Raju Maharjan

maharrx@gmail.com +4591862561 rajumaharjan.com

PROFILE

Having submitted my Ph.D. thesis recently, I am looking for new research opportunities to contribute within the areas of Human-Computer Interaction (HCI), Ubiquitous Computing (UbiComp) to support health and wellbeing. I have a strong background in mixed-method research design and more than 10 years of UI/UX design experience in various sectors.

EDUCATION

Ph.D. in Digital Health Technology, Technical University of Denmark [12/2021 (Expected)]
Dissertation Title: Speech-Enabled Coversational Agents to Support the Self-Report of Mental Health & Wellbeing
Supervisors: Jakob E. Bardram & Per Bækgaard

MA in Web & Multimedia Design, Touro College, NY [01/2017]

BSc. in Dynamic Web Design, The City University of New York, NY, Magna Cum Laude [06/2013]

AAS. in New Media Technology, The City University of New York, NY [08/2009]

SKILLS

Prototyping

Conversational Agents, Chatbots, Mobile apps, Web apps, 3D Models

Design

Dialogflow, Figma, Axure, Illustrator, Photoshop, Indesign, After Effects, Premiere Pro, Autodesk Maya

Development

Javascript, PHP, HTML, CSS, MySQL/NoSQL, Java

Data Analysis

R, Text Mining, Topic Modeling, MS Excel, Python, Thematic Analysis

AWARDS & HONORS

Thomas W. Smith Fellowship, The City University of New York, NY [2012 – 2013]

Promise Prize, Code for Change, New York University, NY [12/12/2012]

STUDENT SUPERVISION

Chen Wang, MSc., Digital Media Engineering, Technical University of Denmark [07/2019 – 12/2019]

TEACHING EXPERIENCE

Personal Data Interaction for Mobile & Wearables, Technical University of Denmark [01/2019 – 03/2019]

User Experience Engineering, DTU [01/2019 – 01/2019]

User Experience Design Prototyping, Technical University of Denmark [09/2018 – 11/2018]

Technology Mentor, The City University of New York Research Foundation [07/2007 – 05/2008]

RESEARCH EXPERIENCE

Sofia [08/2019 – Present]

As a part of a larger project that aims to improve the quality of life of people living with mental illness, two distinct empirical studies were carried out.

The first study developed a questionnaire-driven conversational agent with state-based and free-form conversational designs and evaluated the accuracy of the self-reports by contrasting 59 participants' responses via each conversational design compared to the paper-based responses to the same questionnaire in a lab setting.

The second study developed a conversational agent that enabled daily self-report of wellbeing by asking three open-ended questions and an additional questionnaire fortnightly; then evaluated the ecological validity of the system in supporting the self-report of mental health and wellbeing by conducting a four-week mixed-method field deployment study during which 20 people living with affective disorders used the system daily to self-report about their wellbeing.

mCardia [02/2018 – 07/2019]

The goal of this research project was to design a smartphone-based ambulatory heart monitoring system.

Adopting the user-centered design approach, a series of interviews and co-design workshops with both patients and clinicians were conducted to developed a Requirement Analysis Document (RAD).

According to the requirements, the prototype of the *mCardia* system was designed. It included (i) a patient-facing mobile app that enabled real-time reflection on the cardiovascular data such as Heart Rate (HR), HR Variability, and MET level collected via a two-channel Holter device and contextual information, including sleep and step count and (ii) a web app that allowed clinicians to analyze and annotate the ECG data with the contextual information.

Artbox [06/2011 – 01/2012]

Artbox is an NSF-funded app development project with an aim to create an engaging online community of artists and art enthusiasts. The challenge was to engage a diverse group of users, help them make connections with each other, and encourage them to keep coming back to the app.

Conducted semi-structured interviews with artists and patrons to investigate how they use technology and social media to interact with art.

Conducted competitor analysis and visited museums, auction houses, and art exhibitions to conceptualize the business model of the app.

Based on the findings, a unique concept of a local, social, and mobile app was developed.

PROFESSIONAL EXPERIENCE

Frontend Developer, Google, CA [10/2017 – 01/2018]

UI/UX Engineer, Abbott Point of Care, NJ [03/2015 – 08/2017]

Frontend Developer, Harland Clarke, TX [08/2013 – 07/2014]

Frontend Developer, NYC Human Resource Administration, NY [04/2012 – 05/2012]

Director of Technology, Artbox – NYC College of Technology, NY [06/2011 – 01/2012]

Web Designer & Developer, NYC College of Technology, NY [04/2011 – 01/2012]

Web Developer, IBREA Foundation, NY [11/2009 – 09/2010]

Web Developer, Iced Media and Boom Digital Ventures, NY [11/2009 – 10/2010]

PAPER REVIEWING

ACM International Symposium on Wearable Computers (ISWC) [2021]

ACM Conference on Human Factors in Computing Systems (CHI) [2019 – 2020]

EAI International Conference on Pervasive Computing Technologies for Healthcare [2020]

COMMUNITY ACTIVITIES

Paper Presentation, CUI 21, Conversational User Interfaces 2021

Student Volunteer, Ubicomp 2019, Conference on Ubiquitous, Pervasive and Wearable Computing

Summer School, Humanistic HCI, UBISS '18, 9th International UBI Summer School 2018

Workshop Presentation, UbiComp 2018, Conference on Ubiquitous, Pervasive and Wearable Computing

Poster Presentation, Mobile HCI 2018

PUBLICATIONS

Journals

Raju Maharjan, Kevin Doherty, Darius Adam Rohani, Per Bækgaard, and Jakob E. Bardram. 2021. Experiences of a Speech-Enabled Conversational Agent for the Self-Report of Wellbeing Among People Living with Affective Disorders: An In-The-Wild Study. *ACM Trans. Interact. Intell. Syst.* DOI:https://doi.org/10.1145/3484508 [ACCEPTED]

Devender Kumar, **Raju Maharjan**, Alban Maxhuni, Helena Dominguez, Anne Frølich, and Jakob E. Bardram. 2021. mCardia: A Context-Aware Ambulatory ECG Collection System for Arrhythmia Screening. *ACM Trans. Comput. Healthcare* [ACCEPTED]

Conferences

Raju Maharjan, Darius Adam Rohani, Per Bækgaard, Jakob Bardram, and Kevin Doherty. 2021. Can we talk? Design Implications for the Questionnaire-Driven Self-Report of Health and Wellbeing via Conversational Agent. *CUI 2021 - 3rd Conference on Conversational User Interfaces*. Association for Computing Machinery, New York, NY, USA, Article 5, 1–11. DOI:https://doi.org/10.1145/3469595.3469600

Giovanna Nunes Vilaza, **Raju Maharjan**, David Coyle, and Jakob Bardram. 2020. Futures for Health Research Data Platforms From the Participants' Perspectives. In *Proceedings of the 11th Nordic Conference on Human-Computer Interaction: Shaping Experiences, Shaping Society* (*NordiCHI '20*). Association for Computing Machinery, New York, NY, USA, Article 39, 1–14. DOI:https://doi.org/10.1145/3419249.3420110

Conference Workshops

Raju Maharjan, Per Bækgaard, and Jakob E. Bardram. 2019. "Hear me out": smart speaker based conversational agent to monitor symptoms in mental health. In *Adjunct Proceedings of the 2019 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2019 ACM International Symposium on Wearable Computers* (*UbiComp/ISWC '19 Adjunct*). Association for Computing Machinery, New York, NY, USA, 929–933. DOI:https://doi.org/10.1145/3341162.3346270

Raju Maharjan, Per Bækgaard, and Jakob E. Bardram. 2018. Leveraging Multi-modal User-labeled Data for Improved Accuracy in Interpretation of ECG Recordings. In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers* (*UbiComp '18*). Association for Computing Machinery, New York, NY, USA, 636–641. DOI:https://doi.org/10.1145/3267305.3267548

Pegah Hafiz, **Raju Maharjan**, and Devender Kumar. 2018. Usability of a mood assessment smartphone prototype based on humor appreciation. In *Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services Adjunct* (*MobileHCI '18*). Association for Computing Machinery, New York, NY, USA, 151–157. DOI:https://doi.org/10.1145/3236112.3236134