ABIR SAHA

abir@u.northwestern.edu ✉
https://abirsh.github.io 🌐
https://www.linkedin.com/in/abirsaha- 🔗

RESEARCH INTERESTS

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

EDUCATION

Northwestern University
Doctor of Philosophy (PhD) in Technology and Social Behavior   Sep 2018 – Present
Joint degree in Computer Science and Communication
Advisor: Anne Marie Piper
Dissertation: Understanding and Designing for Accessibility in Audio Production among People with Vision Impairments

Indiana University-Purdue University Indianapolis (IUPUI)
Master of Science in Electrical and Computer Engineering (ECE)   Aug 2018
Thesis: Development of infrared reflectance characteristics of surrogate roadside objects

Bangladesh University of Engineering and Technology (BUET)
Bachelor of Science in Electrical and Electronic Engineering (EEE)   Sep 2015

AWARDS AND HONORS

- **Best Paper Nomination** at ACM Conference on Computers and Accessibility (ASSETS)   2020
- **University Fellowship** at Indiana University-Purdue University Indianapolis   2016 – 2017
- **Finalist** at International Robotics Challenge (IRC), IIT Bombay, India   2014

RESEARCH EXPERIENCE

Inclusive Technology Lab, Northwestern University   Sep 2018 – Present
Doctoral Researcher | Advised by Anne Marie Piper

- Conducted semi-structured interviews and observations with 18 blind audio producers and performed qualitative analysis to understand accessibility in audio production tools and practices. [ASSETS '20, CHI EA '22]
- Conducted contextual inquiry with six blind audio production trainers to understand practices and strategies for creating and disseminating accessible learning resources (e.g., guides, docs, tutorials) for blind learners.
- Currently leading the design and user evaluation of technologies to support accessible and interactive learning of audio production software for blind and visually impaired people.
- Conducted a study on enhancing music streaming experience of deaf individuals. [CHI EA '21]

Collaborative Technology Lab, Northwestern University   Sep 2020 – Present
Doctoral Researcher | Advised by Darren Gergle

- Conducted thematic content analysis of online forum conversations among blind software users. Developed insights about how blind users operationalize common ground while exchanging support regarding use of Graphical User Interfaces. [*manuscript under preparation*]

Western Washington University   Apr 2017 – Jan 2018
Researcher (remote) | Mentored by Moushumi Sharmin and Shameem Ahmed

- Performed systematic literature review on the design of smart technologies for autistic children. [CHI '18]

Transportation Active Safety Institute (TASI), IUPUI   Aug 2016 – May 2018
Graduate Research Assistant | Advised by Stanley Chien

- Developed standardized testing methods and scenarios to evaluate road departure mitigation systems in vehicles. [ITSC '20, ITSC '19, SAE '19, ESV '19, US Patents x3]

Bangladesh University of Engineering & Technology   Aug 2014 – Sep 2015
Undergraduate Researcher | Advised by Md. Forkan Uddin

- Designed a cognitive radio network with coordinated multipoint joint transmission [IJCS '17].

RELEVANT PUBLICATIONS

- **Abir Saha**. 2022. Understanding and Designing for Accessible Audio Production among People with Vision Impairments. In *Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI '22)*. [Doctoral Consortium]
- Thomas B. McHugh, **Abir Saha**, David Bar-El, Marcelo Worsley, and Anne Marie Piper. 2021. Towards Inclusive Streaming: Building Multimodal Music Experiences for the Deaf and Hard of Hearing. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*.
- **Abir Saha** and Anne Marie Piper. 2020. Understanding Audio Production Practices of People with Vision Impairments. In *Proceedings of the 22nd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '20),* 13 pages. *Best Paper Nomination
- Moushumi Sharmin, Monsur Hossain, **Abir Saha,** Maitraye Das, Margot Maxwell, and Shamim Ahmed. 2018. From Research to Practice: Informing the Design of Autism Support Smart Technology. In *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI '18)*, 16 pages.
- **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).
- Maitraye Das and **Abir Saha**. 2017. An Automated Speech-Language Therapy Tool with Interactive Virtual Agent and Peer-to-Peer Feedback. In *International Conference on Advances in Electrical Engineering '17*.

OTHER PUBLICATIONS AND PATENTS

- Stanley Chien, Jue Zhou, Qiang Yi, Seeta Ram Pandey, **Abir Saha** et al. 2020. Development of Surrogate Grass for the Evaluation of Vehicle Road Departure Mitigation Systems. In *Proceedings of the IEEE 23rd International Conference on Intelligent Transportation Systems (ITSC '20)*.
- Lin Li, **Abir Saha**, Seeta Ram Pandey, Yaobin Chen, Stanley Chien, and Rini Sherony. 2019. Infrared Reflectance Requirements of Metal Guardrail Surrogates for the Evaluation of Vehicle Road Departure Mitigation Systems. In *Proceedings of the IEEE Intelligent Transportation Systems Conference (ITSC '19)*.
- Dan Shen, Lin Li, **Abir Saha**, Stanley Chien, Qiang Yi, Rini Sherony. 2019. Infrared reflectance requirements of the surrogate grass from various viewing angles. In *SAE Technical Paper*.
- Stanley Chien, Qiang Yi, Jun Lin, **Abir Saha**, Lin Li, Yaobin Chen, Chi-Chih Chen, Rini Sherony. 2019. Determine characteristics requirement for the surrogate road edge objects for road departure mitigation testing. In *the 26th ESV 2019 – Technology: Enabling a Safer Tomorrow.*
- Tahsin Reasat, **Abir Saha,** and Md. Forkan Uddin. 2017. Cognitive Radio Network with Coordinated Multipoint Joint Transmission. In *International Journal of Communication Systems (IJCS)*, March 2017.
- Rini Sherony, Stanley Yung-Ping Chien, Qiang Yi, Jun Lin, **Abir Saha**, Yaobin Chen, Chi-Chih Chen. 2020. *US Patent Application #16256412, US Patent #10689818, US Patent #10597835.*

SKILLS

- **Methods:** Interviews, contextual inquiry, field observation, qualitative analysis, survey design, prototyping, experiment design, user evaluation, programming (Python)
- **Others:** Accessibility software (e.g., screen readers), qualitative analysis software (Atlas.ti, NVivo), audio production (Pro Tools, Logic Pro), digital photography (Adobe Lightroom and Photoshop)

ACTIVITIES AND MEMBERSHIPS

- **Reviewer,** ACM CHI — 2021, 2022
- **Member,** UCI Accessibility Research Collective — 2021 – Present
- **Member,** ACM, SIGCHI, SIGACCESS — 2020 – Present
- **Volunteer,** InfoSocial Graduate Conference, Northwestern University — 2019
- **Founding Member,** Bangladeshi Student Association (BDSA) at IUPUI — 2017 – 2018
- **Judge,** International Robotics Challenge (IRC) Bangladesh Round — 2014
- **Filmmaker and Screenwriter,** BUET Film Society — 2014