

Taylan K. Sen

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EDUCATION

University of Rochester , Rochester, NY. PhD candidate in Computer Science Thesis: <i>Computational Models of Interpersonal Facial Expression and Sentiment</i> Advisor: M Ehsan Hoque	March 2020 (expected)
University at Buffalo , Buffalo, NY JD in law Concentration in intellectual property law	May 2008
Cornell University , Ithaca, NY MS in Biological Engineering Thesis: <i>Characterization of the Rotary Motion in the Biological Motor F1-ATPase</i> BS in Electrical Engineering	May 2005 May 1996

PROFESSIONAL EXPERIENCE

Intellectual Property Associate Attorney <i>Phillips Lytle LLP, Buffalo, NY</i> Patent prosecution, opinion drafting, and intellectual property litigation.	2008–2013
Senior Software Engineer <i>Harris RF Communications, Rochester, NY</i> Software engineering for the voice DSP on military radios.	2001–2005
Senior Member of Technical Staff <i>Cadence Design Systems, R & D, San Jose, CA</i> User interface and algorithmic software engineering for Electronic Design Automation (EDA) tools.	1997-1999
Architecture Software Engineer <i>Actel Corporation (now Microsemi), Sunnyvale, CA</i> Algorithmic software development for field programmable gate array (FPGA) place and route tools.	1996-1997

SELECT AWARDS & HONORS

- **Credibility Assessment Standardized Evaluation (CASE) challenge by IARPA—1st Place** 2019
Proposed a protocol, w/ Haut and Hoque, to assess the truthfulness of specific claims and to the assessment of the reliability, honesty, and trustworthiness of a source of a particular claim, whether that to be an individual, group or a broader organization or entity.
- **NSF Cornell Nanobiotechnology Center Fellowship**
Three-year coverage of graduate tuition and stipend for study in nanobiotechnology.

PUBLICATIONS

The top-tier venues in human-computer interaction and affective computing are ACM UbiComp, IEEE FG, and AAAC ACII. In 2016, UbiComp transitioned to a hybrid journal structure under Proceedings of the ACM (PACM: IMWUT).

Refereed Full Conference and PACM (conference-journal hybrid) Papers

1. R. Langevin, M. R. Ali, **T. Sen**, C. Snyder, T. Myers, E. R. Dorsey, M. E. Hoque, **The PARK Framework for Automated Analysis of Parkinson's Disease Characteristics**, *Proceedings of ACM on Interactive, Mobile, Wearable, and Ubiquitous Computing (IMWUT 2019)*, London UK, September 2019.
2. M.K. Hasan, W. Rahman, L. Gerstner, **T. K. Sen**, S. Lee, K. G. Haut, M. E. Hoque, **Facial Expression Based Imagination Index and a Transfer Learning Approach to Detect Deception**, *8th International Conference on Affective Computing and Intelligent Interaction (ACII 2019)*, Cambridge, UK, September 2019.
3. M. Ali, **T. Sen**, V. Nguyen, R. Rawassizadeh, P. Duberstein, R. Epstein, M. E. Hoque, **What Computers Can Teach Us About Doctor-Patient Communication: Leveraging Gender Differences in Cancer Care**, *8th International Conference on Affective Computing and Intelligent Interaction (ACII 2019)*, Cambridge, UK, September 2019.
4. M. K. Hasan, **T. K. Sen**, Y. Yang, R. A. Baten, K. G. Glenn, and M. E. Hoque, **LIWC Into the Eyes: Using Facial Features to Contextualize Linguistic Analysis in Multimodal Communication**, *8th International Conference on Affective Computing and Intelligent Interaction (ACII 2019)*, Cambridge, UK, September 2019.
5. R. Rawassizadeh, **T. Sen**, S.J. Kim, C. Meurisch, H. Keshavarz, M. Mühlhäuser, and M. Pazzani, **Manifestation of Virtual Assistants and Robots into Daily Life: Vision and Challenges**, *CCF Trans. on Pervasive Computing and Interaction*, 2019.
6. **T. Sen**, K. Hasan, Z. Teicher, M. E. Hoque, **Automated Dyadic Data Recorder (ADDR) Framework and Analysis of Facial Cues in Deceptive Communication**, *Proceedings of ACM on Interactive, Mobile, Wearable, and Ubiquitous Computing (IMWUT 2018)*.
7. M. R. Ali, **T. K. Sen**, D. Crasta, V-D. Nguyen, R. Rogge, M. E. Hoque, **The What, When, and Why of Facial Expressions: An Objective Analysis of Conversational Skills in Speed-Dating Videos**, *IEEE International Conference on Automated Face and Gesture Recognition*, China, May 2018.
8. **T. K. Sen**, K. Hasan, M. Tran, M. Levin, Y. Yang, M. E. Hoque, **Say CHEESE: Common Human Emotional Expression Set Encoder Analysis of Smiles in Honest and Deceptive Communication**, *IEEE International Conference on Automated Face and Gesture Recognition (FG 2018)*, Xian, China, May 2018.
9. **T. Sen**, M. R. Ali, P. Duberstein, R. Epstein, M. E. Hoque, **Modeling Doctor-Patient Communication with Affective Text Analysis**, *7th International Conference on Affective Computing and Intelligent Interaction (ACII 2017)*.

Demos

10. **T. K. Sen**, M. W. Sinko, A. T. Wilson, M. E. Hoque, **M.I.D.A.S. Touch: Magnetic Interactive Device for Alternative Sight through Touch**, *The 16th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2014)*, Rochester, NY, October, 2014.

Works in Submission

11. M. Tran, **T. Sen**, M. Ali, M.E. Hoque. **Are you really looking at me? A framework for extracting interpersonal eye gaze from conventional video.** In submission to IEEE Transactions on Affective Computing, October, 2019.
12. G. Naven, **T. Sen**, L. Gerstner, K. Hasan, K. Haut, M.E. Hoque. **Leveraging shared and divergent facial expression behavior between genders in credibility assessment.** In submission to IEEE International Conference on Automatic Face & Gesture, October, 2019.

Works in Preparation

13. **T. Sen**, M. Tran, K. Hassan, K. Haut, M.R. Ali, R Rawassizadeh, A. Swobu, M. Frank, M.E. Hoque. **Modeling interpersonal facial expression via action unit clustering using a modified beta mixture model.**
14. D. Lomakin, **T. Sen**, K. Haut, M.E. Hoque. Mental Trespass: Civil liberties and noninvasive AI-based deception detection.
15. M.R. Ali, **T. Sen**, M.E. Hoque. **Analyzing Head Pose in Remotely-Collected Videos of People with Parkinson's Disease.**

ACADEMIC SERVICE

Student Mentor

Throughout my PhD experience I have spent a substantial amount of time mentoring undergraduate and master's students research projects in their independent study research projects that they conducted under my and my advisor's guidance. These students include:

(* indicates students from disadvantaged background)

- 1) Gazi Naven Ahmed (Xerox Fellow), masters in Data Science.
- 2) Melissa Wen* (Xerox Fellow), undergrad student in Computer Science.
- 3) Luke Gerstner* (McNair Fellow), undergrad in Computer Science.
- 4) Edan Meyer, undergraduate in Computer Science
- 5) Kurtis Haut, undergraduate in Computer Science
- 6) Minh Tran, undergraduate in Math and Computer Science
- 7) Matt Levin, undergraduate in Computer Science
- 8) Xin Xu*, masters student, Computer Science
- 9) Shaowei Su, masters student, Computer Science
- 10) Morgan Sinko (graduated in 2015)
- 11) Alex Wilson (graduated in 2015)

Reviewer

UbiComp 2019, Ubicomp 2018, ACII 2019, CHI 2018

PRESS/MEDIA COVERAGE

Selected News on the ADDR framework and deception research (UbiComp 2018 and FG 2018)

UofR News, Using data science to tell which of these people is lying

<http://www.rochester.edu/newscenter/data-science-facial-expressions-who-if-lying-321252/>

Newsweek, How to Spot a Liar: Experts Uncover the Signs of Deception-Can you see them?

<http://www.newsweek.com/how-spot-liar-experts-uncover-real-signs-deception-can-you-spot-them-941954>

DailyMail, Can YOU spot the liar? Researchers develop online game to help AI crack down on racial biases by analyzing over a million faces

<http://www.dailymail.co.uk/sciencetech/article-5763591/Can-spot-liar-Play-online-game-AI-using-analyze-million-faces.html>

WXXI News, UR research on lie detection could help at airports

<http://wxxinews.org/post/ur-research-lie-detection-could-help-airports>

The Times, Facial Software knows if you have something to hide

<https://www.thetimes.co.uk/article/facial-software-knows-if-you-have-something-to-hide-wsjps63r0>