VA BOSTON

Medical Informatics Postdoctoral Research Fellowship

Stephan Gaehde, M.D., Fellowship Director
VA Boston Healthcare System
150 South Huntington Avenue
Boston, MA 02130
Stephan.gaehde@va.gov

Phone 857-203-5385

OVERVIEW

Since 1995, the VA Boston Healthcare System Medical Informatics Research Fellowship has been training postdoctoral fellows in medical informatics for careers as researchers, data scientists, and informatics-trained clinicians within government, academia, and industry. Fellows will work alongside research mentors and clinical stakeholders investigating diverse medical informatics applications in one of two tracks. Fellows from behavioral science backgrounds often focus on the use of technology mediated communication to improve the health of patients. Fellows can be involved in developing, implementing and evaluating the efficacy of technology enabled behavioral interventions and monitoring, including wearable technologies, mobile apps and web-based programs. Fellows in the computational informatics track will have the opportunity to participate in a range of projects that include analyzing datasets from the largest consolidated healthcare system in the United States, developing clinical decision support systems and using techniques that include machine learning, natural language processing, and data visualization.

TRACKS

The fellowship consists of two main tracks:

1. **Behavioral informatics**: Behavioral informatics is the study of the use of computers and other information technologies in behavioral medicine. Research projects include the development and evaluation of a wide range of behavioral interventions through the use of information technology that promote health behavior change and improved patient self-care across a range of behaviors including smoking cessation, nutrition, physical activity, and weight.
2. **Computational informatics**: Computational informatics in medicine includes the application, development, and evaluation of machine learning and other data science techniques to improve clinical operations and clinical decision making. Research projects include the computational analysis of electronic health records and development of predictive analytic algorithms to improve patient care and clinical operations as well as the development and implementation of appropriate interfaces for end users.

TRAINING OBJECTIVES

Goals of the fellowship include:

- Train fellows in the application of the principles and methods of medical informatics

- Provide opportunities for the development of more focused areas of informatics expertise through the conduct of one or more supervised research projects
- Develop expertise in the development and implementation of IT based behavioral interventions
- Enhance skills in other research areas that complement informatics and non-research areas that enhance fellows' project management and leadership skills
- Develop skills in the management and implementation of VA clinical information systems at the medical center and network level

COMPONENTS

Components of the fellowship include:

- Research project supervision of two to three projects by an experienced researcher in informatics-based knowledge discovery and/or health intervention research
- Program and career mentoring by senior academic informatics researchers at the VA Boston Healthcare System, Boston University, and other academic institutions
- Research skills training through program seminars (research-in-progress; research literature appraisal; current topics in informatics research)
- Introduction to the VA Boston Healthcare System and the National VA Healthcare System including research groups, available datasets, data access routes, grant funding, and career opportunities
- Attendance at the American Medical Informatics Association (AMIA) Annual Symposium as well as other local medical informatics conferences
- Optional enrollment in the AMIA 10x10 courses or other relevant training courses

APPLICATION INSTRUCTIONS

- The VA Boston Healthcare System is seeking applications for a two-year post-doctoral VA Special Fellowship in Medical Informatics beginning in July to September of 2018.
- US citizenship and a PhD, MD or equivalent degree are required.
- For the **behavioral informatics** track, a background in experimental or clinical psychology, experimental design, a strong interest in and some experience with information technology are desirable. Individuals with an interest in behavioral

medicine and health psychology, lifestyle behavior change and health communications are especially desirable. Medical knowledge is a plus, although not required.

- For the **computational informatics** track, programming skills (e.g. R, Python, C++, Java, etc.) and an interest in medical informatics applications are required. A background in data science, machine learning, or other data analytic field is desirable. Experience with electronic health record data is a plus, but not required.
- To start the application process, please send a statement of interest and a CV to Stephan.Gaehde@va.gov

FACULTY

Executive Leadership

Stephan Gaehde, M.D., M.P.H., Fellowship Director

Clinical Expertise: Internal Medicine/Emergency Medicine
Research Interest: Design and evaluation of computer technology to promote adherence to treatment regimens, monitor chronic disease and support patient in self-treatment behaviors.

DeAnna Mori, Ph.D.

Clinical Expertise: Behavioral Medicine/Clinical Psychology
Research Interest: Developing telehealth interventions that promote healthy behaviors and medical adherence in medical populations. A particular focus on promoting physical activity using technology.

Lisa Quintiliani, Ph.D.

Clinical Expertise: Nutrition
Research Interest: Design, implementation, and evaluation of health behavior interventions for chronic disease prevention and control using m-Health and e-Health technologies

Haley Hunter-Zinck, Ph.D.

Health Science Specialist
Research Interests: development and application of machine learning and visualization tools for clinical data, especially in the emergency department and to improve patient flow; clinical decision support; natural language processing

Potential Collaborating Partners

Amy Rubin, Ph.D.

Clinical Expertise: Psychology
Research Interests: Addictive behaviors, particularly alcohol screening, assessment, intervention and treatment research; computerized interventions for health behavior change; substance abuse.

Julien Dedier, M.D., M.P.H.

Clinical Expertise: Primary care clinician, Health disparity populations
Research Interests: 1. The influence of ethnic, cultural and environmental factors on risk-related behaviors for cardiovascular disease and cancer among underprivileged urban minority groups. 2. Application of computer-assisted communication technologies to create behavioral interventions tailored to the ethnic, cultural and contextual characteristics of urban minorities of low socioeconomic status.

Timothy Bickmore Ph.D. and Stephen Intille, Ph.D.

Personal Health Informatics: an Interdisciplinary program of the College of Computer and Information Science and Bouvé College of Health Sciences
http://www.ccis.northeastern.edu/research-area/personal-health-informatics/

Boston University, Mobile and Electronic Health Affinity Research Collaborative (ME-ARC)

Director: Belinda Borrelli, Ph.D. and Co-Directors: Lisa Quintiliani, Ph.D. and Julie Keysor, Ph.D.
http://www.bu.edu/digitalhealth/files/2017/03/ARC-mobile-Borrelli-distribution.pdf

Marilyn Moy, M.D.

Director of Pulmonary Rehabilitation, VA Boston Healthcare Center
Associate Professor, Harvard Medical School
Research Interests: Internet mediated interventions to promote physical activity in individuals with COPD

Jennifer Joe, M.D.

Physician Digital Health Entrepreneur
Chief, Executive Officer and Cofounder Medstro
MedTech Boston Editor-in-Chief
linkedin https://www.linkedin.com/in/jenniferjoemd/

Steven Simon, MD, MPH

Associate Chief of Staff, Brockton Campus, and Chief, Geriatrics and Extended Care Service, VA Boston Healthcare System, and Associate Professor of Medicine, Harvard Medical School.

Research Interests: The evaluation of health information technology to improve patient safety and the quality of health care. Dr. Simon has expertise in the adoption of health information technology, the use of health information technology to improve the delivery of health care, especially the use of medications and the care of chronic illness. linkedin: https://www.linkedin.com/in/stevenrsimon/

Abu S Abdullah, MBBS (MD), MPH., PhD.

Associate Professor of Medicine, Department of Medicine at Boston University Medical Center, and Professor of Global Health at Duke Global Health Institute at Duke University

Clinical Expertise: Medical Epidemiologist, Behavioral Scientist

Research Interests: 1) Prevention and control of chronic non communicable diseases (NCDs) and common NCD risk factors (i.e. tobacco use, alcohol misuse, unhealthy diet, physical inactivity, and overweight/obesity) in low and middle income countries and among disadvantaged population in the United States. 2). Use of mHealth tools (i.e. Embodied Conversational Agent, ECA) for behavior change intervention and the delivery of health care.

RECENT PUBLICATIONS AND PRESENTATIONS

(Fellows in Bold)

Hunter-Zinck HS, Gaehde SA. (June 2017). VIVED: visit information visualization for the emergency department. *National Library of Medicine Informatics Training Conference*, La Jolla, CA.

Fiore LD, Brophy MT, Turek S, **Kudesia V**, Ramnath N, Shannon C, Ferguson R, Pyarajan S, Fiore MA, Hornberger J, Lavori P.The VA Point-of-Care Precision Oncology Program: Balancing Access with Rapid Learning in Molecular Cancer Medicine. Biomark Cancer. 2016 Feb 29;8:9-16. doi: 10.4137/BIC.S37548. eCollection 2016.

Hunter-Zinck HS, Gaehde SA. (November 2016). Predicting ordered diagnostic tests from patient triage data. *American Medical Informatics Association Annual Symposium*, Chicago, IL.

Branch-Elliman W, Strymish J, **Kudesia V**, Rosen AK, Gupta K. Natural Language Processing for Real-Time Catheter-Associated Urinary Tract Infection Surveillance: Results of a Pilot Implementation Trial. Infect Control Hosp Epidemiol. 2015 Sep;36(9):1004-10. doi: 10.1017/ice.2015.122. Epub 2015 May 29.

Schulman, D., Mori, D., and Niles, B. (June, 2015). A Dynamical Model of Usage of an Automated Physical Activity Intervention. *National Library of Medicine Informatics Training Conference*, Bethesda, MD.

Schulman, D., Mori, D. L., Reese, R., Niles, B., Allsup, K., Bachand, A., and Forman, D. (April, 2015). Improving Accelerometer Estimates of Physical Activity in a Sedentary Diabetic Population. Presented at the Annual Meeting for the Society of Behavioral Medicine, San Antonio, TX.

Schulman, D., Mori, D. L., and Niles, B. (April, 2015). Use of Accelerometers for Physical Activity Assessment: Do Calibration Estimates Change over Time? Presented at the Annual Meeting for the Society of Behavioral Medicine, San Antonio, TX.

Schulman, D., Niles, B. L., Reese, R. L., & Mori, D. L. (April, 2014). Behavioral Assessment and Participant Compliance in an Automated Physical Activity Intervention for Diabetes. Presented at the Annual Meeting for the Society of Behavioral Medicine, Philadelphia, PA.

Reese, R. L., Niles, B. L., **Schulman, D**., & Mori, D. L. (April, 2014). Concordance between self-report and accelerometer measures of physical activity in overweight veterans with type 2 diabetes. Presented at the Annual Meeting for the Society of Behavioral Medicine, Philadelphia, PA.

Friedman R, **Kudesia V**, Sebastiani P, Monti S, Misquitta D, Peterson K, Whinfield J, Stoeckle R. Educating translational researchers in research informatics principles and methods: an evaluation of a model online course and plans for its dissemination. AMIA Jt Summits Transl Sci Proc. 2013 Mar 18;2013:59. eCollection 2013.

Mann DM, **Kudesia V**, Reddy S, Weng M, Imler D, Quintiliani L.Development of DASH Mobile: a mHealth lifestyle change intervention for the management of hypertension. Stud Health Technol Inform. 2013;192:973.

Quintiliani LM, Whiteley JA, **Johnson EJ**, Viswanath K. Time availability and preference for e-health communication channels for nutrition and physical activity. J Cancer Educ. 2013 Sep;28(3):408-11.

Johnson, E., Niles, B., Mori, D., & **Busby, A**. (April, 2012). The use of accelerometers for the measurement of physical activity in sedentary veterans with Type 2 diabetes: Lessons learned from analysis and interpretation of data. Presented at the Annual Meeting for the Society of Behavioral Medicine, New Orleans, LA.

Johnson, E., Mori, D. L., Niles, B. L., Allsup, K., Collins, A. E., and Forman, D. April, 2011). Objective measurement of physical activity levels in veterans with type 2 diabetes: normative accelerometer data from an exercise trial. Presented at the Society of Behavioral Medicine Annual Meeting, Washington, DC.

Johnson, E., Mori, D. L., Niles, B. L., Collins, A. E., and Bailey, K. (April, 2011). Participant recruitment and retention in an automated telephone intervention to enhance exercise adoption in veterans with type 2 diabetes. Presented at the Society of Behavioral Medicine Annual Meeting, Washington, DC.

Seligowski, A. V., **Johnson, E. J**., Niles, B., & Mori, D. L. (2011, November). A cognitive-behavioral automated telephone intervention to increase physical activity in veterans with type 2 diabetes: Rates of satisfaction and compliance. Presented at the 45th Annual Meeting of the Association for Behavioral and Cognitive Therapies, Toronto, Canada.

Lojun SL, Sauper CJ, Medow M, Long WJ, Mark RG, Barzilay R. Investigating Resuscitation Code Assignment in the Intensive Care Unit using Structured and Unstructured Data. AMIA Annu Symp Proc. 2010 Nov 13;2010:467-71.