant real-world application of compressed sensing technology to date... ...Anna is a creative and original researcher who is at the forefront of many highly topical areas in signal processing...she is superbly qualified for promotion to full Professor at the University of Michigan."

Summary of Recommendation:
Professor Gilbert has established her reputation as an international leader in her research area. She makes important contributions to teaching and has undertaken major service assignments in her department and outside the University. The Executive Committee of the College of Literature, Science, and the Arts and we recommend that Associate Professor Anna C. Gilbert be promoted to the rank of professor of mathematics, with tenure, in the College of Literature, Science, and the Arts, and associate professor of electrical engineering and computer science, without tenure, in the College of Engineering.

Terrence J. McDonald
Arthur F. Thurnau Professor,
Professor of History and Dean
College of Literature, Science, and the Arts

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

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