Approved by the Regents
May 17, 2012

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Clayton D. Scott, assistant professor of electrical engineering and computer science, Department of Electrical Engineering and Computer Science, College of Engineering, and assistant professor of statistics, Department of Statistics, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering, and associate professor of statistics, without tenure, Department of Statistics, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2004	Rice University, Electrical Engineering, Houston, TX
M.S.	2000	Rice University, Electrical Engineering, Houston, TX
B.S.	1998	Harvard University, Mathematics, Cambridge, MA

Professional Record:

2009 – present	Assistant Professor, Department of Statistics, University of Michigan
2006 – present	Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan
2004 – 2006	Post-doctoral Associate and Instructor, Department of Statistics, Rice University, Houston, TX
2002	Research Engineer, Raytheon Missile Systems, Tucson, AZ.

Summary of Evaluation:

Teaching: Professor Scott's teaching record in graduate courses is strong and his teaching record in undergraduate courses is also good. He has taught six different courses in his five years at Michigan, four at the graduate and two at the undergraduate level. Overall he received average student evaluation scores of 4.0 (Q1) and 4.17 (Q2) out of a maximum of 5.0, which are very good scores considering the range of courses he has taught. It is significant that his two undergraduate teaching assignments (EECS 203 Discrete Mathematics and EECS 401 Probabilistic Methods in Engineering) are among the least popular in the EECS curriculum due to their rather abstract mathematical nature. Since 2009, his undergraduate teaching has been significantly above the historical average scores for these courses. Moreover, his undergraduate students point out that Professor Scott was a good teacher, he was attentive to students, and he was unusually successful in getting the class to participate and ask questions. Professor Scott has been successful in enriching the undergraduate experience by recruiting several undergraduates into his research projects. Finally, he has demonstrated success in training his graduate students, having graduated three Ph.D. students. He is chair or co-chair for an additional four students.

Research: Professor Scott has a strong record of fundamental research contributions in learning theory and its application to signal processing and bio-medicine. His interest in applications is demonstrated by numerous collaborations across campus in the fields of medicine, public health, and engineering. He is praised by external reviewers for his good taste in choosing research topics, his gift for developing interesting mathematics, the lasting and high impact of his research, and his international visibility. Professor Scott has worked on several core machine learning problems. His most significant contributions to these areas involve the establishment of theoretical foundations, and the development of new algorithms achieving optimal theoretical performance under general assumptions. A real strength of

Professor Scott's research is that it has impact on practical applications in addition to having impact on the foundations of machine learning. This practical impact was specifically noted by external reviewers.

Professor Scott has been very successful in securing funding for his research. He is PI on two highly competitive grants from the National Science Foundation; an NSF CAREER and an NSF core program award. He is co-PI on a range of other multi-disciplinary grants from National Institutes of Health, Homeland Security, and Centers for Disease Control and Prevention.

Recent and Significant Publications:

G. Blanchard, G. Lee, and C. Scott, "Semi-Supervised Novelty Detection," *Journal of Machine Learning Research*, vol. 11, 2973-3009, November 2010.

K. Yoshida, T.-Z. Liu, C. Scott, A.O. Hero, M. Yokokawa, S. Gupta, E. Good, F. Morady, and F. Bogun, "The Value of Defibrillator Electrograms for Recognition of Clinical Ventricular Tachycardias and for Pace-Mapping Of Post-Infarction Ventricular Tachycardia," *Journal of the American College of Cardiology*, vol. 56, 969-979, 2010.

S. Bhavnani, G. Bellala, A. Ganesan, R. Krishna, P. Saxman, C. Scott, M. Silveira, and C. Given, "The Nested Structure of Cancer Symptoms: Implications for Analyzing Co-occurrence and Managing Symptoms," *Methods in Medicine*, vol. 49, no. 6, 581-591, 2010.

D. Lingenfelter, J. Fessler, C. Scott, and Z. He, "Benefits of Position-Sensitive Detectors for Radioactive Source Detection," *IEEE Transactions on Signal Processing*, vol. 58, no. 9, 4473-4483, 2010.

C. Scott and E. Kolaczyk, "Nonparametric assessment of contamination in multivariate data using minimum volume sets and FDR," *Journal of Computational and Graphical Statistics*, vol. 19, no. 2, 439-456, 2010.

J. Kim and C. Scott, "L2 kernel classification," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 32, no. 10, 1822 - 1831, October 2010.

M. Davenport, R. Baraniuk, and C. Scott, "Tuning support vector machines for Minimax and Neyman-Pearson classification," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 32, no. 10, 1888 - 1898, October 2010.

Service: Professor Scott's contributions to service are strong. His external service includes a term as associate editor with the leading journal in mathematical statistics, which is unusual for someone at this stage in their career and shows that his scientific judgment is highly valued. He has also been a reviewer for other journals in his field. His internal service assignments include several departmental committees and service as graduate advisor for the EE:Systems Signal Processing area, one of the largest areas in his department. Professor Scott's care and attention in academic advising is appreciated by his advisees. In addition to his official service assignments he has performed service in other important ways. He has been one of the leaders in the broader machine learning community on campus, spanning the Electrical and Computer Engineering Division (ECE), the Computer Science and Engineering Division (CSE), and Statistics. He has served on many Ph.D. committees of other faculty member's students and he makes valuable contributions to these committees.

External Reviewers:
Reviewer A: "He works on problems that are of fundamental significance, and he has made lasting, high-impact contributions...a new star in statistical machine learning."

Reviewer B: "I think he has a real gift of developing interesting mathematics in the context of applied problems (in particular, in learning theory)."

Reviewer C: "There is little question that he would obtain tenure at my institution: he has a handful of outstanding results on important research questions..."

Reviewer D: "Prof. Scott has focused his research on a number of problems that, while quite abstract, cut to the core of fundamental issues in information processing."

Reviewer E: "Dr. Scott has an impressive research record. His work is very rigorous and of high quality. His choice of topics shows good taste."

Summary of Recommendation: Professor Scott has established excellence in research, dedication to teaching, and diligence in service. It is with the support of the College of Engineering Executive Committee that we recommend Clayton D. Scott for promotion to associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering, and associate professor of statistics, without tenure, Department of Statistics, College of Literature, Science, and the Arts.

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

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

May 2012