Maitraye Das

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Education

NORTHWESTERN UNIVERSITY (NU) — EVANSTON, IL, USA
PhD in **Technology and Social Behavior** — Spring 2022 (Expected)
(Dual PhD in Computer Science and Communication)
Advised by Darren Gergle and Anne Marie Piper

MS in **Technology and Social Behavior** — Winter 2021
GPA: 3.97 out of 4.00

BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY (BUET) — BANGLADESH
Bachelor of Science in **Computer Science and Engineering** — Sep 2015
Advised by Tanzima Hashem
GPA: 3.85 out of 4.00 (top 6% of the graduating class)

Research Areas

Human-Computer Interaction, Accessibility, Computer-Supported Cooperative Work

Research Experience

COLLAB LAB | NORTHWESTERN UNIVERSITY — Fall 2017 – Present
Graduate Research Assistant | advised by **Darren Gergle**

- Conducted contextual interviews and remote observations with visually impaired professionals and academics. Performed qualitative analysis to understand collaborative writing practices among blind and sighted co-authors. Iteratively developing non-speech audio based techniques for accessible collaborative writing. Conducted first-phase system evaluation for asynchronous editing with 48 blind participants. Currently designing an experimental study to evaluate the use of non-speech audio in synchronous collaborative editing for visually impaired writers. [CSCW 2019]
- Collected a dataset of nearly 0.45 billion edits by 2000 OpenStreetMap editors using Python and Osmium. Performed quantitative analysis to investigate gender-based self-focus bias in OpenStreetMap. [CHI 2019]

INCLUSIVE TECHNOLOGY LAB | NORTHWESTERN UNIVERSITY — Spring 2018 – Present
Graduate Researcher | advised by **Anne Marie Piper**

- Conducted ethnographic field observations and contextual interviews at a weaving studio for adults with vision impairments. Designed multimodal augmentations on a loom to enhance collaborative weaving experiences among blind weavers and their sighted instructors. Currently developing an audio-tactile system to support collaborative designing of weave patterns for blind weavers. [CHI 2020, TACCESS]

ABILITY TEAM | MICROSOFT RESEARCH, Redmond, USA — Summer 2020
Research Intern | mentored by **John Tang**

- Conducted semi-structured interviews with 36 neurodivergent professionals. Performed thematic analysis to highlight accessibility issues in remote work during the COVID-19 pandemic. [CSCW 2021]

WESTERN WASHINGTON UNIVERSITY, Washington, USA — Summer 2017
Researcher (remote) | mentored by **Moushumi Sharmin** & **Shameem Ahmed**

- Performed a systematic literature review on the design of smart technologies for children on the autism spectrum. [CHI 2018]

BANGLADESH UNIVERSITY OF ENGINEERING & TECHNOLOGY — Aug 2014 – Sep 2017
Undergraduate Researcher | advised by **Tanzima Hashem**

- Developed a secret sharing algorithm for privacy-preserved and authenticated queries in genomic databases to compute disease susceptibility. [COMPSAC 2018, Journal of Information Processing 2019]

Honors, Awards, & Grants

Graduate Research Grant | Northwestern University ($2,999)	2021-2022
Finalist | Microsoft Research PhD Fellowship	2020
Best Paper Honorable Mention Award | ACM CHI [C1]	2020
Best Paper Honorable Mention Award | ACM CSCW [J4]	2019
Special Recognition for Outstanding Review | ACM CHI'21 (x3), ACM CSCW'19	2021, 2019
Conference Travel Grant | Northwestern University ($2300 + $1500)	2019, 2018
Best Paper Award | IEEE COMPSAC [C4]	2018
Student Travel Grant | ACM UbiComp ($600)	2018
Student Scholarship | Grace Hopper Celebration, USA	2018
Best Undergraduate Thesis Award | Dept. of CSE, BUET	2015
Best Technical Poster | Grace Hopper Celebration India	2014
Student Scholarship | Grace Hopper Celebration India	2014
Dean's List Award (x4) | Bangladesh University of Engg. & Technology	2011-2015
University Merit Scholarship (x5)| Bangladesh University of Engg. & Technology	2011-2014

Journal Articles

J1. **Maitraye Das,** Anne Marie Piper, and Darren Gergle. Design and Evaluation of Collaborative Writing Techniques for People with Vision Impairments. Under review in *ACM Transactions on Computer-Human Interaction (TOCHI).* Impact Factor: 3.147

J2. **Maitraye Das,** John Tang, Kathryn E. Ringland, and Anne Marie Piper. 2021. Towards Accessible Remote Work: Understanding Work-from-Home Practices of Neurodivergent Professionals. In *Proceedings of the ACM on Human-Computer Interaction,* Vol. 5, CSCW1, Article 183 (April 2021), 30 pages.

J3. Katya Borgos-Rodriguez, **Maitraye Das,** and Anne Marie Piper. 2021. Melodie: A Design Inquiry into Accessible Crafting through Audio-Enhanced Weaving. In *ACM Transactions on Accessible Computing (TACCESS).* Impact Factor: 1.54

J4. **Maitraye Das,** Darren Gergle, and Anne Marie Piper. 2019. "It doesn't win you friends": Understanding Accessibility in Collaborative Writing for People with Vision Impairments. In *Proceedings of the ACM on Human-Computer Interaction*, Vol. 3, CSCW, Article 191 (November 2019), 26 pages. DOI: 10.1145/3359293 [acceptance rate: 31.2%] ***Best Paper Honorable Mention** (Top 5% of submitted papers)**.**

J5. Nusrat Jahan Mazumder, **Maitraye Das**, Tanzima Hashem, Sharmin Afrose, and Khandaker Ashrafi Akbar. 2019. Towards Privacy-preserving Authenticated Disease Risk Queries. In *Journal of Information Processing*, Vol. 27, (September 2019), pp. 624-642. DOI: 10.2197/ipsjjip.27.624

Peer-Reviewed Conference Papers[1]

C1. **Maitraye Das,** Katya Borgos-Rodriguez, and Anne Marie Piper. 2020. Weaving by Touch: A Case Analysis of Accessible Making. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20),* 1-15. DOI: 10.1145/3313831.3376477 [acceptance rate: 24.3%]
***Best Paper Honorable Mention** (Top 5% of submitted papers)**.**

C2. **Maitraye Das,** Brent Hecht, and Darren Gergle. 2019. The Gendered Geography of Contributions to OpenStreetMap: Complexities in Self-Focus Bias. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19)*, Paper 563, 14 pages. DOI: 10.1145/3290605.3300793 [acceptance rate: 23.8%]

C3. Moushumi Sharmin, Monsur Hossain, Abir Saha, **Maitraye Das**, Margot Maxwell, and Shameem Ahmed. 2018. From Research to Practice: Informing the Design of Autism Support Smart Technology. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI '18),* Paper 102, 1-16. DOI: 10.1145/3173574.3173676 [acceptance rate: 25%]

[1] Peer-reviewed conferences such as CHI are top-tier publication venues in Human-Computer Interaction. They are highly selective, extensively reviewed, and intended for archival papers only. When available, the acceptance rate is included.

C4. **Maitraye Das**, Nusrat Jahan Mazumder, Sharmin Afrose, Khandaker Ashrafi Akbar, and Tanzima Hashem. 2018. A Novel Secret Sharing Approach for Privacy-Preserving Authenticated Disease Risk Queries in Genomic Databases. In *Proceedings of the 42nd IEEE International Conference on Computers, Software, and Applications (COMPSAC '18)*, pp. 645-654. DOI: 10.1109/COMPSAC.2018.00097 [acceptance rate: 24%] *__Best Paper Award__

C5. Abir Saha and **Maitraye Das**. 2017. Impact of Social Networking on Post-Partum Depression in Women: An Analysis in the context of Bangladesh. In *Proceedings of the 20th IEEE International Conference on Computer and Information Technology (ICCIT '17)*, pp. 1-6. DOI: 10.1109/ICCITECHN.2017.8281831

C6. **Maitraye Das** and Abir Saha. 2017. An Automated Speech-Language Therapy Tool with Interactive Virtual Agent and Peer-to-Peer Feedback. In *Proceedings of the 4th International Conference on Advances in Electrical Engineering (ICAEE '17)*, pp. 510-515, DOI: 10.1109/ICAEE.2017.8255409

C7. Fatema Khan, **Maitraye Das**, and Ahiya Ahammed. 2016. PurpleAid: An mHealth platform to combat health hazards of women. In *Proceedings of the 2016 International Conference on Medical Engineering, Health Informatics and Technology (MediTec '16)*, pp. 1-6. DOI: 10.1109/MEDITEC.2016.7835368

C8. **Maitraye Das**, Sunandita Sarker, and Syeda Lammim Ahad. 2016. A Novel Health Support System with Biometric Data Acquisition Device. In *Proceedings of the 19th International Conference on Computer and Information Technology (ICCIT '16)*, pp. 201-206. DOI: 10.1109/ICCITECHN.2016.7860195

Refereed Workshop Short Papers, Posters, and Doctoral Consortia

1. **Maitraye Das.** 2020. Designing for Collaborative Content Creation for People with Vision Impairments. In *2020 Conference Companion Publication on Computer Supported Cooperative Work and Social Computing (CSCW '20).* DOI: 10.1145/3406865.3418369 [Doctoral Consortium]

2. **Maitraye Das,** Katya Borgos-Rodriguez, and Anne Marie Piper. 2020. Rethinking Power and Politics in Accessible Making. In *ACM CHI Workshop "Nothing About Us Without Us": Investigating the Role of Critical Disability Studies in HCI.*

3. **Maitraye Das.** 2019. Who Can See What: Privacy and Audience Management for People with Vision Impairments on Social Media. In *ACM CSCW Workshop on Addressing the Accessibility of Social Media.*

4. **Maitraye Das**. 2018. Understanding Collaborative Writing Practices of People with Visual Impairments. In *Proceedings of the 2018 ACM International Conference on Pervasive and Ubiquitous Computing (UbiComp '18)*, pp. 1744-1749. DOI: 10.1145/3267305.3277807

5. **Maitraye Das**. 2018. Towards Understanding the Effects of Social Networking on Postpartum Depression in Women. In *Grace Hopper Celebration of Women in Computing*, USA.

6. **Maitraye Das**, Sharmin Afrose, and Tanzima Hashem. 2015. Protecting Genomic Privacy in Medical Tests using Distributed Storage. In *Grace Hopper Celebration of Women in Computing*, USA.

7. **Maitraye Das**, Sunandita Sarker, and Shahina Ferdous. 2014. SpeechAid: A Self-treatment System for Individuals with Speech Disorder via Mobile Application. In *Grace Hopper Celebration India.* *__Best Technical Poster Award__

Teaching Experience

UNITED INTERNATIONAL UNIVERSITY (UIU) DHAKA, BANGLADESH

Lecturer | Dept. of **Computer Science and Engineering** Oct 2015 – Mar 2017

- Instructed courses on Computer Architecture, Digital Logic Design, Electrical Circuits and Assembly Programming Language.

Skills

Programming: Python, R, C, C++, Java, HTML, CSS
Methods: Interviews, thematic analysis, ethnographic field observation, survey design, experiment design, prototyping

Students Mentored

Thomas McHugh | Undergrad in Computer Science, Northwestern University 2020-Present
Rawan Mohamed | Undergrad in Computer Science, Northwestern University 2020
Caroline Brewley | High school student researcher 2019
Nusrat Jahan Mozumder | Undergrad in Computer Science & Engg., BUET 2017-2018
Khandaker Ashrafi Akbar | Undergrad in Computer Science & Engg., BUET 2017-2018
Fatema Khan | Undergrad in Computer Science & Engg., UIU 2016
Ahiya Ahammed | Undergrad in Computer Science & Engg., UIU 2016

Invited Talks

Input and Interaction (INFO 463) | University of Washington Nov 2020
- Guest lecture: Accessibility in Collaborative Writing for People with Vision Impairments (virtual)

Bangladesh HCI and ICTD Study and Research Group, Virtual Event April 2020
- Talk: Designing for Accessible Interaction

Microsoft Research PhD Fellowship Finalist Presentation | Redmond, WA, USA Nov 2019
- Poster: Designing for Collaborative Content Creation for People with Vision Impairments

Academic Services

Reviewer
ACM CHI [*outstanding review recognition: 3] 2021
ACM CSCW [*outstanding review recognition: 1] 2019-2020
ACM DIS 2020
GHC Faculty Scholarship 2017
Australasian Database Conference 2016

Student Volunteer
ACM CSCW 2019
ACM CHI 2019
ACM UbiComp 2018
InfoSocial Graduate Conference at Northwestern University 2018

Publicity Co-chair
InfoSocial Graduate Conference at Northwestern University 2019

Outreach & Memberships

Member
Northwestern Graduate Women in Computing 2019 - Present
Association for Computing Machinery (ACM), SIGCHI, SIGACCESS 2017 - Present
Bangladeshi Women in Computer Science and Engineering 2015 - Present

Code Coach Volunteer
BraveCamp Chicago, Brave Initiatives Summer 2018

Vice-President
Murchhona:BUET (Cultural Club) 2014 – 2015