

# Tamanna Motahar

PHD STUDENT · SCHOOL OF COMPUTING

University of Utah

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## Research Statement

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My research interest sits broadly at the intersection of Human Computer Interaction (HCI), Personal Informatics, and Accessibility. Through a user-centric approach, my research aims to understand how Personal Informatics can better help individuals with severe motor disabilities; particularly those who have sustained spinal cord injuries and use powered wheelchairs for mobility. As a researcher, my goal is to design accessible technologies to impact and empower marginalized populations worldwide with their personal data.

## Education

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### University of Utah

PHD IN COMPUTING [FOCUS AREA: HUMAN CENTERED COMPUTING]

- CGPA: 3.97/4.00
- Advisor: Dr. Jason Wiese

Salt Lake City, Utah, USA

2020 - present

### University of Alberta

M. ENG. IN ELECTRICAL AND COMPUTER ENGINEERING

Edmonton, AB, Canada

2011 - 2015

### North South University

M. SC. IN ELECTRONIC AND TELECOMMUNICATION ENGINEERING

Dhaka, Bangladesh

2007 - 2010

### American International University Bangladesh

B.Sc. IN COMPUTER ENGINEERING

- Vice Chancellor's Gold Medal, *Summa Cum Laude*
- CGPA: 3.91/4.00

Dhaka, Bangladesh

2002 - 2006

## Awards, Fellowships and Travel Grants

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- 2022 **Gary Marsden Travel Award for CHI2022**, ACM SIGCHI
- 2022 **Cultural Competence in Computing (3C) Fellowship**, Duke University
- 2021 **Tapia Scholarship**, ACM Richard Tapia Celebration of Diversity in Computing
- 2021 **Rising Star**, ACM-W Asia Pacific
- 2019 **Grace Hopper Scholar**, Grace Hopper Conference, Orlando, Florida
- 2019 **CICS Fellowship Award**, (top 1% of new graduate students), University of Massachusetts Amherst
- 2019 **Runner Up, Facebook Global Literacy and Accessibility Research Proposal**, FaceBook
- 2018 **Junior Faculty Travel Grant**, ACM Ubicomp/ISWC Conference'18, Singapore
- 2018 **Best Poster Award**, HCI across Borders, ACM CHI Conference'18, Montreal, Canada
- 2018 **Participant Grant**, ACM SIGCHI Across Borders Initiatives, Swansea, UK
- 2018 **Travel Grant**, ACM SIGCHI Summer School, HCI Research and UX Design, IIT Bombay, India
- 2017 **Research Travel Grant**, North South University, Bangladesh, for BIBE conference in Washington DC
- 2006 **Vice Chancellor's Gold Medal for Academic Excellence**, 6th convocation, American International University- Bangladesh
- 2006 **Summa Cum Laude**, 6th convocation, American International University- Bangladesh
- 2002 - 2006 **Merit Scholarship (100%)**, American International University- Bangladesh

## Publications

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### JOURNAL PAPERS [PEER-REVIEWED]

- J4. **Tamanna Motahar**, Jason Wiese. 2022. A Review of Personal Informatics Research for People with Motor Disabilities. In *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) 6, 2, Article 66 (July 2022)*
- J3. Nova Ahmed, Lamia Iftekhhar, Mahbuba Tasmin, Tamanna Urmi, Silvia Ahmed, **Tamanna Motahar**. "Challenges for women in computing in Bangladesh considering the learning and workplace environment over a period of eight years." *Springer Nature Social Sciences 2*, no. 10 (2022): 1-24.
- J2. Iman Deznabi, **Tamanna Motahar**, Ali Sarvghad, Madalina Fiterau, Narges Mahyar. 2021. Impact of the COVID-19 Pandemic on the Academic Community Results from a survey conducted at University of Massachusetts Amherst. In *ACM Transactions on Digital Government: Research and Practice*, 2(2), 1-12, 2021
- J1. Nahian Ahmed, Naimul Islam, Ferdous Hasan, **Tamanna Motahar**, Mohammad Sujauddin. 2019. Understanding the political ecology of forced migration and deforestation through a multi-algorithm classification approach: The case of Rohingya displacement in the southeastern border region of Bangladesh. *Geology, Ecology, and Landscapes*, 3, no. 4 (2019): 282-294

### CONFERENCE PAPERS [PEER-REVIEWED]

- C9. **Tamanna Motahar**, Isha Ghosh, Jason Wiese. 2022. Identifying factors that inhibit self-care behavior among individuals with severe spinal cord injury. In *Proceedings of the ACM Conference on CHI Conference on Human Factors in Computing Systems*, pp. 1-16. 2022 (**Acceptance Rate 24%**)
- C8. Mahbuba Tasmin, Nova Ahmed, **Tamanna Motahar**. 2019. Gender Disparity in Computer Science Education in Bangladesh: A Study of Women's Participation in Computer Science. In *Proceedings of the 2019 IEEE International Conference on Engineering, Technology and Education (TALE)*, pp. 1-7. IEEE, 2019
- C7. Kimia T. Zaman, Wordh U. Hasan, Lubaba Bazlul, **Tamanna Motahar**, Nova Ahmed. 2019. Exploring challenges and solution approaches regarding wellbeing of female rohingya community in Bangladesh. In *Proceedings of the IEEE conference on TENCON 2019-2019 IEEE Region 10 Conference (TENCON)*, pp. 361-366. IEEE, 2019
- C6. **Tamanna Motahar**, Md F.Farden, Dibya P. Sarkar, Md A. Islam, Maria E. Cabrera, Maya Cakmak. 2019. SHEBA: A Low-Cost Assistive Robot for Older Adults in the Developing World. In *Proceedings of the 2019 28th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, pp. 1-8. IEEE, 2019
- C5. Jafrul I. Sojol, Md S. Alam, Nazmul Hossain, **Tamanna Motahar**. 2019. Smart School Bus: Ensuring Safety On The Road For School Going Children. In *Proceedings of the 2019 21st International Conference on Advanced Communication Technology (ICACT)*, pp. 734-739. IEEE, 2019
- C4. Dibya P. Sarkar, Md F. Farden, Md A. Islam, Rahat J. Rony, **Tamanna Motahar**. 2019. A Low-cost Healthcare Bot for Elderly People. In *Proceedings of the 2019 Joint 8th International Conference on Informatics, Electronics Vision (ICIEV) and 2019 3rd International Conference on Imaging, Vision Pattern Recognition (icIVPR)*, 2019, pp. 18-23
- C3. Mahmudur Rashid, SM A. Ahad, Shahida Siddique, **Tamanna Motahar**. 2019. Smart Warehouse Management System with RFID and Cloud Database. In *Proceedings of the 2019 Joint 8th International Conference on Informatics, Electronics Vision (ICIEV) and 2019 3rd International Conference on Imaging, Vision Pattern Recognition (icIVPR)*, 2019, pp. 218-222
- C2. Mostafa D. Mahdi, Zahid H. Anik, Rahbar Ahsan, **Tamanna Motahar**. 2018. EZ parking: smart parking space reservation using internet of thingsy. In *Proceedings of the 2018 International Conference on Advanced Computer Science and Information Systems (ICACSIS)* (pp. 113-118). IEEE, 2018
- C1. **Tamanna Motahar**, Rummana Rahman, Rafiya Hossain. 2017. A Simulation Study on Light Scattering Effect on Waterborne Bacteriophage Virus Using Mie Analysis. In *Proceedings of the 2017 IEEE 17th International Conference on Bioinformatics and Bioengineering (BIBE)*, pp. 255-259. IEEE, 2017

### EXTENDED ABSTRACTS [PEER-REVIEWED]

- E5. **Tamanna Motahar**, Nova Ahmed. 2022. Exploring Technology Usage of Southeast Asian Elderly Women for Better Mental Health during COVID-19 Pandemic. In *Proceedings of the CHI Conference on Human Factors in Computing Systems Extended Abstracts*, pp. 1-7. 2022 (**Acceptance Rate 36%**)
- E4. **Tamanna Motahar**, Mahmood Jasim, Syed I. Ahmed, Narges Mahyar. 2020. Exploring how international graduate students in the US Seek support. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, (pp. 1-8), 2020 (**Acceptance Rate 40%**)

- E3. **Tamanna Motahar**, Md F. Farden, Md A. Islam, Rahat J. Rony, and Dibya P. Sarkar. 2018. Mini nurse-bot: A health-care assistance for elderly people. In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (Ubicomp)*, pp. 170-173. 2018
- E2. Maliha B. Nur, **Tamanna Motahar**, Sayed I. Masud, Emrul Kaisar. 2018. RICKSHAW BUDDY: A Cost Effective Automated Auto Rickshaw Assistance System. In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (Ubicomp)*, pp. 190-193. 2018
- E1. **Tamanna Motahar**, Taskin Fatema, Rajdeep Das. 2018. Bornomala AR-bengali learning experience using augmented reality. In *Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI) Adjunct*, pp. 182-188. 2018

## WORKSHOP PAPERS [LIGHTLY PEER-REVIEWED]

- W6. **Tamanna Motahar**, Marina Kogan, Jason Wiese. 2022. Using Online Social Spaces for Information Seeking and Identity Construction for People with Spinal Cord Injuries. *CSCW 2022 Workshop: Information-Seeking, Finding Identity: Exploring the Role of Online Health Information in Illness Experience [Virtual]*
- W5. **Tamanna Motahar**, Jason Wiese. 2022. AI-driven Personal Informatics for Individuals with Severe Spinal Cord Injury. *Workshop on Personal Informatics and AI, CHI 2022, New Orleans, LA*
- W4. **Tamanna Motahar**, Jason Wiese. 2022. Designing Technology for Complex Self-care : Considerations for people with Spinal Cord Injury. *Workshop on Challenges, Tensions, and Opportunities in Designing Ecosystems to Support the Management of Complex Health Needs, CHI 2022, New Orleans, LA*
- W3. **Tamanna Motahar**, Jason Wiese. 2022. Expanding Disability Justice in HCI : Considerations of Holistic “Lived Experience”. *Workshop on Dreaming Disability Justice in HCI, CHI 2022, New Orleans, LA*
- W2. **Tamanna Motahar**. 2018. Secret Bot: A Video Streaming, Android Device Controlled Spy Robot. In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (Ubicomp)*, pp. 1789-1792. 2018
- W1. **Tamanna Motahar**. 2018. Socio-Technical Aspects of Text Entry. *Workshop on Socio-Technical Aspects of Text Entry, MobileHCI 2018* , Barcelona, Spain

## WORKSHOP CO-ORGANISED

- Maryam Bandukda, Giulia Barbareschi, Aneasha Singh, Dhruv Jain, Maitraye Das, **Tamanna Motahar**, Jason Wiese, Lynn Cockburn, Amit Prakash, David Frohlich, Catherine Holloway. 2022. A Workshop on Disability Inclusive Remote Co-Design. In ACM Conference on Computers and Accessibility, *ASSETS '22*

## PROFESSIONAL MAGAZINES

- M2. **Tamanna Motahar**, Nova Ahmed. 2021. *Activism and COVID-19: Older Southeast Asian Women Embracing Technology* 2021. UXPA User Experience Magazine, The Magazine of the User Experience Professionals Association.
- M1. Mahbuba Tasmin, Nova Ahmed, **Tamanna Motahar** 2021. *Rooting the Gender Polarity in Computer Science: A Study on Women in Computer Science Education in Bangladesh*. ACM-W Celebration, ACM-W Asia Pacific 2021.

## POSTER PRESENTATIONS

- P7. **Tamanna Motahar**. 2022. Exploring Technology Usage of Southeast Asian Elderly Women for Better Mental Health during COVID-19 Pandemic. *Late Breaking Work, CHI 2022, New Orleans, LA*
- P6. **Tamanna Motahar**. 2021. Improving Pressure Relief (PR) Adherence with Technology: A Human Centered Computing (HCC) Approach. *University of Utah CS Research Day [Virtual]*
- P5. **Tamanna Motahar**. 2019. Broadening Participation: Inclusion of Female Computing Students in Competitive Programming. *Grace Hopper Conference 2019, Orlando, FL*
- P4. **Tamanna Motahar**. 2019. Toward Designing Mental Health Solution for Female Rohingya Refugees. *HCI Across Borders, CHI2019* , Glasgow, Scotland **Highest Voted Poster**
- P3. **Tamanna Motahar**. 2019. The Wave of Inclusion at HCI: Participation Improvement of Female Students. *Workshop on CHIinclusive, CHI2019, Glasgow, Scotland*
- P2. **Tamanna Motahar**. 2018. Supporting Missing Daughters. *HCI Across Borders, CHI2018* , Montreal, Canada **Best Poster Award**

P1. **Tamanna Motahar**. 2018. Bornomala AR-bengali learning experience using augmented reality. *MobileHCI2018*, Barcelona, Spain

## Professional Experience

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### RESEARCH EXPERIENCE

- 2020 - Present **Research Assistant | Personal Data and Empowerment Lab (PeDEL)**, School of Computing, University of Utah
- 2019 **Research Assistant | HCI-VIS Lab**, CICS, University of Massachusetts Amherst
- 2017 - 2019 **Faculty Researcher**, North South University, Bangladesh

### TEACHING EXPERIENCE

- Fall, 2022 **Teaching Mentee | CS 3540 | Designing Human Centered Experiences (78 Students)**, School of Computing, University of Utah
- Fall, 2021 **Teaching Mentee | COMP 1010 | Programming for All (220 Students)**, School of Computing, University of Utah
- 2019-2020 **Teaching Associate | Introduction to Programming (Java) (150 Students)**, CICS, University of Massachusetts Amherst
- 2019 **Senior Lecturer**, North South University, Bangladesh
- 2016 - 2018 **Lecturer**, North South University, Bangladesh

### GUEST LECTURE

- Fall, 2022 **"Title: Identifying Factors that Inhibit Self-care Behavior Among Individuals with Severe Spinal Cord Injury"**, CS 3540 | Designing Human Centered Experiences, School of Computing, University of Utah

### PROGRAM COMMITTEE MEMBER

- 2023 **Program Committee Member**, Late Breaking Work, CHI 2023
- 2022 **Associate Chair (AC)**, Late Breaking Work, CHI 2022

### REVIEWER

- 2023 - **Review board member**, ACM Journal on Computing and Sustainable Societies (JCSS)
- 2023 **Track: Accessibility**, CHI 2023
- 2019-2023 **Late Breaking Work**, CHI 2023, CHI 2022, CHI 2021, CHI 2020, CHI 2019
- 2022 **Workshop**, ASSETS 2022
- 2020 **Track: Data Visualization**, CHI 2020

### PROFESSIONAL SERVICE

- 2017-2019 **Founding Faculty Advisor**, First and only ACM-W Chapter in Bangladesh
- 2017-2019 **Founding Membership Chair**, First ACM SIGCHI Chapter in Bangladesh

### INDUSTRY EXPERIENCE

- 2013-2014 **Data Analyst, Business Intelligence (BI)**, Thakral Information Systems, (Strategic Alliance Partner of IBM) Airtel, Bangladesh
- 2012-2013 **Data Specialist**, West Canadian Digital Imaging, Edmonton, Canada
- 2010-2012 **Technical Support Specialist**, Marketlinc Telecommunication Corporation (McAfee Anti-Virus), Canada

### ADMINISTRATIVE EXPERIENCE

- 2018-2019 **Assistant Proctor**, North South University, Bangladesh

## Outreach Activities

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### ORGANIZATION AND SERVICE

- 2022 - **General Member**, Graduate Student Advisory Committee (GradSAC), School of Computing, University of Utah
- 2022 **Student Volunteer, Ubicomp and ISWC Conference**, Atlanta, GA
- 2019 **Co-Organizer**, ACM SIGCHI Summer School, North South University, Bangladesh
- 2019 **Panel- Organizer**, HCI Research and Design Perspectives in Bangladesh (Virtual), Part of HCI Discussion Series in Bangladesh
- 2018 **Founding Organizer**, First National Level Inter University Girls' Programming Contest (IUGPC), Bangladesh

### INVITED TALKS

- Fall 2022. *"Personal Informatics for People with Motor Disabilities"*, SIGCHI Summer/Winter School, Bangladesh, (North South University)
- Spring 2021. *"What do you Track? Why do you Track"*, North South University HCI Research Group [Virtual]
- Fall 2020. *"My Life-Joys and Challenges"*, Celebration of International Women's Day, North South University IEEE Women in Engineering [Virtual]
- Spring 2020. *"Stress Management"*, Ada Lovelace Celebration, Dhaka, Bangladesh
- Spring 2018. Keynote Speaker- *"Women in Technology"*, Women in Digital, Dhaka, Bangladesh
- Spring 2018. *"Initiation of HCI: Ongoing activities globally at the SIGCHI community"*, Workshop on Human Computer Interaction, North South University, Dhaka, Bangladesh

### PANELIST AND SPEAKER

- 2020 **Panelist**, SIGCHI Summer School, Dhaka, Bangladesh [Virtual]
- 2018 **Speaker and Panelist**, International Women's Day Celebration, North South University IEEE Student Branch
- 2018 **Panelist**, Techbeez: Women in ICT, Lighthouse Castle Partners, Women Techmakers Bangladesh and EMK Center, Dhaka Bangladesh

### Students Mentored

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- 2019 **Mahbuba Tasmin, Computer Science Undergrad, North South University, Bangladesh**, Co-authored paper: [C8], Current Position: PhD Student, Umass Amherst
- 2018 - 2019 **Dibya P. Sarkar, Computer Science Undergrad, North South University, Bangladesh**, Co-authored paper: [C4,C6], [E3], Current Position: PhD Student, University of Victoria, Canada
- 2018 - 2019 **Kimia Tuz Zaman, Computer Science Undergrad, North South University, Bangladesh**, Co-authored paper: [C7], Current Position: PhD Student, North Dakota State University
- 2018 **Mostafa Didar Mahdi, Computer Science Undergrad, North South University, Bangladesh**, Co-authored paper: [C2], Current Position: MSC Student, University of Adelaide, Australia