UNIVERSITÀ DEGLI STUDI DI MILANO

Curriculum vitae

AL MAGNIFICO RETTORE
DELL'UNIVERSITA' DEGLI STUDI DI MILANO **COD. ID: 6706**

Il sottoscritto chiede di essere ammesso a partecipare alla selezione pubblica, per titoli ed esami, per il conferimento di un assegno di ricerca presso il Dipartimento di Informatica

Responsabile scientifico: Prof. Roberto Sassi

[Md Moklesur Rahman]

CURRICULUM VITAE

INFORMAZIONI PERSONALI

Cognome	Rahman
Nome	Md Moklesur

OCCUPAZIONE ATTUALE

Incarico	**Struttura**
PhD Student	Computer Science Department, University of Milan, Italy

ISTRUZIONE E FORMAZIONE

Titolo	**Corso di studi**	**Università**	**anno conseguimento titolo**
Laurea Magistrale o equivalente	Information and Communication Technology	Islamic University, Kushtia, Bangladesh	2019
Dottorato Di Ricerca	Computer Science	University of Milan, Italy	January 2025 (expected)

LINGUE STRANIERE CONOSCIUTE

lingue	livello di conoscenza
English	C2

PREMI, RICONOSCIMENTI E BORSE DI STUDIO

anno	Descrizione premio
2024	Finalist in the Jos Willems early career investigator competition international society for computerized electrocardiology conference - 2024 Georgia, USA.
2013-2015	Awarded merit-based scholarships for academic excellence in 2013, 2014, and 2015 based on obtained marks, Islamic University-Kushtia, Bangladesh

ATTIVITÀ DI FORMAZIONE O DI RICERCA

descrizione dell'attività

Research Activity in PhD: During my PhD research, I developed an AI-based system specifically designed to detect atrial fibrillation (AF) using an extensive dataset of Holter electrocardiogram (ECG) recordings. Holter devices are portable monitors that continuously record ECGs over extended periods, typically 24 to 48 hours. Employing advanced AI techniques, this research works aim to surpass the limitations of conventional methods, thereby enhancing the accuracy and efficiency of AF detection. My research includes work on generative AI for data augmentation, handling noisy labels, self-supervised representation learning, and uncertainty quantification in deep learning models specifically geared towards AF detection from Holter recordings. Throughout my experiments, I have used the TensorFlow and PyTorch frameworks in conjunction with the Python programming language.

Coursework: I joined the following PhD courses at the University of Milan to enhance my skills in biomedical image and signal processing:

- Recent Advancements in Artificial Intelligence: Theoretical Foundations, Methodologies, Technologies, and Applications,
- Methods for Statistical Model Fitting,
- Deep Learning for Signal and Image Processing,
- Advanced Topics in Signal Processing, and
- Constructing and Mining Biomedical Knowledge Graphs.

Image Processing and Classification Skills: I have contributed to various image processing and classification projects, notably in sign language recognition, Bengali character recognition, and eye-state classification, resulting in publications in journals and conference proceedings.

Professional Experience: From 2019 to 2021, I served as a lecturer at the department of computer science and engineering at the People's University of Bangladesh in Dhaka.

Collaboration: I collaborated with King Faisal University in Al Ahsa, Saudi Arabia, on two scientific publications: "Predicting Pressure Losses in the Water-Assisted Flow of Unconventional Crude with Machine Learning" and "A Decision Support System for Predicting Settling Velocity of Spherical and Non-Spherical Particles in Newtonian Fluids." In these cases, my contributions predominantly involved designing machine learning algorithms using Python language for tabular data analysis.

Visiting Postgraduate: I engaged in collaborative research projects at the University of California, San

Francisco (UCSF) from March 3, 2024, for a duration of six months. During this period, I have been working at the Cardiovascular Research Institute. My role focuses on the continuous monitoring and detection of AF using Holter recordings.

CONGRESSI, CONVEGNI E SEMINARI

Data	Titolo	Sede
3-7 April 2024	International society for computerized electrocardiology conference	Georgia, USA
1-4 October 2023	International conference on computing in cardiology	Georgia, USA
18-21 July 2023	Cambridge Ellis unit summer school on probabilistic machine learning	University of Cambridge, UK
3-7 April 2023	9th international school on deep learning	Università degli Studi di Bari Aldo Moro, Bari, Italy
15-19 August 2022	4EU+ summer school on artificial intelligence	Gargnano del Garda, Italy
19-21 January 2019	International conference on sustainable technologies for Industry 4.0	Green University, Dhaka, Bangladesh

PUBBLICAZIONI

Articoli su riviste

1. **MM Rahman**, MW Rivolta, PM-Blanche, F Badilini and R Sassi Residual-attention deep learning model for atrial fibrillation detection from Holter recordings, *Journal of Electrocardiology* (2024). http://dx.doi.org/10.1016/j.jelectrocard.2024.05.024
2. Gavidia, M., Zhu, H., Montanari, A.N., Fuentes, J., Cheng, C., Dubner, S., Chames, M., Maison-Blanche, P., **MM Rahman**, Sassi, R. and Badilini, F., Early warning of atrial fibrillation using deep learning. *Patterns*, *5*(6), 2024. https://doi.org/10.1016/j.patter.2024.100970
3. **MM Rahman**, MW Rivolta, F Badilini and R Sassi "A Systematic Survey of Data Augmentation of ECG Signals for AI Applications," *Sensors* (2023), https://doi.org/10.3390/s23115237
4. MS Islam, **MM Rahman**, MH Rahman, MW Rivolta and M Aktaruzzaman "RATNet: A deep learning model for Bengali handwritten characters recognition" *Multimedia tools and applications* (2022). https://doi.org/10.1007/s11042-022-12070-4
5. S Rushd, **MM Rahman**, M Arifuzzaman, SA Ali, F Shalabi and M Aktaruzzaman "Predicting pressure losses in the water-assisted flow of unconventional crude with machine learning" *Petroleum Science and Technology* (2021). https://doi.org/10.1080/10916466.2021.1980012
6. S Rushd, **MM Rahman**, M Arifuzzaman and M Aktaruzzaman "A decision support system for predicting settling velocity of spherical and non-spherical particles in Newtonian fluids" *Particulate Science and Technology* (2021). https://doi.org/10.1080/02726351.2021.1982092
7. **MM Rahman**, MS Islam, R Sassi, and M Aktaruzzaman "Convolutional neural networks performance comparison for handwritten Bengali numerals recognition" *SN Applied Science* (2019). https://doi.org/10.1007/s42452-019-1682-y

Atti di convegni

1. **MM Rahman**, MW Rivolta, F Badilini and R Sassi "Quantifying uncertainty of a deep learning model for atrial fibrillation detection from ECG signals," Computing in Cardiology, 2023.

https://doi.org/10.22489/CinC.2023.340
2. MS Islam, **MM Rahman**, MH Rahman, MR Hoque, and M Aktaruzzaman " A deep learning-based multimodel ensemble method for eye state classification from EEG," Computing and Communication Workshop and Conference, USA, 2021. https://doi.org/10.1109/CCWC51732.2021.9376084
3. **MM Rahman**, MS Islam, MKA Jannat, MH Rahman, M Arifuzzaman, R Sassi and M Aktaruzzaman "EyeNet: an improved eye states classification system using convolutional neural network" International Conference on Advanced Communications and Technology, South Korea, 2020. https://doi.org/10.23919/ICACT48636.2020.9061472
4. MS Islam, **MM Rahman**, MH Rahman, M Arifuzzaman, R Sassi and M Aktaruzzaman, "Recognition Bangla sign language using convolutional neural network" International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies, Bahrain, 2019. https://doi.org/10.1109/3ICT.2019.8910301
5. **MM Rahman**, MS Islam, MH Rahman, MW Rivolta, R Sassi and M Aktaruzzaman "A new benchmark on American sign language recognition using convolutional neural network" International Conference on Sustainable Technologies and Industries 4.0, Bangladesh, 2019. https://doi.org/10.1109/STI47673.2019.9067974

Presentazione alla Conferenza (added by Moklesur)

1. Residual-attention deep learning model for atrial fibrillation detection from Holter recordings
   - International society for computerized electrocardiology, Georgia, USA, April 2024.
2. Quantifying uncertainty of a deep learning model for atrial fibrillation detection from ECG signals
   - Computing in cardiology, Georgia, USA, August 2023.
3. A new benchmark on American sign language recognition using convolutional neural network
   - International conference on sustainable technologies and industries 4.0, Dhaka, Bangladesh, December 2019.

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del DPR n. 445/2000.

Il presente curriculum, non contiene dati sensibili e dati giudiziari di cui all'art. 4, comma 1, lettere d) ed e) del D.Lgs. 30.6.2003 n. 196.

RICORDIAMO che **i curricula SARANNO RESI PUBBLICI sul sito di Ateneo** e pertanto si prega di non inserire dati sensibili e personali. Il presente modello è già precostruito per soddisfare la necessità di pubblicazione senza dati sensibili.

Si prega pertanto di **NON FIRMARE** il presente modello.

Luogo e data: San Francisco, California, USA, 30/06/2024