Approved by the Regents
May 14, 2009

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Jerome P. Lynch, assistant professor of civil and environmental engineering, Department of Civil and Environmental Engineering, and assistant professor of electrical engineering and computer science, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, and associate professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees:

M.S.	2003	Stanford University, Electrical Engineering, Palo Alto
Ph.D.	2002	Stanford University, Civil and Environmental Engineering, Palo Alto
M.S.	1998	Stanford University, Civil and Environmental Engineering, Palo Alto
B.E.	1997	The Cooper Union, Civil and Environmental Engineering, New York

Professional Record:

2004-Present	Assistant Professor, Electrical Engineering and Computer Science, University of Michigan
2003-Present	Assistant Professor, Civil and Environmental Engineering, University of Michigan
2001-2003	Chief Technology Officer and Co-founder, Sensametrics Inc., Palo Alto, CA
2000-2000	Consultant, SC Solutions Inc., San Jose, CA
1997-1997	Structural Engineer, Weidlinger Associates, New York

Summary of Evaluation:

Teaching: Professor Lynch is an outstanding teacher who inspires and engages students. His teaching responsibility has rotated between four courses: CEE 212 – Solid and Structural Mechanics; CEE511-Dynamics of Structures; CEE 611 – Earthquake Engineering; and CEE 619 – Advanced Dynamics and Smart Structures. Professor Lynch introduced the last course to the Civil and Environmental Engineering curriculum during the Fall 2004 semester to expose students to "smart structures," which encompasses his area of expertise. Of the twelve classes that he has taught, Professor Lynch has consistently demonstrated across undergraduate and graduate courses that he is a uniquely talented teacher. He earned an average Q1 of 4.7 and an average Q2 of 4.9 for all courses. In recognition of Professor Lynch's exemplary achievements as a teacher and valued counselor to students, he was honored with both the 2005 Professor of the Year Award given by the Department's American Society of Civil Engineers (ASCE) Student Chapter, and the College of Engineering 1938E Award in 2008. Professor Lynch has graduated two Ph.D. students for whom he served as primary advisor, one Ph.D. student at Stanford University who he co-advised, and currently advises three Ph.D. students. Of the two he solely advised, one is an assistant professor and the other is a post-doctoral researcher. It is clear that he establishes an admirable and respectful rapport with students, and he unselfishly directs a high level of commitment to their success. Professor Lynch currently advises or has advised six M.S. students and five major undergraduate research projects. He has been actively and consistently involved with mentoring students through the College's Marian Sarah Parker Scholar Program. Professor Lynch has shown himself to be a gifted teacher, a dedicated mentor, and a committed role model.

Research: Professor Lynch is a nationally and internationally recognized researcher and leader in the rapidly growing discipline of structural health monitoring. His innovative ideas have resulted in some of the first world-wide deployments of wireless sensors that detect structural behavior in a range of

infrastructural systems, including bridges, wind turbines, a naval vessel and a television tower. Professor Lynch has creatively merged his unique strengths in both structural and electrical engineering to design, construct, deploy and interpret the wireless sensors and their outputs. To assist in data interpretation and responsiveness, his research team has employed novel data processing and feedback control strategies directly on the sensors to make them more useful as untethered, deployable monitoring systems. Interested in moving his research into practice, Professor Lynch has been highly active in technology transfer and has six disclosures and two patent applications in process. His multidisciplinary and practical approach has resulted in his establishing a niche within his discipline that has put him at the leading edge. Professor Lynch has been extremely successful at acquiring funding to support his research agenda and disseminating results from his work through scholarly publications, both as an independent PI and as a collaborator with others. He is a prolific publisher and to date, he has published 28 journal papers and within those papers has shown a commitment to publishing with his students. He also has four book chapters (three as senior author) and well over one hundred refereed conference or symposium proceeding papers, including one invited and refereed keynote paper at an international conference. The quality and impact of Professor Lynch's research was appropriately recognized through receipt of the University of Michigan's Henry Russel Award in 2007, two best paper awards with his students, and two international keynote invitations (one with a paper). He has successfully acquired external research funding totaling $3.0 million as PI or co-PI ($979k, responsible share).

Recent and Significant Publications:

Zimmerman, A. T., Shiraishi, M., Swartz, R. A., and Lynch, J. P. (2008) "Automated Modal Parameter Estimation by Parallel Processing within Wireless Monitoring Systems," *Journal of Infrastructure Systems*, 14(1):102-113.

Hou, T. C., Loh, K. J., and Lynch, J. P. (2007) "Spatial Conductivity Mapping of Carbon Nanotube Composite Thin Films by Electrical Impedance Tomography for Sensing Applications," *Nanotechnology*, 18(31):315501.

Loh, K. J., Kim, J. H., Lynch, J. P., Kam, N. W. S., and Kotov, N. (2007) "Multifunctional Layer-by-Layer Carbon Nanotube-Polyelectrolyte Thin Films for Strain and Corrosion Sensing," *Smart Materials and Structures*, 16(2):429-438.

Lynch, J. P. (2007) "An Overview of Wireless Structural Health Monitoring for Civil Structures," *Philosophical Transactions of the Royal Society of London. Series A, Mathematical and Physical Sciences*, 365(1851):345-372.

Lynch, J. P. and Loh, K. J. (2006) "A Summary Review of Wireless Sensors and Sensor Networks for Structural Health Monitoring," *Shock and Vibration Digest*, 38(2):91-128.

Lynch, J. P., Sundararajan, A., Law, K. H., Kiremidjian, A. S., and Carryer, E. (2004) "Embedding Damage Detection Algorithms in a Wireless Sensing Unit for Attainment of Operational Power Efficiency," *Smart Materials and Structures*, 13(4):800-810.

Service: Professor Lynch's service record within the department, college and nationally is outstanding. His service to the profession includes being in very visible leadership positions for three national and international committees related to structural health monitoring, serving on the editorial board for the *Journal of Computing in Civil Engineering* (ASCE) and the program committee for the prestigious American Controls Conference. He has also served on multiple program committees for national and international conferences. Within the department, Professor Lynch readily and enthusiastically steps in to help with various, important committees and tasks. It is significant to note that, despite his heavy research load, he readily stepped in to serve as ASCE advisor this year when their primary advisor left for sabbatical. Exemplary of Professor Lynch's commitment to students and diversity, he is a strong supporter of the University's Women in Science and Engineering Marion Sarah Parker Scholar Program, having advised four female undergraduate scholars in research activities (and currently advising a fifth).

Professor Lynch demonstrates a true commitment to both contributing to and enhancing the outcomes of the service activities he undertakes.

External Reviewers:
Reviewer A: "...I can say without reservation that Dr. Lynch is, by far, the most prominent [junior] researcher in the field of structural health monitoring and control."

Reviewer B: "I believe Professor Lynch is the top researcher in the field of structural health monitoring, even at this early stage in his career. He is working at the intersection of engineering applications and communications and information technology which, by definition, is interdisciplinary."

Reviewer C: "He is publishing his work extensively in the best venues; his papers are rigorous and of the highest quality and in many cases winning awards."

Reviewer D: "...I would place only one or two other recently-tenured faculty in his league. This is a league of rising stars who have (a) demonstrated tremendous intellectual growth since completing the PhD; (b) developed a reputation for their own work, fully independent of the work of their PhD advisor; and (c) distinguished themselves with professional awards and recognitions within their school and within their research communities. Dr. Lynch is 'at the top of his game.'"

Reviewer E: "He has received funding from a variety of NSF programs, sometimes with additional international support. This indicates the high regard that the research community has for Jerry."

Reviewer F: "Jerry's work in understanding structural behavior in the context of sensing is unique. ... I find this work to be creative and correct. ... I believe his efforts in applying his unique understanding of electronics to civil sensing will eventually have a significant impact, if [it] has not already done so."

Reviewer G: "Dr. Lynch has been very active professionally as the current vice chair of the national American society of civil engineers [sic] (ASCE) committee on structural health monitoring. His appointment ... was due to his leadership abilities and national stature."

Reviewer H: "Amongst all of the researchers working in the field of smart structures, including senior international scholars, Jerry would rank at the very top."

Summary of Recommendation: Professor Lynch is an outstanding faculty member who has excelled in all areas of the academic profession: teaching, research, service. It is with the support of the College of Engineering Executive Committee that I recommend Jerome P. Lynch for associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, and associate professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

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

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