Akhter Al Amin

2nd Year Ph.D. Student

aa7510@rit.edu +1-585-504-9905 akhteralamin akhteramin Rochester, NY.

Education

Ph.D. in Computing & Information Sciences **CGPA: 3.96/4.00**
Rochester Institute of Technology(RIT) *August 2019 – May 2024 (expected)*
Advisor: Matt Huenerfauth

Courses: Research Methods in HCI, Quantitative Methods, Qualitative Research Methods, Human-Behavior Understanding, Statistical Machine Learning, Foundations of Software Engineering

B.Sc. in Computer Science and Engineering
Bangladesh University of Engineering and Technology(BUET) *May 2010 – August 2015*

Courses: Structured Programming Language, Discrete Mathematics, Object-Oriented Programming Language (C++, Java), Data Structures and Algorithms I, Data Structures and Algorithms II, Theory of Computation, Database, Computer Architecture, Software Engineering, Compiler, Data Communication, Operating System, Artificial Intelligence, Computer Networks, Computer Security, Computer Graphics

Research Experience

Graduate Research Assistant August 2019 – Present
Center for Accessibility and Inclusion Research Lab (CAIR), Rochester Institute of Technology *Rochester, NY*

- Investigating Deaf and Hard of Hearing users' perspective regarding caption technology and usability
- Investigating how existing caption evaluation metrics can be improved to qualify users' judgment of a caption quality.

Undergraduate Research Assistant Jun 2013 – Aug 2015
Next-generation Computing (NeC) group, BUET *Dhaka, Bangladesh*

- My research was focused on incorporating quantum networks in solving real-life problems. While our infrastructure was not sufficient enough to implement the proposed solution, we employed theoretical methods for the implication of this network.

Research Skills

Methods: Experimental Studies, User Interviews, User-Centered Design, Usability Evaluation, Accessibility-first Design, Prototyping, Affinity Mapping, Contextual Inquiry, User-Centered Design, Survey Design, A/B Testing, Statistical Analysis, Machine Learning
Tools: SurveyMonkey, Qualtrics, FFMPEG, Jirra

Projects

Twenty-First Century Captioning Technology Metrics and Usability. August 2019 – Present

This project examines access to video (broadcast or streaming) and its effects on societal participation (e.g., entertainment, news, political process, etc.), and develops a modern evidence-based approach to address the caption quality and caption user interface/user experience needs of viewers who are Deaf or hard of hearing. Until now, we have collected and analyzed qualitative and quantitative responses from 150+ users employing several data collection methods, e.g. semi-structured and structured interviews, focus-groups.

Methods for Large Vocabulary Sign Recognition and Search. February 2021 – Present

In this research, we evaluate how filtering with meta-data will improve American Sign Language(ASL) dictionary users' experience of conducting search in a real-time environment. We aim to propose a framework that will provide a research-based design guideline for ASL dictionary researchers to develop a user-friendly, video-based sign-lookup interface.

Selected Publications

[2021] Akhter Al Amin, Saad Hassan, and Matt Huenerfauth. 2021. Caption-occlusion severity judgments across live-television genres from deaf and hard-of-hearing viewers. In Proceedings of the 18th International Web for All Conference (W4A '21). Association for Computing Machinery, New York, NY, USA, Article 26, 1–12. DOI:https://doi.org/10.1145/3430263.3452429

[2021] A. A. Amin, S. Hassan, M. Huenerfauth. 2021. Effect of Occlusion on Deaf and Hard of Hearing Users' Perception of Captioned Video Quality. In *Proceedings of the 23rd International Conference on Human-Computer Interaction (HCII)*. Universal Access in Human-Computer Interaction. HCII 2021. Lecture Notes in Computer Science. Springer, Cham. [peer-reviewed conference paper, will publish as book chapter]

[2021] A. A. Amin, A. Glasser, R. Kushalnagar, C. Vogler, M. Huenerfauth. 2021 Preferences of Deaf or Hard of Hearing Users for Live-TV Caption Appearance. In *Proceedings of the 23rd International Conference on Human-Computer Interaction (HCII)*. Universal Access in Human-Computer Interaction. HCII 2021. Lecture Notes in Computer Science. Springer, Cham. [peer-reviewed conference paper, will publish as book chapter]

[2021] [Poster] A. A. Amin, M. Huenerfauth. 2021. Perspectives of Deaf and Hard-of-Hearing Viewers on Live-TV Caption Quality. URI: http://hdl.handle.net/2142/109692. *iSchool Conference (iConference'21)*. Poster Session, March 2021

[More] Google Scholar.

Technical Skills

Languages: Python, C, MATLAB, C++, Java
Machine Learning: NLP, Numpy, Matplotlib, Jupyter Notebook, Google Colab
Statistics Tools: R, Python

Certifications

Social and Behavioral Responsible Conduct of Research CITI Program, A Division of BRANY
- Professionalism of investigators, staff, and students conducting research in the United States and internationally, Ethical research at organizations through the education of research administrators and organizational leadership.

Natural Language Processing with Classification and Vector Spaces Coursera
- Machine Translation, Word Embeddings, Locality-Sensitive Hashing, Sentiment Analysis, Vector Space Models

Natural Language Processing with Probabilistic Models Coursera
- Word2vec, Parts-of-Speech, Tagging, N-gram, Language Models, Autocorrect

Awards & Grants

Best Poster Nominee. iSchool Conference 2021

PhD Merit Scholarship Full tuition and stipend support, Rochester Institute of Technology

Secured 7th Position. International Robotics Competition organized by IEEE Branch IIT, Mumbai, India 2014

2nd Runner-up. Regional International Robotics Competition organized by IEEE 2014

Best Poster. Undergraduate Poster Competition organized by Bangladesh University of Engineering and Technology 2014

1st Runner-Up. Inter-University Project Show Competition organized by Bangladesh University of Engineering and Technology, Bangladesh 2013

1st Runner-Up. Inter-University Project Show Competition organized by University of Dhaka, Bangladesh 2013

Finalist. National Hackathon organized by World Bank Group, Bangladesh 2012

Champion. Divisional Math Olympiad organized by Bangladesh Math Olympiad Committee 2007, 2009

Professional Service

- Reviewer at Late-Breaking Work at Conference on Human Factors in Computing Systems (CHI) 2021.
- Reviewer at International Conference on Automotive User Interfaces and Interactive Vehicular Applications (AutomotiveUI) 2021.
- Judge at Inter-University Robotics Contest organized by BUET 2014.

Professional Experience

Software Engineer(Front-end) Oct 2016 – Jul 2019

iPay Systems Limited. *iPay, Dhaka, Bangladesh*

My primary responsibility was to develop front-end applications and implementing the design provided by UX designer at the application end. Furthermore, I was responsible for developing several in-house products ensuring smooth user experience.

List of Applications:

- An Electronic-Know Your Customer (e-KYC) system for in-house employees to evaluate customer interaction with the product. The front-end application was developed using Angular JS v5.
- A customized Customer Relation Management (CRM) system for Customer-Care department. I developed this application using ReactJS.

Software Engineering Intern Jun 2014 – Aug 2014

Samsung Research Bangladesh. *Dhaka, Bangladesh*

My primary responsibility was to develop a front-end application that will track employee activity and generate a quarterly report based on the work reported by each team. As a part of this software, a reporting module was developed to enhance stakeholders ability to monitor the employee task holistically.