Raju Maharjan

Technical University of Denmark, Ørsteds Plads, 345B, 258, 2800 Kgs. Lyngby, Denmark
maharrx@gmail.com +4591862561 www.rajumaharjan.com

PROFILE

I am a postdoctoral researcher at the Technical University of Denmark, DTU management. My current research focuses on conversational interaction design to improve patients' engagement with an exoskeleton-based stroke rehabilitation system. My research areas of interest include human-centered design, health & wellbeing technologies, conversational agents, and information visualization.

EDUCATION

11/2021	Ph.D., **Digital Health Technology**, Technical University of Denmark Title: Speech-Enabled Conversational Agents to Support the Self-Report of Mental Health & Wellbeing Supervisors: Jakob E. Bardram & Per Bækgaard
01/2017	MA, Web & Multimedia Design, Touro College, NY
06/2013	BSc, Dynamic Web Design, The Graduate Center, The City University of New York
08/2009	AAS, New Media Technology, LaGuardia Community College, The City University of New York

AWARDS & HONORS

2012 – 2013	**Thomas W. Smith Fellowship**, The City University of New York, NY
12/12/2012	**Promise Prize**, Code for Change, New York University, NY

RESEARCH EXPERIENCE

12/2019 – Present **Postdoctoral Research**, Project ReHyb

This project aims to help the rehabilitation of stroke patients through an exoskeleton system. I am employing strategies of verbal persuasion by integrating speech interaction into the system and investigating its effect on user engagement and motivation to use the system.

08/2019 – 11/2021 **Ph.D. Research**, Project SOFIA

This research project that aims to improve the quality of life of people living with mental illness. As a part of the research, I investigated the feasibility of a speech-enabled conversational agent to support the self-report of mental health and wellbeing by assessing its capacity to accurately capture the wellbeing self-reports in compared to the paper based method, understanding users' perception of the system's usability, and comparing users' engagement and experiences with the agent vs. traditional web-based app.

02/2018 – 07/2019 **User Research & System Design**, Project mCardia

The goal of this highly interdisciplinary research project was to design, develop, and evaluate the clinical feasibility of a smartphone-based ambulatory heart monitoring system. Adopting the user-centered design approach, I designed the prototype of the mCardia system which included patient-facing mobile app that enabled real-time visualization of the cardiovascular data (e.g., Heart Rate (HR), Heart Rate Variability (HRV), and Electrocardiogram (ECG) data collected via a two-channel Holter device and contextual information such as patient self-reports) and a web application that allowed clinicians to analyze and annotate the ECG data with the contextual information.

06/2011 – 01/2012 **Director of Technology**, Artbox

Artbox is an National Science Foundation (NSF)-funded app development project with an aim to create an engaging online community of artists and art enthusiasts. My role was to research mobile technology and propose features to engage a diverse group of users, help them make connections with each other, and encourage them to keep coming back to the app. To do so, we conducted semi-structured interviews with artists and patrons to investigate how they use technology and social media and visited museums, auction houses, and art exhibitions to conceptualize the app's business model.

TEACHING EXPERIENCE

Student Supervision, Technical University of Denmark

07/2019 – 12/2019 Chen Wang, MSc, Digital Media Engineering

Teaching Assistant, Technical University of Denmark

01/2019 – 03/2019 Personal Data Interaction for Mobile & Wearables

01/2019 – 01/2019 User Experience Engineering

09/2018 – 11/2018 User Experience Design Prototyping

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 Health* [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

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

PAPER REVIEWING

2019 – Present	ACM Conference on Human Factors in Computing Systems (CHI)
2021	ACM International Symposium on Wearable Computers (ISWC)
2020	EAI International Conference on Pervasive Computing Technologies for Healthcare

COMMUNITY ACTIVITIES

2019	Student Volunteer, Conference on Ubiquitous, Pervasive and Wearable Computing (Ubicomp)
2018	Summer School, Humanistic HCI, UBISS '18, 9th International UBI Summer School

PROFESSIONAL EXPERIENCE

10/2017 – 01/2018	Frontend Developer, Google, CA
03/2015 – 08/2017	UI/UX Engineer, Abbott Point of Care, NJ
08/2013 – 07/2014	Frontend Developer, Harland Clarke, TX
04/2012 – 05/2012	Frontend Developer, HIV/AIDS Services, NYC Human Resource Administration, NY
06/2011 – 01/2012	Director of Technology, Artbox – NYC College of Technology, NY
04/2011 – 01/2012	Web Designer & Developer, NYC College of Technology, NY
11/2009 – 09/2010	Web Developer, IBREA Foundation, NY
11/2009 – 10/2010	Web Developer, Iced Media and Boom Digital Ventures, NY
07/2007 – 05/2008	Technology Mentor, The City University of New York Research Foundation, NY

SKILLS

Prototyping	Conversational Agents, Chatbots, Mobile Application, Web Application, 3D Models
Design	Dialogflow, Figma, Axure, Illustrator, Photoshop, Indesign, After Effects, Premiere Pro, Maya
Development	Javascript, PHP, HTML, CSS, MySQL/NoSQL, Java
Research	Qualitative, Quantitative & Mixed-Method Study Design, User-Centered Design, Design Thinking, Participatory Design, Survey, Workshop, Interviews, Focus Groups
Data Analysis	Text Mining, Topic Modeling, Data Visualization, Thematic Analysis, R, Python, MS Excel