Taslima Akter

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SUMMARY

I use quantitative and qualitative research methods to design and evaluate assistive technologies for people with visual impairments. I am excited about understanding and designing systems that can address privacy challenges faced by people with visual impairments while using existing and emerging assistive technologies to provide both trustworthy and privacy-preserving assistance.

Research Methods: Survey Design & Analysis, Interview, Usability Testing, Contextual Inquiry, Field Study

EDUCATION

PhD in Computer Science December 2021 (Anticipated)
Indiana University, *Bloomington, IN* Advisor: Prof. Apu Kapadia
Minor: Machine Learning
Dissertation: Designing a Privacy Aware Assistive System for People with Visual Impairments

M.Sc in Computer Science December 2019
Indiana University, *Bloomington, IN*

B.Sc in Computer Science & Engineering July 2014
Bangladesh University of Engineering & Technology (BUET), *Dhaka, Bangladesh*

RESEARCH EXPERIENCE

Indiana University Spring 2017 - Now
Research Assistant, Privacy Lab

- Leading research to design technologies by understanding privacy behavior of people with visual impairments while sharing information with human-assistants vs AI-systems using mixed-method analysis.
- Using quantitative research methods to understand how to enhance privacy, viewer's satisfaction and sharing likelihood by applying filters on photos in the context of social media.
- Designing surveys to investigate the tangible privacy behavior of people in the context of voice assistance (e.g., Amazon alexa).
- Conducted an interview study (n=14) to explore the transition disclosure practices of Reserve Officers Training Corps (ROTC) students who are transitioning from an individualistic culture to military culture.

Microsoft Research Fall 2018
UX Research Intern, ***Team:*** *Technology for Emerging Market*

- Conducted surveys with visually impaired (n=128) and MTurk (n=136) participants to understand their shared privacy concerns in the context of camera-based assistive technologies.

Bangladesh University of Engineering & Technology Oct 2015
Research Assistant

- Developed multi-objective vertical hand-off mechanisms to select the best target network among the existing networks using multi-objective genetic algorithm.
- Developed a near optimal solution to maximum coverage with minimum sensors (MCMS) problem of visual sensor networks.

TECHNICAL SKILLS

Languages	Python, R, C, C++, Java, SQL, Shell Script, PHP, HTML, Assembly, LaTeX
Frameworks & Libraries	Android, Keras, NLTK, CodeIgniter, OpenGL, CSS, Jupyter, Git
Statistical Analysis	T-test, Wilcoxon tests, Anova, Kruskal-Wallis test, Friedman's test, Linear mixed-effect, chisq test, rsq test, post-hoc tests, cohen's d

PUBLICATIONS

Peer-reviewed Conference and Journal Papers:

- ***Akter, T.***, Ahmed, T., Kapadia, A., and Swaminathan, M., "Privacy Considerations of the Visually Impaired with Camera Based Assistive Technologies: Misrepresentation, Impropriety, and Fairness", In the Proceedings of ACM SIGACCESS Conference on Computers and Accessibility **(ASSETS '20)**. [**acceptance rate 28%**] (Paper)
- ***Akter T.***, "Privacy Considerations of the Visually Impaired with Camera Based Assistive Tools", In the Proceedings of Conference Companion Publication of the 2020 on Computer Supported Cooperative Work and Social Computing **(CSCW Companion '20)**. (Paper)
- ***Akter, T.***, Dosono, B., Ahmed, T., Kapadia, A., and Semaan, B., "I am uncomfortable sharing what I can't see": Privacy Concerns of the Visually Impaired with Camera Based Assistive Applications", In the Proceedings of 29th USENIX Security Symposium **(USENIX Security '20)**. [**acceptance rate 16.1%**] (Paper, Presentation)
- Dosono, B., Rashidi, Y., ***Akter, T.***, Semaan, B., and Kapadia, A., "Challenges in Transitioning from Civil to Military Culture: Hyper-Selective Disclosure through ICTs", Proceedings of the ACM Journal: Human-Computer Interaction: Computer Supported Cooperative Work and Social Computing **(CSCW '18)**, Vol. 1, No. 2, Article 41. [**acceptance rate 27%**] (Paper)
- Zannat, H., ***Akter, T.***, Tasnim, M., and Rahman, A., "The coverage problem in visual sensor networks: A target oriented approach." Journal of Network and Computer Applications '16, Vol 75: 1-15. (Paper)
- Nurain, N., ***Akter, T.***, Zannat, H., Akter, M., Islam, A., and Kabir, H., "General-Purpose Multi-Objective Vertical Hand-off Mechanism Exploiting Network Dynamics." IEEE Conference on Wireless and Mobile Computing, Networking and Communications **(WiMob '15)**. (Paper)

Peer-reviewed Workshop Papers and Posters:

- ***Akter, T.***, "Privacy Considerations of the Visually Impaired with Camera-based Assistive Applications", Computer Supported Cooperative Work and Social Computing **(CSCW '20)**.
- ***Akter, T.***, Dosono, B., Ahmed, T., Kapadia, A., and Semaan, B., "Privacy Concerns of the Visually Impaired with Camera-based Assistive Applications", ACM SIGACCESS Conference on Computers and Accessibility **(ASSETS '19)**.
- ***Akter, T.***, Dosono, B., Ahmed, T., Kapadia, A., and Semaan, B., "AI vs Human Intelligence: Privacy Implications of Assistive Tools for Visually Impaired People", Grace Hopper Celebrations **(GHC '19)**.
- ***Akter, T.***, Dosono, B., Ahmed, T., Kapadia, A., and Semaan, B., "Privacy Implications of Assistive Tools for Visually Impaired People", Symposium On Usable Privacy and Security **(SOUPS '19)**.
- ***Akter, T.***, Dosono, B., Ahmed, T., Kapadia, A., and Semaan, B., "Privacy Implications of Human Intelligence Powered Assistive Tools for Visually Impaired People", Workshop on Bridging the Gap Between AI and HCI, ACM SIGCHI Conference on Human Factors in Computing Systems **(CHI '19)**.
- ***Akter, T.***, Dosono, B., Ahmed, T., Kapadia, A., and Semaan, B., " Privacy Concerns of People with Visual Impairments while Using Camera-based Assistive Technologies", CRA-W Grad Cohort workshop 2019.
- Dosono, B. , Rashidi, Y., ***Akter, T.***, Semaan, B., and Kapadia, A., "Challenges in Transitioning from Civil to Military Culture: Hyper-Selective Disclosure through ICTs", Midwest Security Workshop **(MSW '18)**.
- ***Akter, T.***, Ahmed, T., Connelly, K., Crandall, D., and Kapadia, A., "Privacy Risks of Using Camera Assisted Tools for People with Visual Impairments." CVPR workshop on The Bright and Dark Sides of Computer Vision: Challenges and Opportunities for Privacy and Security **(CV-COPS '17)**.

- Zannat, H., Akter, M., ***Akter, T.***, and Islam, A., "MOVH: General Purpose Multi-Objective Vertical Hand-off Mechanism with Higher Scalability and Higher Stability." *Mobile Computing and Human Computer Interaction* ***(MoHCI '14)***.

TEACHING EXPERIENCE

Teaching Assistant, Computer Science *Indiana University, Bloomington, IN* Fall 2020, Fall 2016

- Mentored over 45 students on Security for Networked Systems.
- Mentored over 30 students on Computer Networks.

Lecturer, Computer Science & Engineering *University of Asia Pacific, Dhaka, Bangladesh* July 2016

- Taught over 200 students the topics on Operating Systems, and Programming in C.

Lecturer, Software Engineering *Daffodil International University, Dhaka, Bangladesh* April 2015

- Taught over 150 students the topics on Computer Architecture, and Programming in C and Java.

SELECTED ACADEMIC PROJECTS

- Automatic classification of rhetorical questions with stress detection using Recurrent Neural Network (RNN) and Convolutional Recurrent Neural Network (CRNN) models. *(python, keras, NLTK)*
- An end-to-end speech recognition system with bidirectional recurrent neural network architecture without any frame by frame labelling. *(Connectionist Temporal Classification (CTC), CRNN, python, keras, NLTK)*
- Developed a Long short-term Memory (LSTM) network for classifying movie reviews from IMDB corpus. *(python, keras)*
- Identify the gender from voice and speech using various machine learning algorithms like SVM, Classification And Regression Trees (CART) and Random Forest. The dataset is from Kaggle competition. *(R)*.
- Developed an app to provide information about the number of people around a visual impaired user by giving feedback with audio and vibration. *(Android, SQLite)*
- Developed an android app in to select the best target network among the existing networks. *(Android)*
- Location Based City Explorer *(Oracle9i, PHP)*, Workshop Management System for CSE dept., BUET. *(PHP, codeIgniter)*

AWARDS, HONORS & SERVICE

Reviewer, ACM Conference on Human Factors in Computing (CHI) 2021
Doctoral Consortium, CSCW travel grant 2020
PhD Dissertation received Google Faculty Research Award 2020
Organizer, Workshop on Inclusive Privacy and Security (WIPS), SOUPS 2020
Vice President, Bangladesh Student Association (BDSA), Indiana University 2020
Doctoral Consortium, ASSETS travel grant 2019
Student Scholar, CRA-W Grad Cohort Workshop 2019
Student Scholar, Grace Hopper Conference 2017
Organizer, Poster Committee of Indiana Celebration of Women in Computing (InWIC) conference 2017
Volunteer, Women In Computing Knowledge Based Showcase, Indiana University 2017
Travel grant, IEEE S&P 2017
Co-chair, Design and publication Committee, National Collegiate Programming Contest, Bangladesh 2016
Member, Programming Contest and Software & Hardware Club of University of Asia Pacific 2015
Best Undergraduate Thesis Award, Department of CSE, BUET 2014
Best Paper Award, Mobile Computing and Human Computer Interaction (MoHCI) 2014
Distinguish Poster Award, Department of CSE, BUET 2014
Academic Merit Scholarship Department of CSE, BUET 2014
Dean's List Scholarship Department of CSE, BUET 2012