Md Mustafizur Rahman

School of Information
University of Texas at Austin
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RESEARCH INTERESTS
Information Retrieval, Machine Learning

EDUCATION
Ph.D. in Information Studies (in progress)
University of Texas at Austin, TX 78712   GPA 3.93   August 2016 - present
Area - Information Retrieval
Adviser - Dr. Matthew Lease

Master of Computer Science
University of Virginia, VA 22903   GPA 3.72   May 2016
Area - Text Mining
Thesis - Hidden Topic Sentiment Model
Adviser - Dr. Hongning Wang

Master of Science in Computer Science & Engineering
Bangladesh University of Engineering & Technology, Dhaka   GPA 3.83   August 2013
Area - Machine Learning
Thesis - Forecasting Time Series - An Ensemble based approach
Adviser - Dr. Md. Monirul Islam

Bachelor of Science in Computer Science & Engineering
Bangladesh University of Engineering & Technology, Dhaka   GPA 3.95   February 2011
Area - Sensor Network
Thesis - Detecting Cuts in Wireless Sensor Network
Adviser - Dr. Masud Hasan and Dr. Mahmuda Naznin

RESEARCH EXPERIENCE
Graduate Research Assistant   September 2016 - present
School of Information
University of Texas at Austin
Adviser - Dr. Matthew Lease
Topic - Information Retrieval
- Efficient Test Collection Construction via Active Learning.
- Constructing Test Collections using Multi-armed Bandits and Active Learning.

- Co-Training for Neural Network Modeling under Low Supervision - Developed a Co-Training approach which bootstraps the neural model using one or more simpler learning models and a pool of unlabeled data.
- Answer Selection in Non-factoid Question Answering using Deep Learning - Developed a Convolutional Neural Network (CNN) based approach for non-factoid question answering.

Researcher Intern   June 2020 - August 2020
Microsoft Bing
Sunnyvale, CA
Adviser - Doran Chakraborty
Topic - Answering questions from Web Tables using TAPAS and BERT
- Developed a question answering model for Bing's Web Table using Table Parser and BERT

Researcher Intern   June 2019 - August 2019
Microsoft Bing
Sunnyvale, CA
Adviser - Doran Chakraborty
Topic - Tail Question Answering using Multi-tasking and BERT
- Developed a multi-tasking BERT model to answer tail questions submitted to Microsoft Bing

PhD Research Intern   May 2018 - August 2018
Samsung Research America
Mountain View, CA
Adviser - Hongxia Jin
Topic - Open Domain Question Answering using Wikipedia
- Developed a context related question answering system for Samsung *Bixby* using a reading comprehension model and a learning to rank model

Applied Machine Learning Intern   June 2017 - August 2017
Los Alamos National Laboratory
Los Alamos, NM
Adviser - Sunil Thulasidasan
Topic - Semi-supervised Deep Learning for Understanding Cancer Pathology Reports
- Developed a semi-supervised graph-based deep learning model that leverages both labeled and unlabeled data points.
- Extracted clinical information from cancer pathology reports for automatic cancer type and site detection.
- Pre-processed cancer pathology reports by performing the sentence boundary disambiguation using a Maximum Entropy model and a Bi-directional LSTM deep model.

Graduate Research Assistant   June 2015 - August 2015
Department of Computer Science
University of Virginia
Adviser - Dr. Hongning Wang
Topic - Computational User Behavior Modelling
- Implemented several probabilistic topic models including 2-topic mixture model, probabilistic latent semantic analysis (pLSA), hidden topic markov model (HTMM).

- Developed a Hidden Markov Model based generative model to capture users' sentiments along with topics.

Graduate Researcher   April 2012 - August 2013
Department of Computer Science & Engineering
Bangladesh University of Engineering & Technology
Adviser - Dr. Md. Monirul Islam
Topic - Ensemble based approach for time series forecasting
- Developed a novel layered ensemble architecture for time series forecasting.

SELECTED PUBLICATIONS
Work in progress
1. **Md Mustafizur Rahman**, Mucahid Kutlu, and Matthew Lease, "Understanding and Predicting the Characteristics of a Test Collection Before Collecting Relevance Judgments," *in preparation for ECIR 2021*

Journal (***Work done at UT Austin, Texas***)
1. Kezban Dilek Onal, Ye Zhang, Ismail Sengor Altingovde, **Md Mustafizur Rahman**, Pinar Karagoz, Alex Braylan, Brandon Dang, Heng-Lu Chang, Henna Kim, Quinten McNamara, Aaron Angert, Edward Banner, Vivek Khetan, Tyler McDonnell, An Thanh Nguyen, Dan Xu, Byron C. Wallace, Maarten de Rijke, and Matthew Lease. "Neural Information Retrieval: At the End of the Early Years". *Information Retrieval Journal*, June 2018. Springer.

Journal (***Work done at BUET, Bangladesh***)
1. **Md Mustafizur Rahman**, Md. Monirul Islam, Kaziyuki Murase and Xin Yao. "Layered Ensemble Architecture for Time Series Forecasting". *IEEE transaction on Systems, Man Cybernetics*, 46(1): 270 - 283, January 2016. (**Impact Factor: 7.38**)
2. Mohammad Raihanul Islam, **Md. Mustafizur Rahman**, Asif Salekin, and Ahmed Shayer Andalib, "A Novel Approach for Generating Clustered Based Ensemble of Classifiers," *International Journal of Machine Learning and Computing*, vol. 3, no. 1, pp. 137-141, 2013.
3. **Md Mustafizur Rahman**, S. M. Ferdous, Syed Ishtiaque Ahmed, and Anika Anwar, "Speech Development of Autistic Children by Interactive Computer Games," *Interactive Technology and Smart Education (ITSE)*, Emerald, vol. 8, no. 4, pp. 208 - 223, 2011.

Conference Proceedings
Long Paper (***Work done at UT Austin, Texas***)
1. **Md Mustafizur Rahman**, Mucahid Kutlu, Tamer Elsayed, and Matthew Lease, "Efficient Test Collection Construction via Active Learning". *In Proceedings of the 2020 ACM SIGIR on International Conference on Theory of Information Retrieval (ICTIR '20)*. Association for Computing Machinery, New York, NY, USA, pp. 177 – 184.

Long Paper (***Work done at University of Virginia, VA***)
1. **Md Mustafizur Rahman** and Hongning Wang. "Hidden Topic Sentiment Model". In *Proceedings of the 25th International World Wide Web conference (WWW 2016)*, ACM, Montral, Qubec, Canada, pp. 155 - 165, April 2016. (**Acceptance Rate: 16%**)

Long Papers (**Work done at BUET, Bangladesh**)

1. S. M. Ferdous, **Md Mustafizur Rahman**, and Mahmuda Naznin. "Finding Network Connectivity Failure in a Wireless Sensor Network". In *Proceedings of the IFIP/IEEE Wireless Days*, IEEE, France, pp. 299 - 304, March 2016.

2. **Md Mustafizur Rahman**, S. K. K. Santu, Md. Monirul Islam, and Kazuyuki Murase. "Forecasting Time Series - A Layered Ensemble Architecture". In *Proceedings of the International Joint Conference on Neural Networks (IJCNN 2014)*, IEEE, Beijing, China, pp. 210 - 217, July 2014.

3. S. K. K. Santu, **Md Mustafizur Rahman**, Md. Monirul Islam, and Kazuyuki Murase. "Towards better generalization in Pittsburgh Learning Classifier Systems". In *Proceedings of the IEEE World Congress on Computational Intelligence (CEC 2014)*, IEEE, Beijing, China, pp. 1666 - 1673, July 2014.

4. Nashid Shahriar, Mahfuza Sharmin, Reaz Ahmed, **Md Mustafizur Rahman**, Raouf Boutaba, and Bertrand Mathieu. "Diurnal Availability for Peer-to-Peer Systems". In *Proceedings of the IEEE Consumer Communications and Networking Conference (CCNC)*, Las Vegas, NV, USA, pp. 619 - 623, January 2012.

5. S. M. Ferdous, Anindya Das, M. Sohel Rahman, and **Md Mustafizur Rahman**. "An Ant Colony Optimization approach to solve the Minimum String Cover Problem". In *Proceedings of the International Conference on Informatics, Electronics Vision (ICIEV)*, Dhaka, pp. 741-746, May 2012.

6. Azad Abdus Salam, Md. Kamrul Hasan, M.Arif Imtiazur Rahman, **Md Mustafizur Rahman**, and Nashid Shahriar. "Changing trends of climate in Bangladesh and a noble procedure of distribution of rainfall by clustering". In *Proceeding of the International Conference on Statistical Data Mining for Bioinformatics Health Agriculture and Environment*, Rajshahi, Bangladesh, pp. 405 - 411, December 2012. ISBN: 978-984-33-5876-9.

7. Arshia Zernab Hassan, Bushra Tasnim Zahed, Fatema Tuz Zohora, Johra Muhammad Moosa, Tasmiha Salam, and **Md Mustafizur Rahman**. "Developing the Concept of Money by Interactive Computer Games for Autistic Children". In *Proceedings of the IEEE Symposium on Multimedia*, IEEE Computer Society Press, California, USA, pp. 559 - 564, December 2011.

8. **Md Mustafizur Rahman**, S. M. Ferdous, and Syed Ishtiaque Ahmed. "Increasing intelligibility in the speech of the autistic children by an interactive computer game". In *Proceedings of the IEEE Symposium on Multimedia*, IEEE Computer Society Press, Taiwan, China, pp. 383-387, December 2010.

Short Papers (**Work done at UT Austin, Texas**)

1. **Md Mustafizur Rahman**, Mucahid Kutlu, and Matthew Lease,"Constructing Test Collections using Multi-armed Bandits and Active Learning", In *Proceedings of the 28th International World Wide Web Conference (WWW 2019)*, San Francisco, USA, 2019. (**Acceptance Rate: 19.94%**)

2. Malay Bhattacharyya, Yoshihiko Suhara, **Md Mustafizur Rahman**, and Markus Krause. "Possible Confounds in Word-based Semantic Similarity Test Data". In *Proceedings of the 20th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2017)*, ACM, Portland, OR, USA, pp. 147 - 150, February 2017.

Short Papers (**Work done at BUET, Bangladesh**)

1. Sajedul Karim Talukder, M. I. I. Sakib, and **Md Mustafizur Rahman**. "Model for E-Government in Bangladesh: A Unique ID Based Approach". In *Proceedings of the International Conference on Informatics, Electronics Vision (ICIEV)*, Dhaka, Bangladesh, May 2014.

2. Sajedul Karim Talukder, M. I. I. Sakib, and **Md Mustafizur Rahman**. "Digital Land Management System: A new initiative for Bangladesh". In *Proceedings of the International Conference on Electrical Engineering and Information Communication Technology (ICEE-ICT)*, Dhaka, Bangladesh, April 2014.

3. K.M.A. Solaiman, **Md Mustafizur Rahman**, and Nashid Shahriar. "AVRA Bangladesh collection, analysis & visualization of road accident data in Bangladesh". In *Proceedings of the International Conference on Informatics, Electronics & Vision (ICIEV)*, IEEE, Dhaka, Bangladesh, May 2013.

4. Asif Salekin, **Md Mustafizur Rahman** and Shihab Hasan Chowdhury. "Pattern matching in time series using combination of neural network and rule based approach". In *Proceedings of the 7th International Conference on Electrical & Computer Engineering (ICECE 2012)*, Dhaka, Bangladesh, pp. 478 - 481, December 2012.

5. Asif Salekin, **Md Mustafizur Rahman**, and Raihanul Islam. "Composite Pattern Matching in Time Series". In *Proceedings of the 15th International Conference on Computer & Information Technology (ICCIT 2012)*, Chittagong, Bangladesh, December 2012.

Poster Presentations (**Work done at BUET, Bangladesh**)

1. Mohammad Raihanul Islam, **Md Mustafizur Rahman**, Asif Salekin, Shihab Hasan Chowdhury, and Samiul Alam Anik. "A Novel Clustering-Based Ensemble Classification Model for Block Learning". In *Proceedings of the 2nd International Conference on Pattern Recognition Applications and Methods (ICPRAM 2013)*, Barcelona, Spain, pp. 285 - 288, February 2013.

2. Mirfat Akter Sharmin, Md. Mizanur Rahman, Syed Ishtiaque Ahmed, **Md Mustafizur Rahman**, and S. M. Ferdous. "Teaching intelligible speech to the Autistic children by interactive computer games". In *Proceedings of the ACM Symposium on Applied Computing*, ACM Press, Taiwan, China, pp. 1208 - 1209, March 2011.

3. Anika Anwar, **Md Mustafizur Rahman**, S. M. Ferdous, Samiul Alam Anik, and Syed Ishtiaque Ahmed. "A Computer Game based Approach for Increasing Fluency in the Speech of the Autistic Children". In *Proceedings of the IEEE International Conference on Advanced Learning Technologies*, IEEE Computer Society Press, Athens, Georgia, USA, pp. 17 - 18, July 2011.

Book Chapter (*Work done at BUET, Bangladesh*)

1. Abdus Salam Azad, Md. Kamrul Hasan, M. Arif Imtiazur Rahman, **Md. Mustafizur Rahman**, and Nashid Shahria. "Exploring the Behavior and Changing Trends of Rainfall and Temperature Using Statistical Computing Techniques". *Computational Intelligence Techniques in Earth and Environmental Sciences*, Springer, pp. 53 - 78, January 2014.

ORGANIZING COMMITTEE MEMBER
Conference

- Workshop on Computational Intelligence (WCI 2012), Dhaka, Bangladesh
- Workshop on Algorithm and Computation (WALCOM 2012), Dhaka, Bangladesh
- Workshop on Graph Drawing and Graph Algorithm (GDGA 2013), Dhaka, Bangladesh
- Workshop on Women Empowerment through ICT: Higher Studies, Research, and Career (WE-ICT 2014), Dhaka, Bangladesh

REVIEWER
Conference

- The Fourth AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2016)

TEACHING EXPERIENCE
Graduate Teaching Assistant   Fall 2014, Spring 2015, Fall 2015, Spring 2016
Department of Computer Science
University of Virginia

- CS 4750 (Database Design): Spring 2016, Course Instructor: Prof. Nada Basit
- CS 2102 (Discrete Mathematics) Spring 2016, Course Instructor: Prof. David Edwards
- CS 4501 (Information Retrieval): Fall 2015, Course Instructor: Prof. Hongning Wang
- CS 3102 (Theory of Computation): Fall 2015, Course Instructor: Prof. Worthy Martin
- CS 3102 (Theory of Computation): Spring 2015, Course Instructor: Prof. Gabriel Robins
- CS 3102 (Theory of Computation): Fall 2014, Course Instructor: Prof. Worthy Martin
- CS 4810 (Computer Graphics): Fall 2014 Course Instructor: Prof. Jason Lawrence

Assistant Professor   February 2014 - August 2014
Department of Computer Science & Engineering
Bangladesh University of Engineering & Technology

Lecturer   March 2011 - January 2014
Department of Computer Science & Engineering
Bangladesh University of Engineering & Technology

HONORS

- Awarded with the University Graduate Continuing Fellowship 2019-2020 from the University of Texas at Austin

- Awarded with the iSchool Professional Development Award to present my research paper at the Web Conference 2019
- Full scholarship to attend a workshop on research frontier in Computing from School of Computing (SoC), National University of Singapore (NUS), Singapore. May 2012
- Awarded with a scholarship from Institute of International Education, New York, USA sponsored by AIG Foundation   2006–2011
- Deans list award for academic excellence from Bangladesh University of Engineering & Technology   2006–2011
- University scholarship for academic excellence from Bangladesh University of Engineering & Technology   2006–2011
- Award of excellence from Nazrul Islam Hall, Bangladesh University of Engineering & Technology   2011

REFERENCES

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