Umme Sara

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Career Summary

I have been in teaching for nine years at a reputable public university with a strong record of conferences and indexed research articles. I am seeking the opportunity to enroll in a PhD program to further strengthen my career as both an academician and a researcher, with a focus on making impactful contributions to my field.

Research Interest

- Image Processing and Probabilistic Statistics
- Distributive Machine Learning and Deep learning
- AI in Healthcare and Agriculture
- Computer Vision and Digital Twins
- Natural Language Processing
- Privacy Preserving Federated Learning

Education

MSc in Computer Science and Engineering,
Institution: Jahangirnagar University, Savar, Bangladesh
Final Cumulative GPA: 3.78/4.00
Session: 2012-13 **Result Publication Date**: 19th March, 2016
Thesis Title: Image Quality Assessment using SSIM (Structural Similarity Indexing Method)
Supervisor: Prof. Dr. Md Shorif Uddin [shorifuddin@juiv.edu]
Thesis grade: 4.00/4.00

BSc in Computer Science and Engineering
Institution: Jahangirnagar University, Savar, Bangladesh
Final Cumulative GPA: 3.44/4.00
Session: 2009-10 **Result Publication Date:** 5th February, 2014

Higher Secondary Certificate (HSC)
Institution: Muminunnisa Government Women's College, Mymensingh, Dhaka, Bangladesh
Group: Science **Board:** Dhaka
Result: GPA: 4.60 out of 5.00 **Year of Pass:** 2008.

Secondary School Certificate (SSC)
Institution: Hiranpur High School, Netrokona, Dhaka, Bangladesh
Group: Science **Board:** Dhaka
Result: GPA: 5.00 out of 5.00 Year **of Pass:** 2005.

Teaching Experience

Chairman (September 2021 – April 2024)
Department of Computer Science and
Engineering
National Institute of Textile Engineering and Research (NITER), Savar, Dhaka-1350.

Assistant Professor (March 2020 - Present)
Department of Computer Science and
Engineering
National Institute of Textile Engineering and Research (NITER), Savar, Dhaka-1350.

Lecturer (October 2015 - March 2020)
Department of Computer Science and
Engineering
National Institute of Textile Engineering and Research (NITER), Savar, Dhaka-1350.

Lecturer (March 2014 – October 2015)
Department of Computer Science and
Engineering Gono Bishwabidyalay, Ashulia,
Savar, Dhaka-1344

Job Responsibilities: I have conducted recitation lectures, provided guidance for student course projects, and assisted learners in understanding the material through laboratory sessions, assignments, and regular consultation. Over the years, I have taught a number of core computer science disciplines:

- Computer Fundamentals
- Programming Languages
- Data Structures and Algorithms
- Digital Image Processing
- Computer Architecture and Organization
- Introduction to Machine Learning
- Data Mining and Data Warehousing

Selected Publications

Peer Reviewed Journal Articles

1. **Umme Sara***, Mohammad Shorif Uddin *et al*., "*Privacy-Preserving Text Summarization through Differentially Private Federated Learning with Transformer Architectures,*" submitted to **International Journal of Computer Vision,** Springer, (Submitted – 14th August, 2025, **Under Review**) [Q1, IF-9.3, Scopus, WoS, Cite Score - 15.5], Preprint: https://www.researchsquare.com/article/rs-7598101/v1

2. Jaheen Md. Abrar Khan, **Umme Sara*** *et al*. "*Emotion Recognition from Bangla Dialect Speech using Privacy-Aware Deep Learning Models: A Comparative Analysis,"* submitted to **International Journal of Speech Technology**, Springer, (Submitted – 29th July, 2025, **Under Review**) [Scopus, WoS, Q1, IF-2.51, Cite Score - 5]
   Preprint: https://doi.org/10.21203/rs.3.rs-6629846/v1

3. Utpol Das, **Umme Sara** et al. "*Enhancing Sentiment Analysis Accuracy on Social Media Comments Using a Tuned BERT Model,"* published in Discovery Computing, Springer, Scopus, WoS/SCIE, 2025. [Q2, IF-1.7, Cite Score – 3.2]
   Available: https://link.springer.com/article/10.1007/s10791-025-09599-x

4. **Umme Sara** *et al*. "*Automated Skin Cancer Classification and Detection Using Convolutional Neural Networks and Dermoscopy Images,*" published in Procedia Computer Science, Cite Score 4.1, Volume 252, 2025, Pages 108-117, ISSN 1877-0509,
   Doi: https://doi.org/10.1016/j.procs.2024.12.012.

5. **U. Sara**, **A.** Rajbongshi *et al*."*VegNet: An organized dataset of cauliflower disease for a sustainable agro-based automation system,"* published in Data in Brief, Elsevier, WoS, Q3,IF-1.4, Cite Score 2.4,Volume 43, 2022, Doi: https://doi.org/10.1016/j.dib.2022.108422

6. **Umme Sara** *et al. "An extensive sunflower dataset representation for successful identification and classification of sunflower diseases*," published in Data in Brief, Elsevier, WoS, Q3, IF-1.4, Cite Score 2.4, 2022.
   https://doi.org/10.1016/j.dib.2022.108043

7. Rahman, A., **Sara U**. *et al." On the Integration of Blockchain and SDN: Overview, Applications, and Future Perspectives,"* published in Journal of Networks and System Management, Scopus, Q1, IF-3.9, Cite Score – 9. 30, 73, 2022, Doi: https://doi.org/10.1007/s10922-022-09682-4

8. A.Rajbongshi, **U.Sara** *et al. "A comprehensive guava leaves and fruits dataset for guava disease recognition,"* published in Data In Brief, Elsevier, WoS, Q3, IF-1.4, Cite Score 2.4, 2022. https://doi.org/10.1016/j.dib.2022.108174

9. Islam S, **Sara U** *et al*. "*Sgbba: an efficient method for prediction system in machine learning using imbalance dataset,*" published in the International Journal of Advanced Computer Science and Applications (IJACSA), Scopus, Q3, Cite Score 2.7, 2021.
   2021. Doi: https://dx.doi.org/10.14569/IJACSA.2021.0120351

10. Anichur Rahman, **Umme Sara** *et al*. "*DistB-SDoIndustry: Enhancing Security In Industry 4.0 Services Based On Distributed Blockchain Through Software Defined Networking-IoT Enabled Architecture,"* published in the International Journal of Advanced Computer Science and Applications (IJACSA), Volume11, Issue 9, Scopus, Q3, Cite Score 2.7, 2020.
    Doi: https://dx.doi.org/10.14569/IJACSA.2020.0110980

11. **Umme Sara** *et al*. "*Image Quality Assessment Through FSIM, SSIM, MSE And PSNR—A Comparative Study,"* published in Journal of Computer and Communications, SCIRP, Impact score 4.66 1.98 Vol.07 No.03,11, 2019, ,11. Doi: 10.4236/jcc.2019.73002

Book Chapter

1. **[HIS'23]** Shakil, R., **Sara, U.** *et al* "*A Transfer Learning Approach to the Development of an Automation System for Recognizing Guava Disease Using CNN Models for Feasible Fruit Production,"* Hybrid Intelligent Systems HIS. Lecture Notes in Networks and Systems, 2023, vol 647. Springer, Cham. Doi: https://link.springer.com/chapter/10.1007/978-3-031-27409-1_12

Peer Reviewed Conferences

2. **[ICCCNT'22]** B. Akter, **U. Sara** *et al.Utilization of Five-Distinct Dataset to Diagnose and Predict Heart Disease: A Machine Learning Approach*. 13th International Conference on Computing Communication and Networking Technologies (ICCCNT), Scopus, India, 2022, pp. 1-6, Doi: https://ieeexplore.ieee.org/document/9984443
3. **[ICSSIT'22]** B. Akter, **U. Sara** et al. *A Machine Learning Approach to Detect the Brain Stroke Disease.* 4th International Conference on Smart Systems and Inventive Technology (ICSSIT), Scopus, India 2022, pp. 897-901, https://ieeexplore.ieee.org/document/9716345

Technical Skills & Competencies

- **Programming Languages:** C, C++, Java, Python
- **IDE & Development Tools:** NetBeans, MATLAB, Jupyter Notebook, Anaconda
- **Machine Learning & Data Science Frameworks:** TensorFlow, Keras, Scikit-Learn, PyCharm, and OpenCV
- **Web Development**: HTML, CSS, JavaScript, Node.js, React, Dreamweaver
- **Database Management:** PostgreSQL, SQLite
- **Virtualization & Deployment:** Docker, VirtualBox
- **Design & Documentation:** Figma, Overleaf

Grants & Awards

- **Research Grant: Received CRIR** [Center for Research and Industrial Relation] **Financial Grant – 2025** for **Autonomous Driving Car** project, 23rd September, 2025

- **Research Grant:** Achieved **CRIR** [Center for Research and Industrial Relation] **Research Grant-2023** at National Institute of Textile Engineering and Research on the project entitled *"**Implementation of vision transfer (ViT) in image processing: robust approach in the multiscale object detection**,"* 5th August 2023.

- **Govt. Scholarship:** Achieved a performance-based government scholarship of Janangirnagar University for outstanding result in undergraduate studies. (2009- 2012)

- **Board Scholarship:** Received Secondary School Certificate Merit Scholarship - 2005 (Dhaka Board)

Training

- Introduction to the Inclusive Education Toolkit Supporting disadvantaged and and excluded individuals and communities in Bangladesh supported by British Council' Going Global Partnership program arranged by computing and Informatics Research Center, Nottingham Trent University, UK [A 3 days' workshop held on 22 to 24th June, 2025]
- "Communication Skill Development," Workshop organized by the Department of Physics, BUET, October, 2024.
- Two days long Training on Motivating people at Workplace arranged by Bangladesh Institute of Management (BIM), July, 2024.

Membership

Graduate Member of Bangladesh Computer Society (BCS) **[ID - GM01388]**

Language Proficiency

IELTS – Academic - **6.5** (R-6.5; S-6.5; W & L - 6)

References

Dr. Mohammad Shorif Uddin (MSc Thesis Supervisor)

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Department of Computer Science and Engineering,

Jahangirnagar University, Dhaka, Bangladesh

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