3rd Symposium on Computing and Mental Health: Understanding, Engaging, and Delighting Users

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CHI'18 Extended Abstracts, April 21–26, 2018, Montreal, QC, Canada

ACM ISBN 978-1-4503-5621-3/18/04.
https://doi.org/10.1145/3170427.3170665

Abstract
The World Health Organization predicts that by the year 2030, mental illnesses will be the leading disease burden globally. Advances in technology create opportunities for close collaboration between computation and mental health researchers. The intersection between ubiquitous computing and sensing, social media, data analytics and emerging technologies offers promising avenues for developing technologies to help those in mental distress. Yet for these to be useful and usable, human-centered design and evaluation will be essential. The third in our series of Symposia on Computing and Mental Health will provide an opportunity for researchers to come together under the auspices of CHI to discuss the design and evaluation of new mental health technologies. Our emphasis is on understanding users and how to increase engagement with these technologies in daily life.

Author Keywords
Mental Health; Positive Computing; E-health;

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

Dates at a glance:

Submission deadline:
2 February 2018

Acceptance notification:
22 February 2018

Symposium:
22 April 2018

Special issue papers due to JMIR by Jan 2019

Background

There is increasing focus within the Human-Computer Interaction community on the impact of technology design on users' mental health, be this via deliberately crafted intervention or an unintended consequence of using the technology. Advances in mobile, wearable and social computing have enabled new forms of active and passive monitoring of human behavioral footprints, creating the potential to "detect" when intervention is required and to "deliver" appropriate and effective technology-mediated intervention [6; 13; 14]. Technology can enhance human wellbeing through social connection [1] and professional and peer support [11], though the relationship between social media and mental health is complex [12]. There are opportunities to explore new types of intervention using emerging technologies such as chatbots [9] and virtual reality [10].

Growing interest in the intersection of computing and mental health is evidenced in the growth of specialist journals such as *JMIR Mental Health*, which has published over 100 articles since 2014 on "Internet interventions, technologies and digital innovations for mental health and behavior change" (http://mental.jmir.org/). There has been significant interest also in traditional HCI forums, such as a special issue of *Interacting with Computers* [7] and several sessions at CHI 2017.

Effective leveraging of technology for mental health depends on good human-centered analysis and design, to understand the needs of the target population and to design effective and engaging technological support for mental health. The evaluation of technologies to support mental health has also proved challenging [4]. These challenges underline the importance of utilizing established methods in Human-Computer Interaction, such as contextual and participatory design and in-the-wild, longitudinal studies, to deeply understand the intended populations prior to the design and deployment of technologies, and ideally, to include them in design [8; 15]. HCI methods should inform factors that are becoming increasingly important in health applications, such as user autonomy and agency [5].

In line with CHI 2018's theme of "Engage", this Symposium on Computing and Mental Health provides an opportunity for researchers in clinical psychology, technology design, data analytics and computer science to come together under the umbrella of HCI, as depicted in Figure 1. The Symposium provides researchers and practitioners from academia, government, not-for-profit organizations and industry who are interested in computing for mental health with a forum to bring their ideas, projects and questions on how these disciplines can collaborate to create effective mental health technologies.

Prior symposia in this series

The first CHI Workshop on Computing and Mental Health [2], held in San Jose, CA, on May 7th, 2016, focused on bringing together clinical psychology and computation communities to discuss the use of wearable computing, online communities and social networks to improve mental health at individual, group and population levels. Submissions were clustered into three categories: prevention and treatment of mental health conditions and promotion of positive mental health [3].

The response to our call for papers was overwhelming, with close to 80 submissions and a final accepted-papers tally of 12 full presentations and 16 poster presentations after a three-person blind review process. Attendees elected to discuss five themes in structured workshops: entrepreneurship, publishing, funding, theoretical frameworks, and outcomes. Over 100 people attended, with feedback showing a strong desire to continue the workshop in the coming years to sustain this growing community, and agreement on the need for human-computer interaction methods and human-centric design in mental health applications. As a result of this positive feedback, we organized the 2nd Symposium on Computing and Mental Health at CHI 2017 in Denver. This was again very successful, with 19 papers and 30 posters accepted and 72 attendees.

Designing a multi-disciplinary symposium

The first two symposia on Computing and Mental Health have shown that we can bring together leading researchers and practitioners in computer science, human-computer interaction and mental health, along with a sizable presence of clinical psychologists, psychiatrists and those with lived experience. This represents a thriving community, a "new partnership between psychology, social sciences and technologists" [4] that is important to nurture and grow.

We have designed a symposium that supports our diverse community. We achieve this via a number of features. For example, we offer opportunities for attendees to network over lunch and two coffee breaks accompanied by poster presentations. We respond to feedback from earlier symposia by increasing the opportunities to meet colleagues with similar interests via a panel discussion, an open discussion session, and a group design exercise which will introduce HCI approaches to interdisciplinary colleagues. The symposium website supports networking by publishing a CV from each attendee before the event begins.

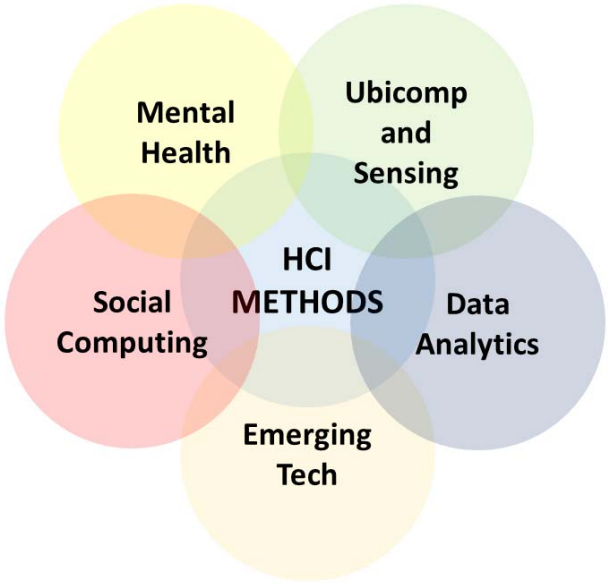

Figure 1: This symposium focuses on bringing together researchers in multiple disciplines, under the auspices of HCI, to discuss the effective development and evaluation of mental health technologies and interventions.

We also support the research community by organizing special issues in the highly-ranked multi-disciplinary journal *JMIR*, which has motivated high-quality submissions from a broad range of researchers. One special issue has been published, and another is planned for 2019; these act as a compendium of representative work presented in the field.

Structure at a glance:

9-9:30: Introduction & Welcome

9:30-10:30: 2 Invited speakers: 30min each

10:30-11: Coffee break and poster session

11-12: group design exercise

12–1:30 Lunch + posters

1:30-2: 10 x 3 minute presentations

2-2:30: 3rd Invited speaker

2:30–3:30: Panel discussion

3:30-4: Coffee + posters

4-5. Structured discussion on themes chosen by attendees.

Furthermore, problems concerning publishing and venues for dissemination were discussed at the last symposium. It is a major challenge to find the right interdisciplinary venue. Therefore, we have invited the editors of the leading journals HCI (Prof Whittaker) and JMIR (Prof Eysenbach) to present at the symposium.

Focus for 2018

The field of Computing for Mental Health has expanded rapidly, with work undertaken in a variety of disciplines, addressing a range of conditions, and utilizing a wide range of existing and emerging technologies. The multi-disciplinary nature of the field brings an essential variety of perspectives to this important endeavor. Yet since we are convening at CHI, it is worth considering what value the HCI perspective brings to the mix. In the context of mental health, the value of an HCI approach lies in its focus on understanding the users of mental health technologies, their context of use, and how therapeutic technology is used in daily life, as well as on the importance and methods of design.

It is important that technologies be engaging and usable over long durations that match the chronic nature of many mental illnesses. HCI's emphasis on understanding the user lends itself naturally to a focus on understanding the needs and ensuring the inclusion of disadvantaged groups. Important communities whose experiences can be better understood through a human-centered approach include:

- The young and the elderly
- Immigrants and refugees
- Indigenous and minority groups
- People experiencing addiction, homelessness or poverty.

Successful design and implementation of technology for mental health requires that accessibility, inclusion and non-stereotypical user needs and use contexts be addressed. This perspective will hopefully lead to new solutions and an expansion of mental health technologies to these new, diverse communities.

We will also focus on delighting users – transforming computing for mental health resources into tools that motivate people to use them because they are offer great experiences, being fun, playful, meaningful or beautifully designed. Translating delight into mental health is certainly a challenge, but the intersection of HCI, psychology, psychiatry, business and academia that this symposium brings together is well positioned to tackle it.

Organizers

Our team of four organizers, working in the Asia-Pacific and North American regions, represent a range of relevant backgrounds and interests.

Greg Wadley (main contact) is a lecturer in the School of Computing and Information Systems at the University of Melbourne, Australia. His research involves the design and evaluation of technologies for health and wellbeing, including collaborative projects in the areas of mental health, social connectedness, hospitalized children, smoking cessation, chronic pain and addiction. He holds degrees in computer science (Queensland), cognitive science (Melbourne), and human-computer interaction (Melbourne). Since 2009 a major focus has been collaborating with an Australian youth mental health clinic to design and trial online social therapies for young people and their carers.

Rafael A Calvo is Professor at the University of Sydney, and ARC Future Fellow. He worked at the Language Technology Institute in Carnegie Mellon University, Universidad Nacional de Rosario (Argentina) and on sabbaticals at the University of Cambridge and the University of Memphis. Rafael also has worked as an Internet consultant for projects in the US, Australia, Brasil, and Argentina. He is the author of two books and over 100 publications in the fields of learning technologies, affective computing and computational intelligence. Rafael is Associate Editor of the *Journal of Medical Internet Research Human Factors* (JMIR-HF), co-Editor of the *Oxford Handbook of Affective Computing*, and co-author of *Positive Computing* (MIT Press) with Dorian Peters.

John Torous, MD is co-director of the digital psychiatry program at Beth Israel Deaconess Medical Center, a Harvard Medical School affiliated teaching hospital, where he also serves as a staff psychiatrist and clinical informatics fellow. He has a background in electrical engineering and computer sciences and received an undergraduate degree in the field from UC Berkeley before attending medical school at UC San Diego. He completed his psychiatry residency at Harvard. Dr. Torous is active in investigating the potential of mobile mental health technologies for psychiatry, developing smartphone tools for clinical research, leading clinical studies of smartphone apps for diverse mental illnesses, and publishing on the research, ethical, and patient perspectives of digital psychiatry. He serves as editor-in-chief for *JMIR Mental Health* and currently leads the American Psychiatric Association's work group on the evaluation of smartphone apps.

Mary Czerwinski is an American cognitive scientist and computer-human interaction expert who works for Microsoft Research as manager of their research group on visualization and interaction. Czerwinski earned her doctorate in cognitive psychology from Indiana University. She worked in computer-human interaction for Bellcore, the Johnson Space Center, and Compaq, and also held an adjunct position at Rice University while at Compaq. She moved to Microsoft in 1996, as a usability manager in product development. Two years later, she joined Microsoft Research. She is an adjunct professor in the University of Washington's Information School. In 2015 she was named a Fellow of the Association for Computing Machinery "for contributions to human-computer interaction and leadership in the CHI community."

Website

A website at http://mentalhealth.media.mit.edu is being used to store the proceedings from 2016 and 2017. We will use this again in 2018.

EasyChair will be used to manage short paper and poster submissions. Long papers will be selected from those accepted for publication in JMIR, the highest ranked journal in medical informatics.

All position papers, project descriptions and videos will be published on the symposium website before the symposium gets underway.

Pre-Workshop Plans

Based on the past two years, we expect this symposium to attract a large number of attendees. Most participants will be researchers, developers and mental health professionals, and will not give

presentations. In lieu of oral presentations, these participants, selected through review, will be encouraged to create a short 1-minute video based on their position paper.

Videos and papers will be distributed via the symposium website. The website will also contain information about all participants in the symposium to support building community.

We will choose discussion themes ahead of time via an online poll to be completed by attendees two weeks before the symposium.

Workshop Structure

This one-day symposium is organized around the following structure:

- Introduction & Welcome (9 - 9:30 am)
- 2 Invited speakers: 30min each (9:30 - 10:30)
- Coffee break and poster session (10:30 - 11)
  Posters to be placed around the room.
- Design exercise in small groups (11 – 12)
- Lunch + posters. (12 – 1:30pm)
- 10 x 3 minute presentations (1:30 – 2pm)
- 3rd Invited speaker (2 – 2:30 pm)
- Panel discussion: “Is technology the answer? Critical and ethical views.” (2:30 – 3:30)
- Coffee break and poster session (3:30 - 4)
- Structured discussions on themes chosen by attendees. Open discussion on moving the community forward. (4 - 5pm)

Speakers and panelists

Each of the earlier Symposia on Computing and Mental Health has invited prominent researchers from a range of disciplines to give keynote presentations and take part in discussions. This year’s symposium will feature three speakers chosen to represent different HCI and mental health research communities, including local voices and a focus on interdisciplinary publishing. We have confirmed participation by the following distinguished speakers:

- Steve Whittaker, UC Santa Cruz
- Shalini Lal, University of Montreal
- Gunther Eysenbach, University of Toronto

Steve Whittaker is Professor of Psychology at UCSC. He works at the intersection of Psychology and Computer Science. He studies how technology is affecting fundamental aspects of our everyday lives, using insights from Cognitive and Social Science to design new digital tools to support well being and to help manage personal information. His past research has been funded by the EU, NSF, EPSRC, Google and Microsoft, and he has worked at Bell Labs, IBM Labs and HP Labs. He is Editor of *Human Computer Interaction*. His awards include a Lifetime Research Achievement Award from the Association of Computation Machinery Computer Human Interaction Society, and he is an ACM Fellow.

Shalini Lal is Principal Scientist and Assistant Professor a the School of Rehabilitation, Faculté de Médecine, Université de Montréal. She works on improving access and quality of youth mental health interventions and services, including e-mental health services. She is a Principal Lead of ACCESS-Canada, a pan-Canadian network that is implementing and evaluating service transformation in youth mental health at sites across Canada.

Gunther Eysenbach conducts research into healthcare, health policy, eHealth, and consumer health informatics. He is senior scientist at the Centre for Global eHealth Innovation at the University Health Network (Toronto) and associate professor in the Institute of Health Policy, Management and Evaluation at the University of Toronto. He is editor-in-chief of the *Journal of Medical Internet Research* (JMIR) and organizer of the annual *Medicine 2.0 Congress*.

Post-Workshop Plans

Our 2nd special issue of JMIR will be published in time for the anticipated 2019 symposium and consist of full versions of papers presented at the 2018 symposium. See call-for-papers at http://www.jmir.org/announcement/view/157 .

We will engage with members of the public by writing a summary of the symposium for the popular press. We have created a LinkedIn group to support an ongoing interdisciplinary community. We will discuss with participants their desires regarding further symposia. We anticipate that the symposium will continue to run in 2019.

250-word Call for Participation

The World Health Organization predicts that by the year 2030, mental illnesses will be the leading disease burden globally. Advances in technology create opportunities for collaboration between computation and mental health researchers to develop technologies to help those in mental distress. Yet for mental health technologies to succeed, human-centered design and evaluation will be essential.

This 3rd Symposium on Computing and Mental Health will provide an opportunity for researchers to meet under the auspices of CHI 2018. It follows two successful symposia at CHI 2016 and 2017.

In convening at CHI, we are especially interested in work that seeks to understand users and contexts. This lends itself naturally to a focus on disadvantaged groups and social inclusion.

Four kinds of submission are invited.

- *Short papers* are expected to be developed later for inclusion in a special issue of JMIR, to be published in May 2019. Authors will present a poster at the symposium.
- *Long papers* should be submitted straight to JMIR. Authors will be invited to give a presentation at the symposium.
- *Posters* describe work-in-progress, a technology, or an existing publication.
- *Social* papers are maximum one page in length and act as a CV for networking.

Short papers will be made available via the symposium website. Submissions will be managed via Easychair. Our earlier special issue of JMIR is available at http://www.jmir.org/themes/461 . For more details please see: http://MentalHealth.media.mit.edu/.

Important Dates:

- Submission deadline: 2 February 2018
- Acceptance notifications: 22 February 2018
- Symposium: 22 April 2018
- Special issue papers due by: Jan 2019

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