

EDUCATION

Northwestern University

Doctor of Philosophy (PhD) in Technology and Social Behavior 2024

Dissertation: Designing for Accessibility in Audio Production among Blind and Low Vision People

Committee: Anne Marie Piper (chair), Darren Gergle, Marcelo Worsley, Shaun Kane

Indiana University-Purdue University Indianapolis (IUPUI)

Master of Science in Electrical and Computer Engineering (ECE) 2018

Advisor: Stanley Chien

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) 2015

Advisor: Md. Forkan Uddin

Thesis: Cognitive Radio Network with Coordinated Multipoint Joint Transmission

TEACHING EXPERIENCE

- **Northwestern University** | Dept. of Computer Science / Communication Studies Winter 2022
Teaching Assistant | *COMP_SCI 314 / COMM_ST 351 – Technology & Human Interaction*
Facilitated in-class discussions, held weekly office hours, delivered several lectures, and graded assignments (56 students).

AWARDS AND GRANTS

- **Dissertation Research Grant (\$1500)** | Dept. of Communication Studies, Northwestern University 2022
- **Doctoral Consortium (\$1300)** | ACM Conference on Human Factors in Computing Systems (CHI) 2022
- **Best Paper Nomination** | ACM Conference on Computers and Accessibility (ASSETS) 2020
- **Conference Travel Grant (~\$3000)** | Northwestern University 2020, 2022, 2023
- **University Fellowship** | Indiana University-Purdue University Indianapolis 2016 – 2017
- **Finalist** | International Robotics Challenge (IRC), IIT Bombay, India 2014

PEER-REVIEWED PUBLICATIONS

[Top-tier venues in Human-Computer Interaction and Accessible Computing include extensively peer-reviewed conferences such as CHI and ASSETS. These highly selective conferences are intended for archival papers and comparable to journals in visibility, selectivity, and impact. Directly mentored students are marked with a *.]

1. **Abir Saha**, Thomas B. McHugh*, and Anne Marie Piper. 2023. Tutoria11y: Enhancing Accessible Interactive Tutorial Creation by Blind Audio Producers. In *Proceedings of the ACM 2023 CHI Conference on Human Factors in Computing Systems (CHI 2023)*, April 2023, Hamburg, Germany.
2. **Abir Saha**, Darren Gergle, and Anne Marie Piper. 2023. Understanding Peer-to-Peer Instructional Support in an Online Community for Blind Audio Producers. In *Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2023)*, October 2023, New York, NY, USA.
3. **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 2020)*. **Best Paper Nomination**
4. 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 2020)*.

5. 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 2019)*.
6. 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 2018)*.
7. 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.

SHORT PAPERS AND DOCTORAL CONSORTIA

1. **Abir Saha**. 2022. Understanding and Designing for Accessibility in Audio Production among People with Vision Impairments. In Extended Abstracts of the *2022 CHI Conference on Human Factors in Computing Systems (CHI 2022)*, April 2022, New Orleans, LA, USA. [Doctoral Consortium]
2. 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 *Proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI 2021)*.
3. **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 2017)*.
4. 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 2017*.

TECHNICAL REPORTS

1. 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*.
2. 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*.

PATENTS

1. Rini Sherony, Stanley Yung-Ping Chien, Qiang Yi, Jun Lin, **Abir Saha**, Yaobin Chen, Chi-Chih Chen. 2020. Surrogate for Metal Guardrail. *US Patent #10689818*.
2. Rini Sherony, Stanley Yung-Ping Chien, Qiang Yi, Jun Lin, **Abir Saha**, Yaobin Chen, Chi-Chih Chen. 2020. Surrogate for Concrete Divider. *US Patent # 10597835*.

RESEARCH EXPERIENCE

Inclusive Technology Lab, Northwestern University Sep 2018 – Present
 Graduate Research Assistant | 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, practices, and learning resources.
- Led the design and evaluation of technologies to support accessible and interactive learning of audio production software (GarageBand and Logic Pro) on MacOS using Apple’s native screen reader (VoiceOver).
- Project funded by National Science Foundation ([award link](#)).

Collaborative Technology Lab, Northwestern University Sep 2020 – Present
 Graduate Research Assistant | Advised by Darren Gergle

- Conducted content analysis on six months of conversation threads in a forum of blind audio producers to understand how they exchange instructional support on accessible use of audio production software.

Western Washington University

Apr 2017 – Jan 2018

Researcher (remote) | Advised by Moushumi Sharmin and Shameem Ahmed

- Performed systematic literature review on the design of smart technologies for autistic children.

Transportation Active Safety Institute (TASI), IUPUI

Aug 2016 – May 2018

Graduate Research Assistant | Advised by Stanley Chien

- Developed a standardized testing method for road departure mitigation systems in vehicles.

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. Developed a heuristic-based channel allocation and user scheduling algorithm to ensure fairness in user throughput.

ACADEMIC SERVICE

- **Reviewer** | ACM Conference on Human Factors in Computing Systems (CHI) 2021 – 2023
- **Student Volunteer**
 - ACM Conference on Human Factors in Computing Systems (CHI) 2021
 - InfoSocial Graduate Conference at Northwestern University 2019
- **Judge** | International Robotics Challenge (IRC) Bangladesh Round 2014

MEMBERSHIPS

- UCI Accessibility Research Collective 2021 – Present
- ACM, SIGCHI, SIGACCESS 2020 – Present
- Bangladeshi Student Association (BDSA) at IUPUI 2017 – 2018