

## Education

- 2020 Ph.D. in Computer Science  
University of Rochester
- 2016 M.S. in Computer Science  
University of Rochester
- 2013 B.Sc. in Computer Science and Engineering  
Bangladesh University of Engineering and Technology

## Employment

- 2020 1. Postdoctoral Associate August 2020 - Present  
Rochester HCI lab, University of Rochester Mentor: Ehsan Hoque
- 2019 2. Microsoft Research Intern. May 2019 – August 2019  
Build a convolutional neural network framework to detect Parkinson’s disease from videos. Mentor: Daniel McDuff and Mary Czerwinski.

## Publications

- 2020 1. **M. Rafayet Ali**, Seyedeh Razavi, Raina Langevin, Abdullah Al Mamun, Benjamin Kane, Reza Rawassizadeh, Lenhart Schubert, and Ehsan Hoque. “A Virtual Conversational Agent for Teens with Autism Spectrum Disorder: Experimental Results and Design Lessons”, Intelligent Virtual Agents (IVA 2020)
2. **M. Rafayet Ali**, Daniel McDuff, Javier Hernandez, E. Ray Dorsey, and Ehsan Hoque, “Spatio-Temporal Attention and Magnification for Classification of Parkinson's Disease from Videos Collected via the Internet”, IEEE Conference on Automatic Face and Gesture Recognition. FG 2020
3. M. Tran, T K. Sen, K. G. Haut, **M. Rafayet Ali**, M. E. Hoque, "Are you really looking at me? A Feature-Extraction Framework for Estimating Interpersonal Eye Gaze from Conventional Video", IEEE Transactions on Affective Computing. IEEETAC
4. E. Ray Dorsey, L. Omberg, E. Waddell, J. Adams, R. Adams, **M. Rafayet Ali**, K. Amodeo, A. Arky, E. Augustine, K. Dinesh, E. Hoque, A. Glidden, S. Roberts, Z. Kabelac, D. Katabi, K. Kiebertz, D. Kinel, M. Little, K. Lizarraga, T. Myers, S. Riggare, S. Rosero, S. Saria, G. Schifitto, et al. “Deep Phenotyping of Parkinson’s Disease”, Journal of Parkinson's Disease. JPD
- 2019 5. Raina Langevin, **M. Rafayet Ali**, Taylan Sen, Christopher Snyder, Taylor Myers, E. Ray Dorsey, Ehsan Hoque, “Could I have Parkinson’s? The PARK Framework for



Automated Assessment of Parkinson's Disease", ACM International Joint Conference on Pervasive and Ubiquitous Computing.  
(Distinguished Paper Nomination) UbiComp 2019

6. **M. Rafayet Ali**, Taylan Sen, Viet-Duy Nguyen, Reza Rawassizadeh, Paul Duberstein, Ronald Epstein, and M Ehsan Hoque, "What Computers Can Teach Us About Doctor-Patient Communication: Leveraging Gender Differences in Cancer Care." International Conference on Affective Computing & Intelligent Interaction. ACII 2019
- 2018 7. **M. Rafayet Ali**, Taylan Sen, Dev Crasta, Viet-Duy Nguyen, Ronald Rogge, M Ehsan Hoque, "What, When, and Why of Facial Expressions: An Objective Analysis of Conversational Skills in Speed-Dating Videos", Automatic Face and Gesture Recognition. FG 2018
8. **M. Rafayet Ali**, K.V. Orden, K. Parkhurst, V. Nguyen, S. Liu, P. Duberstein, M. E. Hoque, "Aging and Engaging: A Social Conversational Skills Training Program for Older Adults", ACM Intelligent User Interfaces. IUI 2018
9. S. Samrose, R. Zhao, J. White, V. Li, L. Nova, Y. Lu, **M. Rafayet. Ali**, M. E. Hoque, "CoCo: Collaboration Coach for Understanding Team Dynamics during Video Conferencing", ACM International Joint Conference on Pervasive and Ubiquitous Computing. UbiComp 2018
- 2017 10. T. Sen, **M. Rafayet Ali**, R. Epstein, P. Duberstien, and M. E. Hoque, "Modeling Doctor-Patient Communication with Affective Text Analysis", IEEE International Conference on Affective Computing and Intelligent Interaction. ACII 2017
11. K. V. Orden, **M. Rafayet Ali**, K. Parkhurst, P. Duberstein, M. E. Hoque, "Aging & Engaging: The Development of an Automated Tool to Teach Social Engagement Skills for Older Adults," Annual Meeting of the American Association for Geriatric Psychiatry. AAGP 2017
12. S. Razavi, L. K. Schubert, **M. Rafayet Ali**, and M. E. Hoque, "Managing Casual Spoken Dialogue Using Flexible Schemas, Pattern Transduction Trees, and Gist Clauses," Conference on Advances in Cognitive Systems. ACS 2017
- 2016 13. **M. Rafayet Ali**, F. Ciancio, R. Zhao, I. Naim, M. E. Hoque, "ROC Comment: Automated Descriptive and Subjective Captioning of Behavioral Videos", ACM International Conference on Pervasive and Ubiquitous Computing. UbiComp 2016
14. S. Razavi, **M. Rafayet Ali**, L. Schubert, M. E. Hoque, "The LISSA Virtual Human and ASD Teens: An Overview of Initial Experiments." *Intelligent Virtual Agents*. IVA2016
15. D. Crasta, **M. Rafayet Ali**, R. Rogge, M. E. Hoque, "Can Automated Conversation Skills Coaching Improve Interpersonal Attractiveness and Effectiveness?" The 17<sup>th</sup> annual convention of Society for Personality and Social Psychology. SPSP 2016

- 2015 16. **M. Rafayet Ali**, Dev Crasta, Li Jin, A. Baretto, J. Pachter, R. Rogge, M. E. Hoque, “LISSA- Live Interactive Social Skill Assistance,” International Conference on Affective Computing and Intelligent Interaction. ACII 2015

### Doctoral Consortium

- 2019 1. **M. Rafayet Ali**, "Online Virtual Standardized Patient for Communication Skills Training", ACM Intelligent User Interfaces. IUI 2019
- 2017 2. **M. Rafayet Ali**, and Mohammed Ehsan Hoque, “Social Skills Training with Virtual Assistant and Real-time Feedback”, 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing. UbiComp 2017
3. **M. Rafayet Ali**, “Automated Social Skills Coach with Real-Time Feedback on Nonverbal Cues”, Automatic Face and Gesture Recognition. FG 2017
- 2015 4. **M. Rafayet Ali**, “Automated conversation skills assistant.” International Conference on Affective Computing and Intelligent Interaction. ACII 2015

### Workshop

- 2019 1. Zahra Razavi, Lenhart Schubert, Benjamin Kane, **M. Rafayet Ali**, Kimberly A. Van Orden, and Tianyi Ma, “Dialogue Design and Management for Multi-Session Casual Conversation with Older Adults”, User-Aware Conversational Agents, ACM Intelligent User Interfaces. IUI 2019
- 2018 2. A. Singhal, **M. Rafayet Ali**, R. Baten, C. Kurumada, E. Marvin, and M Ehsan Hoque, “Analyzing the Impact of Gender on the Automation of Feedback for Public Speaking” Automatic Face and Gesture Recognition. FG 2018

### Projects

- 2020 **Aging and Engaging**: Online platform for helping older adults with communication deficits by allowing them to practice conversation with a virtual agent and receive feedback. (using Python, JavaScript, C#, PHP). <https://github.com/mali7/lissa>
- The Values and Options In the Cancer Experience (VOICE)**: Understanding the communication patterns of doctors and advanced cancer patients from audio and speech features using machine learning techniques including clustering, deep learning, SVM, and linear regression. (using Python) <https://github.com/mali7/voice>
- 2019 **PARK** - Parkinson's Analysis with Remotely-accessed Knowledge: A web-based interface to collect the data from Parkinson’s patients to assess the severity of the disease. (using JavaScript, Python). <https://www.machinteraction.com/parkinsons/>
- 2018 **CoCo (Collaboration Coach)**: Online video conferencing tool for enhancing collaborative discussions.

- 2016 **ROC Comment:** An automated interface for generating natural language comments for behavioral videos. The system utilizes a model based on LSTM. (using Java, Python, PHP). [www.tinyurl.com/roccomment](http://www.tinyurl.com/roccomment) <https://github.com/mali7/roccomment>
- 2015 **Live Interactive Social Skills Assistant (LISSA):** A web-based system that helps people practice their conversational skills with a human-like virtual agent and receiving real-time feedback on nonverbal behavior (using JavaScript, C#, PHP). <https://github.com/mali7/Speed-dating>
- 2014 **ROC Speak Real Time:** A web-based tool allowing people to practice public speaking with real-time feedback (using JavaScript, Praat, C#, ffmpeg). [demo](#)
- 2012 **Hospital Management System:** A database project for hospital management and information System (using Oracle, ASP.Net, C#).

## Teaching Experience

- 2015 Graduate Teaching Assistant, Dept. of Computer Science, University of Rochester.  
 ○ Courses: Database Systems, Advanced Front-end Web Development.
- 2014 Lecturer, Ahsanullah University of Science and Technology, Dhaka, Bangladesh.  
 ○ Courses: Digital Electronics, Computer Graphics, Software Development.

## Invited Talks

- 2017 NSF Research Traineeship Program (NRT)  
 Title: Automated Social Skills Training.
- 2017 NSF Research Experiences for Undergraduates (REU) Symposium  
 Title: Virtual Assistants for Automated Social Skills Coaching.

## Technical skills

Languages	Python, C, C++, R, C#, Java, JavaScript, PHP, HTML5, CSS.
Machine Learning tools	Scikit-learn, Keras, NLTK.
API & IDEs	Android, OpenGL, Microsoft Visual Studio, Netbeans, Eclipse.
Database	Oracle, MySQL.

## Services

### Review

- Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT 2020)
- CHI Conference on Human Factors in Computing Systems (CHI 2019, 2020)
- Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT 2017)
- Automated Face and Gesture Recognition (FG 2017)
- Intelligent User Interface (IUI 2016)

- IEEE Transactions on Affective Computing

#### Student Volunteer

- Intelligent User Interfaces (IUI 2019, 2018)

### Mentorship

- |                        |  |
|------------------------|--|
| Undergraduate Students | <ul style="list-style-type: none"> <li>• Qianyi Li*, (Data Science 2020), MS student at Duke University.</li> <li>• Raina Langevin*, (Computer Science 2019), Ph.D. Student at U of Washington.</li> <li>• VietDuy. Nguyen, (Computer Science 2019), Ph.D. Student at U of Texas Austin.</li> <li>• Joshua Pachter, (Computer Science 2018), Software Engineer at Amazon.</li> </ul> |
| Master's Students      | <ul style="list-style-type: none"> <li>• Li Jin*, (Technical Entrepreneurship 2016), Senior Consultant at EY.</li> <li>• Agustin Baretto, (Technical Entrepreneurship 2016), Founder of Neginet.</li> <li>• Facundo Ciancio, (Technical Entrepreneurship 2016), Dev Manager at Mercado.</li> </ul>   |

\* Underrepresented and minority students

### Collaborators

Lenhart K. Schubert, Professor, Computer Science, University of Rochester.

Ronald M. Epstein, Professor of Family Medicine, Psychiatry & Oncology, University of Rochester.

Paul Duberstein, Professor of Medicine and Psychiatry, University of Rochester.

E. Ray Dorsey, Professor of Neurology, University of Rochester.

Ronald D. Rogge, Associate Professor of Psychology, University of Rochester.

Kimberly A. Van Orden, Assistant Professor of Psychiatry, University of Rochester.

### References

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