

AHMEDUL KABIR

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EDUCATION

Worcester Polytechnic Institute (WPI), Worcester, Massachusetts, USA

Ph.D. in Computer Science (May 2018, Advisor: Prof. Carolina Ruiz)

Ph.D. dissertation title: “Mixed Bagging: A Novel Ensemble Learning Framework for Supervised Classification based on Instance Hardness”

University of Dhaka, Dhaka

M.S. (2005) in Computer Science and Engineering, 1st Class 5th position (75.5% marks)

M.S. Thesis: “Human Facial Expression Recognition Using Region-based Motion Estimation”

University of Dhaka, Dhaka

B.Sc. (2004) in Computer Science and Engineering, 1st Class 10th position (75.7% marks)

Notre Dame College, Dhaka

H.S.C. (2000), Science, 1st Division (88.9% marks)

Ispahani Public School and College, Comilla

S.S.C. (1998), Science, 1st Division (88.7% marks)

TEACHING EXPERIENCE

Associate Professor, Institute of Information Technology (IIT), University of Dhaka (Oct 2022 - present)

Assistant Professor, Institute of Information Technology (IIT), University of Dhaka (May 2018 – Oct 2022), Part-time faculty at North South University (Sep 2018 – present)

- Courses taught: Artificial Intelligence, Software Analytics, Formal Methods and Models in Software Engineering, Discrete Mathematics, Data Structure & Algorithms

Adjunct Lecturer, Dept. of CS, WPI, USA (Aug 2017 – May 2018)

- Courses taught: Introduction to Artificial Intelligence, Analysis of Algorithms.

Graduate Teaching Assistant, Dept. of CS, WPI, USA (Aug 2012 – May 2017)

- Selected Courses as TA: Algorithms Design and Analysis, Data Mining and Knowledge Discovery, Machine Learning, Discrete Mathematics, Artificial Intelligence.

Lecturer, Institute of Information Technology (IIT), University of Dhaka (Jul 2010 – Aug 2012)

- Courses taught: Data Mining, Artificial Intelligence, Discrete Mathematics, Operating Systems, Object Oriented Programming.

Assistant Professor, Islamic University of Technology, Gazipur, Bangladesh, (Jan - Jun 2010)

- Courses taught: Artificial Intelligence, Image Processing.

Lecturer, BRAC University, Dhaka, Bangladesh (Sep 2008 – Dec 2009)

- Courses taught: Operating Systems, Digital Logic Design, Programming Language – I

FUNDED PROJECTS

- “**A Patient Care Robot with Automated Path Planning: A Case Study of Zero Shot Learning**”

Role: Co-Principal Investigator

Funded by: **Ministry of Science and Technology**, Govt. of Bangladesh

Year: 2021

- “**Developing a Prototype for Bengali Braille to Text Conversion**”

Role: Principal Investigator

Funded by: **ICT innovation fund**, ICT Division, Govt. of Bangladesh

Year: 2019-20

- “**Development of a Prototype Learning Tool for Autistic Children**”

Role: Principal Investigator

Funded by: **University Grants Commission**, Bangladesh

Year: 2019-20

- “**Developing an App to Improve use of Partograph during Intra-natal Period**”

Role: Co-supervisor

Funded by: **Terre des hommes** Foundation, an international charitable organization

Year: 2019-20

OTHER EXPERIENCES

- Contributed to curriculum design for Bangabandhu Sheikh Mujibur Rahman Digital University (BDU), Gazipur (2019) and Bangabandhu Sheikh Mujibur Rahman University, Kishoreganj (2022)
- Consultant for procurement process for CBS and Data Center for Community Bank Bangladesh Ltd, 2019
- IT consultant for Bangladesh Police (2018-20) and Bangladesh Technical Education Board (2021)
- Resource person at workshops for World Health Organization (2020), Bangladesh Youth Leadership Center (2021) and Capital Market Stabilization Fund (2022)
- Computer Science Expert for Reve Systems and Apurba Technologies for “Further Improvement of Bangla OCR Developed by ICTD & Integrating Hand Writing Recognition Systems” component of EBLICT project of ICT Division (Jul 2020- present)
- Resource person for training: college teachers in National University (2019), Teachers’ Training College, Dhaka (2021-present), Secondary and Higher Education Department (2022), medical personnel in Bangladesh Medical Research Council (2021-present)
- Conducted several training sessions for DU teachers on ICT technologies and online education organized by Center of Excellence in Teaching and Learning, 2018 – 2020
- Moderator of IIT Software Engineers’ Community, Jan 2019 – present
- Student Advisor of IIT, DU, Jan-Aug 2012

INTERNSHIPS

Data Science Intern, KAYAK , Cambridge, MA, USA (May-Aug 2014)

- Developed and tested algorithms for individual flight price prediction: a system to give suggestions to travelers on whether to buy a certain airline ticket or wait for a price drop

Data Science Intern, Chitika Inc., Westborough, MA, USA (May-Aug 2014)

- Developed an index to evaluate the quality of traffic at the company’s online ad network, helping the company to understand trends and assess its overall health
- Researched on implementing a model to predict clicks on mobile ads under the company’s online network

HONORS

- **Best paper award**: Dhaka University Journal of Applied Science and Engineering, Special Issue Volume 6, No 2, July 2021. Awarded at DU Research-Publication Fair, Oct 2022.
- Awarded **Teaching Assistant of the Year** for the 2016-17 academic year by Dept. of Computer Science, WPI, Apr 2017.
- Received Honorable Mention in the university-wide Teaching Assistant of the Year Award category in WPI Faculty Honors Convocation, Apr 2017
- Honorable mention for Poster presentation (PhD level) at Graduate Research Innovation Exchange, Poster Symposium Finals at WPI, Apr 2017 and Apr 2015.

JOURNAL PUBLICATIONS

1. Kulsum Ara Lipi, Sumaita Faria Karim Adrita, Zannatul Ferdous Tunny, MD Abir Hasan Munna and **Ahmedul Kabir**, “Static-Gesture Word Recognition in Bangla Sign Language Using Convolutional Neural Network” *TELKOMNIKA Telecommunication Computing Electronics and Control (Scopus indexed journal)*, Vol. 20, No. 5, pp. 1109-1116, October 2022.
2. Mohammad Sadat Hussain Rafsanjani and **Ahmedul Kabir**, “Violent Human Behavior Detection from Videos using Machine Learning” *Dhaka University Journal of Applied Science and Engineering*, Volume 7, No 1, January 2022. (Accepted)
3. Md. Sefat-E-Mahadi, Md Ashfaqu Islam, Mohammed Shafiu Alam Khan and **Ahmedul Kabir**, “A Neural Network-based Approach for Extractive Summarization of Bengali Documents” *Bangladesh Journal of Scientific Research (BJSR)*, Vol 34, 2021. (Accepted)
4. **(Best paper award)** Suravi Akhter, Sumon Ahmed, **Ahmedul Kabir** and Mohammad Shoyab, “A Relief Based Feature Subset Selection Method” *Dhaka University Journal of Applied Science and Engineering*, Special Issue Volume 6, No 2, July 2021.
5. **Ahmedul Kabir**, Carolina Ruiz, Sergio A. Alvarez, and Majaz Moonis, "Regression, Classification and Ensemble Machine Learning Approaches to Forecasting Clinical Outcomes in Ischemic Stroke" Book chapter In *Biomedical Engineering Systems and Technologies. Communications in Computer and Information Science*. N. Peixoto, M. Silveira, H.H., Ali, C. Maciel, E.L. van den Broek (Eds.). Vol. 881, pp. 376-402. Springer. July 2018.
6. **Ahmedul Kabir**, Carolina Ruiz, Sergio A. Alvarez, and Majaz Moonis, "Comparison of Conventional Regression with Machine Learning Methods for Stroke Outcome Prediction", *Indian Journal of Industrial and Applied Mathematics*, Vol. 7 No. 2, July-December 2016.
7. **Ahmedul Kabir** and Shaily Kabir, "Facial Expression Recognition Using Region-Based Motion Estimation", *Dhaka University Journal of Science*, Vol. 58 No. 2, pp. 175-181, July 2010.

8. **Ahmedul Kabir**, Khandaker Abir Rahman, Md. Rezaul Hasan and Suraiya Pervin, "Comparative Analysis of Adaptive Filter Algorithms in Noise Cancellation", *Dhaka University Journal of Science*, ISSN 1022-2502, Volume 56, No. 2, pp. 237-242, July 2008.
9. Hafiz Md. Hasan Babu, **Ahmedul Kabir** and A.S.M. Fazle Rabbi, "On the Modified Technique for Better Data Compression", *Bangladesh Journal of Scientific and Industrial Research*, 36(1-4), pp. 84-92, January-December 2001.
10. Khandaker Abir Rahman, **Ahmedul Kabir** and Shaikhul Arefin Khan, "Proposing a Standard Huffman Tree and Character Codes for Bangla Text Compression", *Journal of Electrical, Electronic and Communication Technology, Stamford University Bangladesh*, ISSN 1995-5383, Volume , Issue 1, October 2007, pages 107-111.
11. **Ahmedul Kabir**, Khandaker Abir Rahman, Ishtiaque Hussain, "Comparative Study of LMS and NLMS Algorithms in Interference Cancellation of Speech Signals", *Journal of State University of Bangladesh*, ISSN 1998-3786 (Online), Volume 1 No. 1, July 2007, pages 57-65.

CONFERENCE PAPERS

1. **(Accepted)** Amar Debnath, Sarker Ahmed Rume, **Ahmedul Kabir**, M Murshida Mahbub, and Moinul Islam Zaber, "Identification and Localization of Abnormalities from Chest X-Ray Images using Deep Learning", Workshop on Machine Learning and Artificial Intelligence in Bioinformatics and Medical Informatics (MABM 2022) at *IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2022)*, Las Vegas, USA, Dec 2022.
2. Zikra Amin and **Ahmedul Kabir**, "A Performance Analysis of Machine Learning Models for Attack Prediction using Different Feature Selection Techniques", *7th IEEE/ACIS International Conference on Big Data, Cloud Computing, and Data Science Engineering (BCD 2022)*, Da Nang, Vietnam, Aug 2022.
3. Md Abdul Masud Rana and **Ahmedul Kabir**, "Fraud Detection in Automotive Insurance Domain using Machine Learning", *7th International Conference on Big Data Analytics, Data Mining and Computational Intelligence*, Lisbon, Portugal, July 2022.
4. Ishtiaque Hussain, Ahmed Shamim Hasan, Rafed Muhammad Yasir, **Ahmedul Kabir** and Syed Ishtiaque Ahmed, "How Well Does Undergraduate Education Prepare Software Engineers? Perspectives of Practitioners in Bangladesh," *IEEE 32nd Conference on Software Engineering Education and Training (CSEE&T)*, Munich, Germany, Nov 2020.
5. Shihab Shahriar Khan, Nishat Tasnim Niloy, Md. Aquib Azmain and **Ahmedul Kabir**, "Impact of Label Noise and Efficacy of Noise Filters in Software Defect Prediction", *32nd International Conference on Software Engineering & Knowledge Engineering (SEKE 2020)*, Pittsburgh, USA, July 2020.
6. Fazle Rabbi, Md. Nazmul Haque, Md. Eusha Kadir, Md. Saeed Siddik and **Ahmedul Kabir**, "An Ensemble Approach to Detect Code Comment Inconsistencies using Topic Modeling", *32nd International Conference on Software Engineering & Knowledge Engineering (SEKE 2020)*, Pittsburgh, USA, July 2020.
7. Pritom Saha Akash, Ali Zafar Sadiq and **Ahmedul Kabir**, "An Approach of Extracting God Class Exploiting Both Structural and Semantic Similarity", *14th International Conference on Evaluation of Novel Approaches to Software Engineering (ENASE 2019)*, Crete, Greece, May 2019.
8. Ali Zafar Sadiq, **Ahmedul Kabir** and Kazi Sakib, "Finding Erroneous Components from Change Coupled Relations at Fix-inducing Changes", *31st International Conference on Software Engineering & Knowledge Engineering (SEKE 2019)*, Lisbon, Portugal, June 2019.
9. Ali Zafar Sadiq, **Ahmedul Kabir**, Pritom Saha Akash and Md. Jubair Ibna Mostafa, "Analyzing Corrective Maintenance using Change Coupled Clusters at Fix-inducing Changes," *2019 International Conference on Electrical, Computer and Communication Engineering (ECCE)*, February 2019.
10. **Ahmedul Kabir**, Carolina Ruiz, Sergio A. Alvarez, "Mixed Bagging: A Novel Ensemble Learning Framework for Supervised Classification using Instance Hardness", *IEEE International Conference on Data Mining (ICDM)*, Singapore, Nov 2018.
11. **Ahmedul Kabir**, Carolina Ruiz, Sergio A. Alvarez, and Majaz Moonis, "Predicting Outcome of Ischemic Stroke Patients using M5 Model Tree and Bootstrap Aggregating". *Proc. Tenth International Conference on Health Informatics (HEALTHINF 2017)*, Porto, Portugal. Jan 2017.
12. **Ahmedul Kabir**, Carolina Ruiz, Sergio A. Alvarez, Nazish Riaz, and Majaz Moonis. "Model-Based Clustering of Ischemic Stroke Patients". *Proc. Eighth International Conference on Health Informatics (HEALTHINF 2015)*. Lisbon, Portugal, Jan 2015.

**ACADEMIC
CONFERENCE
INVOLVEMENT**

- Session Chair of session titled “Computational Linguistic and Natural Language” in 3rd International Conference on Sustainable Technologies for Industry 4.0 (STI 2021)
- Program Committee member of International Conference on Knowledge Discovery and Information Retrieval (KDIR) from 2019 to 2020
- Co-reviewed papers for IEEE International Conference for Bioinformatics and Biomedicine (BIBM) from 2013 to 2017
- Reviewed papers for ICASERT 2019, ICBSLP 2018, ICIET 2018

**SELECTED
TALKS**

- "Mixed Bagging based on Instance Hardness", Knowledge Discovery and Data mining Research Group (KDDRG) meeting, WPI, Nov 17, 2017
- "Clustering of Ischemic Stroke Patients using EM Algorithm on Gaussian Mixture Models", Bioinformatics & Computational Biology (BCB) Graduate Seminar, WPI, Feb 11, 2016
- "Predictive Modeling of the Outcome of Patients after Stroke", Joint meeting of Artificial Intelligence Research Group (AIRG) and KDDRG, WPI, Oct 29, 2015

**SELECTED
POSTERS**

- "Predicting Outcome of Ischemic Stroke Patients using M5 Model Tree and Bootstrap Aggregating" at Graduate Research Innovation Exchange (GRIE) at WPI, Feb 2017 (and Finals on Apr 2017. Received honorable mention)
- "Machine Learning Approaches to Understanding Stroke" at the 2nd Annual UMMS/WPI Research Collaboration Celebration Event held at WPI, Nov 2016
- "Model-based Clustering of Ischemic Stroke Patients", at GRIE, WPI, Dec 2014 (and Finals on Apr 2015. Received honorable mention). Also presented at Exhibit and Demos for the Data Science Advisory Board at WPI, Apr 2015
- "Exploratory Analysis of Stroke Patient Data", Exhibit and Demos for the Healthcare Delivery Institute (HDI) Advisory Board at WPI, Nov 2013

**PROGRAMMING
EXPERIENCE**

Languages: Python, R, C, C++, Java, MySQL, Prolog, HTML/CSS, Shell scripting
Software: MATLAB, Weka, RapidMiner, SPSS, Hadoop MapReduce