

Tousif Ahmed

Senior Research Engineer · Samsung Research America
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Areas of expertise

Digital Health, Data Science, Machine Learning, Audio-ML, Privacy and Security, Quantitative Research.

Education

Ph.D. in Computer Science, Indiana University Bloomington Aug, 2013- Feb 2019

Dissertation: Towards the Design of Wearable Assistive Technologies to Address the Privacy and Security Concerns of People with Visual Impairments Minor: Informatics

M.S. in Computer Science, Indiana University Bloomington Aug, 2013- May, 2017

B.Sc in Computer Science, Bangladesh University of Engineering and Technology Jun, 07- Apr, 2012

Professional Experience

Senior Research Engineer, Samsung Research America Jul, 2019- Present

- Lead Mobile Health (mHealth) research project and develop novel algorithms using mobile sensor data and machine learning to monitor and improve patient's health.
- Design and conduct user studies to collect mobile sensor data for evaluating the algorithms.
- Collaborate with UI/UX designers, Software Engineers, Server Engineers, and product managers to move the research prototypes into production.
- Lead academic research collaboration with external partners and publish scholarly articles in peer reviewed conferences and journals.
- Published more than ten research papers in top-tier conferences and filed five patents.

Research Assistant, Privacy lab, Indiana University Bloomington Aug,13 - Present

Adviser: Dr. Apu Kapadia

- Proposed a wearable-camera based solution for people with visual impairments to address their privacy and security risks by balancing bystanders privacy concerns.
- Designed and conducted more than ten user studies (surveys, in-situ studies, interviews, and wizard of oz studies) and lab experiments to understand and improve the privacy of mobile and wearable device users.
- Published scholarly articles in top journals and conferences in the area of Human-Computer Interaction including CHI, CSCW, and UbiComp.

Privacy Engineering Intern, Magic Leap, Plantation, FL Summer, 2018

- Assisted in technical product privacy reviews and development of product privacy requirements.

Summer Research Intern, Microsoft Research, India Summer, 2017

Adviser: Manohar Swaminathan

- Investigated bystander's views, perception, and ethical concerns in sharing information with augmented reality devices.

Summer Research Intern, ICSI, University of California Berkeley Summer, 2015

Advisers: Dr. Serge Egelman and Marian Harbach

- Examined users weak computer security practices by analyzing user's Internet browsing, software installation, software update, and antivirus usage behavior.

Selected Publications

Peer Reviewed Journal Publications

- J1. T. Akter, **Tousif Ahmed**, A. Kapadia, and M. Swaminathan. "Shared Privacy Concerns of the Visually Impaired and Sighted Bystanders with Camera Based Assistive Technologies". ACM Transactions on Accessible Computing (TACCESS '22). 2022.

- J2. S. Das, **Tousif Ahmed**, A. Kapadia, and S. Patil. “Does This Photo Make Me Look Good? How Posters, Outsiders, and Friends Evaluate Social Media Photo Posts”. Proceedings of the ACM Journal: Human-Computer Interaction: Computer Supported Cooperative Work and Social Computing (CSCW ’21), 46:1–46:32. 2021.
- J3. B. Islam, M. Rahman, **Ahmed, Tousif**, M. Ahmed, M. Hasan, V. Nathan, K. Vatanparvar, E. Nemati, J. Kuang, and A. Gao. “BreathTrack: Detecting Regular Breathing Phases from Unannotated Acoustic Data Captured by a Smartphone”. Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. Association for Computing Machinery, 2021.
- J4. X. Xu, E. Nemati, K. Vatanparvar, V. Nathan, **Ahmed, Tousif**, M. Rahman, D. McCaffrey, J. Kuang, and J. Gao. “Listen2Cough: Leveraging End-to-End Deep Learning Cough Detection Model to Enhance Lung Health Assessment Using Passively Sensed Audio”. Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. Association for Computing Machinery, 2021.
- J5. **Tousif Ahmed**, A. Kapadia, V. Potluri, and M. Swaminathan. “Up to a Limit? Privacy Concerns of Bystanders and Their Willingness to Share Additional Information with Visually Impaired Users of Assistive Technologies”. In Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 89:1–89:27. ACM, 2018.
- J6. Q. Ismail, **Tousif Ahmed**, K. Caine, A. Kapadia, and M. Reiter. “To Permit or Not to Permit, That is the Usability Question: Crowdsourcing Mobile Apps Privacy Permission Settings”. In Proceedings on Privacy Enhancing Technologies (PoPETs), pp. 118–136. 2017.
- J7. **Tousif Ahmed**, Roberto Hoyle, Patrick Shaffer, Kay Connelly, David Crandall, and Apu Kapadia. “Understanding Physical Safety, Security, and Privacy Concerns of People with Visual Impairments”. In IEEE Internet Computing, pp. 56–63. 2017.

Peer Reviewed Conference Publications

- C1. **Tousif Ahmed**, M. Rahman, M. Ahmed, E. Nemati, M. Dinh, N. Folkman, J. Kuang, and A. Gao. “RRMonitor: A Resource-Aware End-to-End System for Continuous Monitoring of Respiration Rate Using Earbuds”. 2021 43rd Annual International Conference of the IEEE Engineering in Medicine Biology Society (EMBC), 2021, pp. 2463–2467.
- C2. T. Akter, B. Dosono, **Tousif Ahmed**, A. Kapadia, and B. Semaan. ““I am uncomfortable sharing what I can’t see”: Privacy Concerns of the Visually Impaired with Camera Based Assistive Applications”. In Proceedings of 9th USENIX Security Symposium (USENIX Security ’20), 2020.
- C3. T. Akter, **Tousif Ahmed**, A. Kapadia, and M. Swaminathan. “Privacy Considerations of the Visually Impaired with Camera Based Assistive Technologies: Misrepresentation, Impropriety, and Fairness”. In The 22nd International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS ’20), 2020.
- C4. S. Chatterjee, M. Rahman, **Tousif Ahmed**, N. Saleheen, E. Nemati, V. Nathan, K. Vatanparvar, and J. Kuang. “Assessing Severity of Pulmonary Obstruction from Respiration Phase-Based Wheeze-Sensing Using Mobile Sensors”. Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems, 2020, pp. 1–13.
- C5. N. Saleheen, **Tousif Ahmed**, E. Rahman M. and Nemati, V. Nathan, K. Vatanparvar, E. Blackstock, and J. Kuang. “Lung Function Estimation from a Monosyllabic Voice Segment Captured Using Smartphones”. 22nd International Conference on Human-Computer Interaction with Mobile Devices and Services, 2020.
- C6. **Tousif Ahmed**, M. Ahmed, M. Rahman, E. Nemati, B. Islam, K. Vatanparvar, V. Nathan, D. McCaffrey, J. Kuang, and A. Gao. “Automated Time Synchronization of Cough Events from Multimodal Sensors in Mobile Devices”. Proceedings of the 2020 International Conference on Multimodal Interaction, 2020, pp. 614–619.
- C7. Y. Rashidi, **Tousif Ahmed**, F. Patel, E. Fath, A. Kapadia, C. Nippert-Eng, and N. Su. “You don’t want to be the next meme: College Students’ Workarounds to Manage Privacy in the Era of Pervasive Photography”. Proceedings of the USENIX Symposium on Usable Privacy and Security (SOUPS ’18), 2018.

- C8. **Tousif Ahmed**, P. Shaffer, K. Connelly, D. Crandall, and A. Kapadia. “Addressing Physical Safety, Security, and Privacy for People with Visual Impairments”. In Proceedings of the 12th Symposium on Usable Privacy and Security (SOUPS), 2016, pp. 341–354.
- C9. Q. Ismail, **Tousif Ahmed**, A. Kapadia, and M. Reiter. “Crowdsourced Exploration of Security Configurations”. In Proceedings of The ACM SIGCHI Conference on Human Factors in Computing Systems (CHI), 2015, pp. 467–476.
- C10. **Tousif Ahmed**, R. Hoyle, K. Connelly, D. Crandall, and A. Kapadia. “Privacy Concerns and Behaviors of People with Visual Impairments”. In ACM SIGCHI Conference on Human Factors in Computing (CHI), 2015, pp. 3523–3532.

Patent Applications

- P1. M. Rahman, **Tousif Ahmed**, M. Ahmed, V. Nathan, E. Nematihosseiniabadi, K. Vatanparvar, J. Kuang, and J. Gao. Adaptive respiratory condition assessment. *US Patent App. 17/072,341*, 2021.
- P2. K. Vatanparvar, **Tousif Ahmed**, E. Nathan V. and Nematihosseiniabadi, M. Rahman, J. Kuang, and J. Gao. System and method for passive subject specific monitoring. *US Patent App. 16/999,027*, 2021.

Talks & Presentations

UC Santa Cruz	HCI Seminar Talk , Towards the Design of Wearable Assistive Technologies to Address the Privacy and Security Concerns of People with Visual Impairments.	2022
RIT	Invited Talk , Towards the Design of Wearable Assistive Technologies to Address the Privacy and Security Concerns of People with Visual Impairments.	2019
Ubicomp	Conference Presentation , Up to a Limit? Privacy Concerns of Bystanders and Their Willingness to Share Additional Information with Visually Impaired Users of Assistive Technologies	2018
INFO-I407	Guest Lecture , Towards the design of Accessible privacy	2017-2018
SOUPS	Conference Presentation , Addressing the Physical Safety, Security, and Privacy Concerns of People with Visual Impairments	2016
BLUES Lab, UC Berkeley	Invited Talk , Privacy Concerns and Behaviors of People with Visual Impairments	2015

Mentoring

Samsung	Zihan Wang , MS at Stanford University	2021-22
Samsung	Bashima Islam , PhD Student at UNC Chapel Hill (Now Asst. Professor at WPI)	2021
IU	Sanchari Das , PhD Student at Indiana University	2016-18
IU	Taslina Akter , PhD Student at Indiana University	2016-19

Honors & Awards

SRA	Best Paper Award , Samsung Research	2021
SRA	Q2 Best Performer , Digital Health Lab	2021
Austin, TX	Best Industry Paper Award , IEEE Percom 2020	2020
Santa Clara, CA	John Karat Usable Privacy and Security Student Research Award , Awarded for excellence in Usable Privacy and Security Research.	2019
Sanfrancisco, CA	Student Scholar , ACM’s Celebration of 50 Years of the Turing Award	2017

Academic Services

Program Committee	CHI 2020 (Associate Chair in Privacy Subcommittee), ASSETS 2019-2022
Workshop Organizing	Inclusive Privacy and Security Workshop in SOUPS 2019, 2020, 2021
External Reviewer	IMWUT 2019-2022, CSCW 2020, CHI 2016-2019, PETS 2018, DIS 2018, TEI 2018, CSCW 2018, SOUPS 2016-18.
Security Reading Group	Organize weekly seminars for discussing research papers and emerging research trends in security and privacy.