PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF FAMILY MEDICINE
SCHOOL OF INFORMATION

<u>Lorraine R. Buis, Ph.D.</u>, assistant professor of family medicine, Department of Family Medicine, Medical School, and assistant professor of information, School of Information, is recommended for promotion to associate professor of family medicine, with tenure, Department of Family Medicine, Medical School, and associate professor of information, without tenure, School of Information.

<u>Academic Degrees</u>:
Ph.D.	2007	Michigan State University
M.S.I.	2004	University of Michigan
B.S.	2002	Michigan State University

<u>Professional Record</u>:
2013 – Present	Assistant Professor of Information, University of Michigan
2013 – Present	Assistant Professor of Family Medicine, University of Michigan
2013	Adjunct Assistant Professor of Information, University of Michigan
2009 – 2013	Assistant Professor of Nursing – Adult Health, Wayne State University
2008	Adjunct Instructor of Telecommunication, Information Studies, and Media, Michigan State University

<u>Summary of Evaluation</u>:
<u>Teaching</u>: Dr. Buis has an extensive record of teaching undergraduate and graduate students and fellows. She teaches a class on fundamentals of human behavior, which includes a focus on the role of technology, in the School of Information. Dr. Buis has mentored many of our residents on their required scholarly projects. She has served on several dissertation committees for Ph.D. candidates. She has given multiple invited presentations in institutions and other venues across the country, centered around her expertise in using technology to deliver health care, in particular mobile health technologies such as Fitbit and other emerging products and platforms.

<u>Research</u>: Dr. Buis' research training has been rigorous, and has led her to develop high-level expertise in complex quantitative methods which she has successfully applied to health services research focused on using mobile health technology to improve chronic disease outcomes in historically underserved populations. She also is involved with clinical practice transformation and improving physician decision-making via use of pharmacogenomics. These are research areas of considerable need and importance, but often fraught with weak study design, poor control of confounding variables, and a lack of rigorous measurement methods. Dr. Buis' skills and expertise help to close those gaps, and she has applied them to substantial and varied research projects. She has been well funded from the National Institutes of Health, the Veterans Affairs, anonymous donors and institutional grants. She has published more than 25 peer-reviewed articles, and has been invited to present her research on numerous occasions regionally, nationally, and internationally.

<u>Recent and Significant Publications</u>:
Danak SU, Guetterman TC, Plegue MA, Holmstrom HL, Kadri, R, Duthler A, Yoo A, <u>Buis LR</u>: Influence of scribes on patient-physician communication in primary care encounters: Mixed methods study. *JMIR Med Inform* 7(3): e14797, 2019.

Bian RR, Piatt GA, Sen A, Plegue MA, De Michele ML, Hafez D, Czuhajewski CM, Buis LR, Kaufman ND, Richardson CR: The effect of technology-mediated diabetes prevention interventions on weight: A meta-analysis. *J Med Internet Res* 19(3):e76, 2017.

Buis L, Hirzel L, Dawood RM, Dawood KL, Nichols LP, Artinian NT, Schwiebert L, Yarandi HN, Roberson DN, Plegue MA, Mango LC, Levy PD: Text messaging to improve hypertension medication adherence in African Americans from Primary Care and Emergency Department settings: Results from two randomized feasibility studies. *JMIR Mhealth Uhealth* 5(2):e9, 2017.

Buis LR, Hirzel L, Turske SA, Des Jardins TR, Yarandi H, Bondurant P: Use of a text message program to raise type 2 diabetes risk awareness and promote health behavior change (part II): Assessment of participants' perception on efficacy. *J Med Internet* 15(12):e282, 2013.

Buis LR, Hirzel L, Turske SA, Des Jardins TR, Yarandi H, Bondurant P. Use of a text message program to raise type 2 diabetes risk awareness and promote health behavior change (part I): Assessment of participant reach and adoption. *J Med Internet Res* 15(12):e281, 2013.

Service: Dr. Buis is an outstanding scholarly researcher who is making significant contributions in many areas. Internationally, she has served as a grant reviewer for Diabetes United Kingdom R.D. Lawrence Fellowship Review Panel, and the United Kingdom Medical Research Council. Nationally, she has served on numerous grant review panels for the National Institutes of Health, and the National Science Foundation. She is an associate editor for *Smart Health*, a section editor for the *Journal of Medical Internet Research*, and a member of the editorial committee for the *Journal of the American Medical Informatics Association*. Dr. Buis serves on three institutional committees, including the Institute for Healthcare Policy and Innovation.

External Reviewers:
Reviewer A: "The work that Dr. Buis has been doing in the area of mobile health (mHealth) in vulnerable populations, particularly with its focus on primary care settings, is of national importance. Her background in mass media and communication, and her knowledge of health information technology, has allowed her to contribute to understanding this complex issue in a way that is not otherwise accessible…It is clear she has achieved national recognition for her expertise in understanding how technology-mediated interventions can be used by consumers to self-manage their chronic disease."

Reviewer B: "Her research to date has laid the groundwork for impactful studies. For example, Dr. Buis has conducted two pilot randomized controlled trials of African-American patients with uncontrolled diabetes (published in *JMIR mHealth* and *uHealth*, 2017). Her incorporation of a primary care intervention into the emergency room is innovative. She was able to administer text message reminders to promote medication adherence. The efforts required to conduct a trial like this are considerable. By establishing feasibility and acceptability, she was able to obtain R01 funding to test the efficacy of a novel mHealth program in 304 African-Americans with uncontrolled hypertension from two emergency departments in an underserved community. The findings from this trial will likely have great impact in the field, as there is a dearth of studies that investigate mHealth and long-term adherence in low-resourced communities."

Reviewer C: "In terms of her publications, she is publishing regularly in JMIR, which is a top-tier venue for digital health/informatics research, with an impact factor of 4.945. She is also publishing regularly in JMIR sister journals, such as JMU. This work illustrates a clear commitment to publishing in open source contexts within top venues. In terms of her impact on the field, review of her Google Scholar profile (which is an appropriate source for digital health work based on the highly transdisciplinary nature of this work), her h-index=18 and i-index=20, suggesting that her work is being cited and influencing the field."

Reviewer D: "I was impressed by her drive and sophisticated understanding of the field of mobile health. She has a very transparent and honest approach, which has shown through in her publications on the subject. Specifically, she is thorough in describing the pros and cons of her studies, enabling the research community to not simply digest a single, punch-line-based, result, but also to learn from the novel processes she has pursued. She has contributed important research related to participant recruitment and engagement and delivery of interventions using remote methods."

Reviewer E: "I am impressed with her CV. She is doing innovative work in the field of mHealth, publishing at a good rate, and the quality of her work appears to be high. I like seeing Dr. Buis address these issues head on, and also not shy away from the challenges of actually conducting these studies (e.g., in her study of text messaging interventions in African Americans). I also noted that she is well funded, on a number of NIH grants as Co-PI, and has received at least one R01 as PI, among other things."

Reviewer F: "If we look at her research productivity in its entirety – publications and research funding - she is well over the bar for tenure and should be commended for her commitment to securing research funds and disseminating her research in top venues in this competitive funding climate."

Reviewer G: "She has a remarkable history of funding, with 7 current (4 NIH) grant awards, and 9 previous grants while at University of Michigan. What makes her stand out from her peers is her NIH R01 mHealth to Improve Blood Pressure Control in Hypertensive African Americans. This award is a strong indication of her future success as an independent researcher and a research who can make an impact on reducing health disparities. I am confident that with this grant award and her past record of grant funding that she will be of great value to your department in years to come."

Summary of Recommendations:
Dr. Buis has built a career in the rapidly emerging field of e-health technology so that consumers can self-manage chronic disease. She has developed nationally-recognized expertise in this field and successfully applied it to improving outcomes in disadvantaged populations. I am pleased, therefore, to recommend Lorraine R. Buis, Ph.D. for promotion to associate professor of family medicine, with tenure, Department of Family Medicine, Medical School, and associate professor of information, School of Information.

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

Thomas A. Finholt
Dean, School of Information

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