Approved by the Regents
May 16, 2019

PROMOTION RECOMMENDATION
The University of Michigan
School of Information

Mark W. Newman, associate professor of information, with tenure, School of Information, and associate professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to professor of information, with tenure, School of Information, and professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees:

Ph.D.	2007	University of California, Berkeley, CA
M.S.	2000	University of California, Berkeley, CA
B.A.	1992	Macalester College, St. Paul, MN

Professional Record:

2013 – present	Associate Professor (without tenure), Department of Electrical Engineering and Computer Science, College of Engineering, University of Michigan
2013 – present	Associate Professor of Information (with tenure), School of Information, University of Michigan
2008 – 2013	Assistant Professor of Electrical Engineering and Computer Science, College of Engineering, University of Michigan
2007 – 2013	Assistant Professor of Information, School of Information, University of Michigan
2000 – 2007	Member of Research Staff I-II in the Computer Science Laboratory Research in the Distributed Systems Area and Ubiquitous Computing, Area Palo Alto Research Center, Palo Alto, CA (formerly Xerox PARC)
1999 – 2000	User Experience Designer, Netraker Corporation, Sunnyvale, CA
1997 – 2000	Graduate Student Researcher and Instructor, EECS Department, University of California, Berkeley, CA
1998	Research Intern, DEC/Compaq Western Research Laboratory
1996 – 1997	Software Developer, Honeywell Technology Center, Minneapolis, MN

Summary of Evaluation:

Teaching: Professor Newman has made significant contributions to teaching and learning at the School of Information (UMSI) and the University of Michigan (UM). This includes curriculum and course development and redesign at the undergraduate and masters levels within UMSI and leading a UM initiative to create a Rackham certificate in social and technical aspects of augmented/virtual reality (AR/VR). He was also one of the pioneers in UMSI's massive open online course (MOOC) initiatives, a MicroMasters on EdX (subsequently converted to a specialization on Coursera), thus helping UMSI expand its educational reach. Professor Newman has also been an excellent mentor to over 40 students at the undergraduate, masters, and doctoral levels. For these contributions, he has twice received UMSI's Award for Excellence in Instruction.

Professor Newman's teaching statement reflects his commitment to continual improvement, both in his own classroom practices as well as his willingness to do the heavy lifting of systematically improving, fixing, and developing systems and courses that benefit his students as well as the broader UMSI community. For instance, he was one of the innovators of client-based projects in courses, which he then iterated on, and eventually (in conjunction with the Career Development Office) turned into a project proposal management process that served not only his course but others as well, thus benefiting multiple

instructors, students, and clients. He has also played a critical role in curriculum development at UMSI, where he designed the User Experience track for UMSI's Bachelor of Science in Information (BSI) degree and redesigned the Human Computer Interaction (HCI) specialization in the Master of Science in Information (MSI) degree. When UMSI wanted to explore online teaching, Professor Newman was first in line to suggest a suite of online offerings that became the User Experience (UX) Research and Design MicroMasters.

Professor Newman has taught a significant number of service courses – required or large lecture courses – in the MSI and BSI degrees. Also, in contrast to many faculty who teach a small set of recurring courses, Professor Newman has been given a wide range of courses across three of UMSI's five programs (BSI, MSI, and Ph.D.) – many in need of overhaul. His teaching statement describes his time investment in revamping SI 588: Fundamentals of Human Behavior, significantly re-designing the syllabus to help students connect theory and practice. During his tenure at UMSI, Professor Newman created five new courses (SI 206: Data-oriented Programming; SI 507: Intermediate Python; SI 612: Pervasive Design, SI 669: Developing Mobile Experiences; SI 699: User-centered Agile Development (an MSI mastery or capstone course), overhauled 588, and modified SI 622: Needs Assessment and Usability Evaluation and SI 110: Introduction of Information Studies. Few instructors are versatile enough to teach courses in programming, design, research methods, and social science theory. Professor Newman has excelled in teaching across these diverse areas and student populations.

Professor Newman has graduated four doctoral students, all of whom are in excellent positions in industry or academia. He currently mentors an additional four doctoral students who are making good academic progress. He has served on 18 dissertation committees in UMSI and the College of Engineering. In addition, he has mentored over 20 undergraduate and master's students. Professor Newman is a committed instructor who has met and fulfilled expectations for promotion with regard to teaching and mentoring. His curricular work has been an invaluable contribution to creating more robust and consistent academic plans for hundreds of students.

Research: Professor Newman's greatest impact has been in ubiquitous computing (UbiComp). UbiComp research addresses the design, development, and use of the multiplicity of computational devices, applications, and services used in everyday activity, from smart phones to wearable activity trackers. Professor Newman's research has focused broadly, from smart homes to healthcare.

Professor Newman's research approach can be seen in a trilogy of papers on smart thermostats (e.g., Nest): "Learning from a Learning Thermostat: Lessons for Intelligent Systems for the Home;" "Making Sustainability Sustainable;" and "How Does Eco-Coaching Help to Save Energy? Assessing a Recommendation System for Energy-Efficient Thermostat Scheduling." In "Learning from a Learning Thermostat," Professor Newman and colleagues present a series of findings important for understanding the design of intelligent devices. They conclude that a system "...can provide benefits by automating the aspects of life that are predictable, enduring, stable, and regular. A key design challenge, then is to elicit input from users to help the system differentiate the data that represents regular, stable preferences or behavior from input that does not." This goes to the heart of user issues with intelligent systems and sets up the next study in this series. The second paper, "Making Sustainability Sustainable," demonstrates how people's initial enthusiasm for smart thermostats –reducing energy use – fades as they encounter difficulties with usability. The third paper, "How Does Eco-Coaching Help to Save Energy? Assessing a Recommendation System for Energy-Efficient Thermostat Scheduling," presents a research prototype to address the design findings that emerged from the previous studies. The approach, which they called eco-coaching, uses system recommendations rather than automatic changes to help people achieve their energy efficiency goals in a more natural and convenient way. The new system also shows anticipated savings to help users make choices.

Professor Newman has published 50 peer-reviewed conference proceedings papers (seventeen since tenure) in the most prestigious conferences in HCI and ubiquitous computing. He has published eight articles (three since tenure) in top ranked journals in human computer interaction (HCI) and healthcare research. He has an h-index of 37 and his work has received almost 6000 citations.

Recent and Significant Publications:

Ayşe G. Büyüktür, Mark S. Ackerman, Pei-Yao Hung Mark W. Newman. Supporting Collaboratively Constructed Independence: A Study of Spinal Cord Injury. *Proceedings of the 21st ACM Conference on Computer-Supported Cooperative Work and Social Computing,* Jersey City, New Jersey, USA. 2018.

Yung-Ju Chang, Gaurav Paruthi, Hsin-Ying Wu, Hsin-Yu Lin, Mark W Newman. An investigation of using mobile and situated crowdsourcing to collect annotated travel activity data in real-word settings. *Proceedings of the 21st ACM Conference on Computer-Supported Cooperative Work and Social Computing,* Jersey City, New Jersey USA. 2018.

Meghan Clark, Mark W Newman, Prabal Dutta. Devices and Data and Agents, Oh My: How Smart Home Abstractions Prime End-User Mental Models. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (UbiComp 2017).* Maui, Hawaii USA. 2017.

Rayoung Yang, Devika Pisharoty, Soodeh Montazeri, Kamin Whitehouse, and Mark W Newman. How Does Eco-Coaching Help to Save Energy? Assessing a Recommendation System for Energy-Efficient Thermostat Scheduling. *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp 2016). Heidelberg, Germany. 2016.*

Rayoung Yang, Mark W. Newman, and Jodi Forlizzi. Making Sustainability Sustainable: Challenges in the Design of Eco-Interaction Technologies. *Proceedings of the SIGCHI Conference on Human factors in computing systems (CHI 2014).* Toronto, Canada. 2014. Best Paper Award.

Service: Professor Newman has been an active participant in a number of service roles within UMSI, U-M, and in his scholarly community. Inside of UMSI, he has, in his own words, "served in most of the major committees... several of these multiple times." Professor Newman's UMSI service activity has had a strong impact on the curriculum taught within the school (by him and others) and in the experimentation with virtual learning through the development of online courses in the UX Research and Design MicroMasters specialization. He also led the redesign of the residential specialization in human computer interaction to modernize course content and streamline the curriculum for the Master of Science in Information degree. He has played a leadership role in several UMSI faculty hiring committees and been an active mentor to new faculty in HCI.

At the university level, Professor Newman has played a significant role as one of the founders of Michigan Interactive and Social Computing (MISC) – a campus-wide research group that is comprised of over 100 faculty and students. The MISC weekly seminar series is highly attended and has attracted notable speakers from inside and outside of the UM community. In addition, he has recently chaired the Augmented and Virtual Reality Steering Committee, leading to a proposal for a graduate certificate through the Rackham Graduate School. He will be continuing this leadership through the next academic year.

Professor Newman has also been active in the larger scholarly community. He has been a regular on the program committees for the most prestigious conferences in his field, such as the Association for Computing Machinery (ACM) Conference on Human Factors in Computing (CHI), the ACM Conference on Computer Supported Cooperative Work (CSCW), UIST, and the ACM Conference on Ubiquitous Computing (UbiComp). He was also the Human Computer Interaction Consortium (HCIC) general co-chair from 2012-2016 and a co-program chair in 2011 for the Human-Computer Interaction Consortium (HCIC) workshop – an elite invitational conference that brings together top researchers from academia,

industry, and government as well as select doctoral students. For many years, including during Professor Newman's tenure as General Co-Chair, UMSI was the major institutional organizer of HCIC. As a result, Professor Newman's role was much larger than that or a normal conference co-chair. He was very involved in overseeing the management of the logistics as well as the academic content. He acted as the major co-chair over that five-year period.

External Reviewers:
Reviewer A: "With respect to the quality, quantity, and scholarly impact of Professor Newman's research, he is well known and respected in the international HCI and UbiComp research community as a leading researcher and recognized authority in the area of smart homes, sustainability, and field deployments of technology. Through his high-quality research on smart homes and sustainability spanning more than 10 years, Professor Newman has established himself as one of the core researchers working in the area."

Reviewer B: "Professor Newman's list of publications is very impressive, and as I noted above, the breadth of publication venues attests not only to the import and general applicability of the work, but also to his ability to speak to different audiences. This ability is why his work has had, and will continue to have, impact beyond the borders of the academy."

Reviewer C: "In summary, [Professor] Newman's papers are of very high quality and are likely to influence and inform other research in the field. I believe his scholarly work easily passes the bar for promotion to full professor."

Reviewer D: "The quality of his work is impressive. He has had impact in his community(s) and is known at a national and international level for his work on eco-coaching and smart home sustainability, and for his work in the use of activities and locations to enable the design of systems that can both capture this information and then tools to allow for the easier use of this data....He has had admirable impact and is continuing to work on real-world problems. He takes a strong integrative approach of design, technical systems and software infrastructure to build compelling and useful systems...."

Reviewer E: "[Professor] Newman is an internationally visible and highly accomplished academic. He has a great portfolio in research and is clearly qualified for the position of professor."

Summary of Recommendation
Professor Newman's accomplishments in the areas of teaching, research, and service meet and exceed the promotion requirements to achieve the rank of professor. Therefore, with the overwhelming support of the promotion and tenure committee of the School of Information and the College of Engineering, we enthusiastically recommend Mark W. Newman for promotion to professor of information, with tenure, School of Information, and professor of electrical engineering and computer science, without tenure, College of Engineering.

Thomas A. Finholt
Dean, School of Information

Alec D. Gallimore, Ph.D.
Robert J. Vlasic Dean of Engineering
College of Engineering

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