

WORKSHOP ON INTERACTIVE SYSTEMS IN HEALTHCARE (WISH) 2013: BRIDGING COMMUNITIES

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Abstract:

Purpose: The Workshop on Interactive Systems in Healthcare (WISH) 2013: Bridging Communities took place on November 16 in Washington DC. This one-day, in-person workshop was designed to foster conversation and bridge communities among experts in biomedical informatics, nursing informatics, medical sociology, human-computer interaction, and other related fields.

Scope: A total of 94 participants attended the workshop, including eight funded junior researchers in the mentoring program. The workshop provided an environment for participants to discuss challenges facing cross-disciplinary research and for researchers to communicate and exchange ideas to stimulate interdisciplinary dialogs and collaborations.

Methods: To ensure the quality of the workshop, 39 experts in the field of Interactive System in Healthcare were invited and agreed to serve on WISH steering committee. Steering committee helped review paper submissions, and mentored junior researchers in the mentoring program. The one-day workshop consisted of a variety of activities, including two invited panels on funding interdisciplinary research and publishing across disciplines, two submitted panels on conducting research with health professionals and health consumers, and three keynote speeches. There was also an evening poster session with 21 accepted papers.

Results: Overall, workshop participants, especially junior researchers, received great feedback from peers and experts in the fields to improve their projects. We expect that WISH participants will give back to the community by engaging more individuals in research involving Interactive Systems and Healthcare.

Key Words: Interactive System in Healthcare, Interdisciplinary research

1. Purpose

Addressing the complex interplay among human, organizational, and technological systems in healthcare is critically important. At the intersection of these systems lies a significant research area that has the potential to impact the quality, safety, efficiency, and effectiveness of health care. Given the recent emphasis on health information technology (HIT) solutions as part of the ongoing efforts towards healthcare reform and in conjunction with the American Recovery and Reinvestment Act of 2009, these issues are timely and of the utmost priority to be addressed. However, biomedical informatics, human–computer interaction (HCI), and other research areas related to HIT are often confined in their disciplinary silos making significant trans-disciplinary progress challenging. The WISH 2013 workshop intends to make a significant step towards integrating these communities and ensuring the types of cross-pollination of both research and practical ideas needed to make that progress.

By bringing together researchers from a diversity of disciplines that intersect with Interactive Systems for Healthcare, the WISH workshop aims to foster in-depth discussion of challenges facing cross-disciplinary research among its participants. Furthermore, it provides an environment for researchers to communicate and exchange ideas and experiences to stimulate and support the development of interdisciplinary dialogs and collaborations.

2. Scope

HIT and interactive health care systems have the potential for supporting a wide variety of stakeholders, from patients to providers, institutions to individuals, and policymakers at all levels—both corporate and governmental. However, discussions at highly specialized conferences, or tracks within conferences, can become deep but disjointed; investigating particular issues in detail while sometimes missing the meta-context and issues from outside particular disciplines represented by the specific presentations and conferences. Thus, the WISH workshop contributes to a holistic understanding of the challenges by engaging researchers from a wide variety of disciplinary backgrounds.

Examining the topics of HIT and Interactive Systems for Healthcare from these disparate backgrounds makes an important step in breaking down critical barriers to the design, implementation, adoption, and use of HIT. Biomedical informatics and medicine alike are acutely aware of the patient safety concerns that can arise from the design of a bad system. A more systematic understanding of human factors, HCI, and cognitive science principles has a direct relationship to reducing costs, increasing efficiency, and increasing patient safety. Furthermore, to date, such research has not been fully addressed at a systems level. Thus, researchers in biomedical informatics and disciplines related to human-centered computing must work together to develop these systems-level approaches to understanding HIT and improving safety, efficiency, and quality of care. Only through the understanding of vast and varied methodological approaches as well as the potential design and development of new tools, technologies, and methods will these advances be achieved. WISH workshop brought together researchers from a variety of communities all focused on HIT and health care quality in order to overcome disciplinary barriers and enable these advances.

The WISH 2013 workshop was held on November 16th 2013 at Washington DC, in conjunction with the American Medical Informatics Association Annual Symposium. As a one-day workshop, it has attracted a total of 94 participants from a wide range of

disciplines. Thanks to the generous support by AHRQ, the workshop was able to provide the travel support of all invited speakers, some of the steering committee members, as well as eight junior researchers for the WISH mentoring program. The AHRQ funding is crucial for the success of the WISH 2013 workshop.

3. Methods

Prior to the workshop, to ensure the success and the quality of the WISH program, the four workshop organizers have compiled a list of 39 experts from the fields of Biomedical Informatics, HCI, Medical Sociology, and Computer Sciences, to serve on WISH steering committee¹. The steering committee supported the four workshop organizers in identifying and recruiting invited speakers and in designing specific topic presentations. A subset of the steering committee also acted as the WISH 2013 Program Committee to review paper submissions. Steering committee members have also served as mentors for 23 junior researchers attended WISH 2013 workshop.

With the assistance from the steering committee, the WISH 2013 organizers were able to put together an exciting program with three keynote speeches, two invited panels, and two submitted panels. In particular, the two invited panels highlighted speakers from program directors of five funding agencies that support interactive system in healthcare, and editor-in-chiefs of five major biomedical informatics journals. These panels offered great insights for participants who strive to cross the disciplinary boundaries when conducting research in Interactive System in Healthcare field.

Keynotes

- Opening Keynote—Building the Research Infrastructure: The National Patient-Centered Clinical Research Network. Rachael L. Fleurence, PhD, Program Director for CER Methods and Infrastructure at the Patient-Centered Outcomes Research Institute
- Theme Keynote—Towards Designing Health IT that Works – Lessons from 25 Years of HCI/CSCW Research. Geraldine Fitzpatrick, PhD, Professor of Design and Assessment of Technology in the Faculty of Informatics at the Vienna University of Technology, Head of the Institute of Technology Design and Assessment, and Head of the Human Computer Interaction Group
- Closing Keynote—EHR Usability: Current Status and Future Directions. Jiajie Zhang, PhD, Dean of The University of Texas School of Biomedical Informatics at Houston and Director of the National Center for Cognitive Informatics and Decision Making in Healthcare

Invited Panels

- Funding of Interdisciplinary Research in Interactive Systems in Healthcare
 - Patricia Flatley Brennan, MSN, PhD, University of Wisconsin-Madison (Moderator)

¹ The full list of steering committee members can be accessed here: <http://wish2013workshop.wordpress.com/steering-committee/>

- Rachael L. Fleurence, PhD, Program Director for CER Methods and Infrastructure, Patient-Centered Outcomes Research Institute
- Valerie Florance, PhD, Associate Director for Extramural Programs, National Library of Medicine
- Misha Pavel, PhD, Program Director, Smart and Connected Health, National Science Foundation
- Jonathan White, MD, Director, Health Information Technology Portfolio, Agency for Healthcare Research and Quality
- Publishing Across Disciplines
 - Lucila Ohno-Machado, MD, PhD, Editor-in-Chief, Journal of the American Medical Informatics Association (Moderator)
 - Gunther Eysenbach, MD, MPH, Founding Editor and Editor-in-Chief, Journal of Medical Internet Research
 - Christoph Lehmann, MD, Editor-in-Chief of the Journal of Biomedical Informatics
 - Charles Safran, MS, MD, Editor-in-Chief, International Journal of Medical Informatics
 - Edward H. Shortliffe, MD, PhD, Editor-in-Chief, Journal of Biomedical Informatics

Scientific Panels

- Embracing Methodological Challenges in Clinical Systems Fieldwork
 - Helena M. Mentis, PhD, University of Maryland-Baltimore County
 - Aleksandra Sarcevic, PhD, Drexel University
 - Rebecca Randell, PhD, University of Leeds
 - Paul Gorman, MD, Oregon Health and Science University
- Understanding and Designing to Support Patient Work
 - Rupa Valdez, PhD, University of Virginia
 - Richard Holden, PhD, Vanderbilt University
 - Laurie Novak, PhD, Vanderbilt University
 - Tiffany Veinot, PhD, University of Michigan

To attract a diverse set of participants, the organizers used a variety of channels to recruit attendees and solicit submissions, including: (1) contacting all attendees of the workshop in the past to invite them to submit their work; (2) advertising through mailing lists, publications, and individual contacts of professional societies (e.g., AMIA, CHI, American Medical Association, IEEE Computer Society, and Cognitive Science Society); (3) advertising through relevant working-group websites (e.g., Consumer Health Informatics and Knowledge in Motion); (4) disseminating targeted advertisement to academic institutions that have established research programs in related areas; and (5) advertising at the upcoming conferences related to interactive systems in healthcare (e.g., CHI 2013, and International Health Informatics Conference 2013) through announcements and printed workshop flyers.

Results

The WISH 2013 workshop has received a total of 26 paper submissions, among them 24 were poster submission, and two were panels. Each submission has been reviewed by

at least two steering committee members, and the comments were provided to authors to improve their final camera-ready submissions. 21 of posters and two panels were accepted to the formal workshop program. All accepted submissions were posted on the WISH 2013 website, and also included in the workshop proceeding. The two accepted panels were included and presented in the WISH program. Interactive posters were demonstrated during an evening poster reception where authors interacted and discussed their work with other workshop participants. To recognize authors' excellent contribution to the program, the organizing committee has also selected one best paper, and two honorable mentions based on reviewers' comments.

Best paper

- Jochen Meyer, Elif Çakır Turgut, Tobias Feith, Susanne Boll. *Fast Food: A quick-pick approach for a nutrition diary*. OFFIS, Oldenburg, Germany; Carl von Ossietzky University, Oldenburg, Germany

Honorable mentions

- Zhe Zhang, Timothy Bickmore, Rebecca Silliman, Michael Paasche-Orlow. *Who Responds Best to a Virtual Exercise Coach? Demographics and Patterns of Use as Predictors of Outcome*. College of Computer and Information Science, Northeastern University, Boston University School of Medicine
- Gabriela Marcu, Hayden Demerson, Chanamon Ratanalert, Cristina Shin, Anu Jayasinghe, Anind Dey, Sara Kiesler. *Designing for Collaborative Reflection*. Carnegie Mellon University, Pittsburgh, PA Designing for Collaborative Reflection

As a tradition, the WISH workshop has been featuring a mentoring program for junior researchers and students to receive mentorship from senior researchers in the field since 2010, this year the call for mentoring program attracted 28 applications from six different countries. After a carefully review of applicants' background and interests, we were able to officially accept eight mentees to attend the WISH mentoring program. According to their interests and backgrounds, each mentee was paired with a mentor from the WISH steering committee prior to the workshop. All mentees had one-on-one meetings with their mentors during WISH and AMIA conference to discuss potential interests, career opportunities and other research related issues. After WISH, mentees were encouraged to continue the dialogue with their mentors. The mentor program received huge success and many students enjoyed the precious mentoring time with senior researchers in the field. In addition to the eight funded mentees, five other applicants also decided to attend the WISH workshop in order to enjoy the benefits of networking and interacting with WISH mentors. In the future, we hope to broaden the mentor program, and to support more junior researchers to participate in this highly successful program.

In addition to the regular program, the WISH 2013 workshop also hosted 10 students from the *AMIA Doctoral Consortium on Sociotechnical Issues in Medical Informatics*. Students from the Doctoral Consortium program were invited to demonstrate their dissertation research in the evening poster session, and to join the WISH mentoring program.

The benefits of WISH 2013 to society and to the biomedical informatics, public health, and HCI research communities are substantial. Overall, this workshop

contributes both *short* and *long-term* benefits to the community. In the short term, workshop participants, particularly the presenting participants, received feedback to help improve their project and the knowledge. In the long term, we expect that WISH participants will give back to the community by engaging more individuals in research involving Interactive Systems and Healthcare. Furthermore, we hope that government agencies—including funding, policy, and service agencies such as the Agency for Healthcare Research and Quality (AHRQ)—will find the research presented at the workshop useful to help inform future research directions.

4. List of Publications and Products

- Workshop on Interactive Systems in Healthcare (WISH) 2013: Bridging Communities WISH 2013. <http://wish2013workshop.wordpress.com/>
- WISH 2013 downloadable proceeding. http://wish2013workshop.files.wordpress.com/2013/09/wish2013_proceedings_v2.pdf