TONMOY HOSSAIN

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Summary

- Lecturer at the Department of Computer Science and Engineering, Ahsanullah University of Science and Technology (AUST)
- Completed B.Sc. from the Department of Computer Science and Engineering, Ahsanullah University of Science and Technology (AUST)
- Research experience in Machine Learning, Deep Learning, Computer Vision, Data Mining
- Extremely passionate about Reinforcement Learning, Machine Learning, Deep Learning and its sub-fields

Education

Ahsanullah University of Science and Technology   **Dhaka, Bangladesh**
B. Sc. in Computer Science and Engineering   *May 2015 - July 2019*
GPA: 3.842 on a scale of 4.00 (3rd position out of 152 students)

Teaching Experience

Lecturer
Department of Computer Science and Engineering   **August 2019 - Present**
Ahsanullah University of Science and Technology

Research Interests

Machine Learning, Deep Learning & its applications, Computer Vision, Image Processing, and Data Mining

Undergraduate Thesis

Brain Tumor Detection using Convolutional Neural Network
Supervisor: Faisal Muhammad Shah, Associate Professor, Dept. of CSE, AUST.

We worked on different types of MRI images in this research work. The main objective is to detect the abnormal tissues on the MRI and segment the abnormal cells known as brain tumor from the MRI as well as try to find an optimal location of the region of interest. We've developed an ensemble deep learning architecture model to detect the abnormalities. Furthermore, our classification model worked well on other types of medical image sectors.

Publications

o **Tonmoy Hossain**, Sujan Sarker, Sejuti Rahman, and Md Atiqur Rahman Ahad, "**Skeleton-based Human Action Recognition on Large-Scale Datasets: Is Deep Learning the Best Approach?**", Submitted and under review in *Pattern Recognition Letters, Elsevier*

o Sujan Sarker, Sejuti Rahman, **Tonmoy Hossain**, Syeda Faiza Ahmed, Lafifa Jamal, and Md Atiqur Rahman Ahad, "**Skeleton-based Activity Recognition: Preprocessing and Approaches**", Accepted and will be published in *Contactless Human Activity Analysis, Springer Verlag, Germany.*

o Sifat Ahmed, **Tonmoy Hossain**, Oishee Bintey Hoque, Sujan Sarker, Sejuti Rahman, Faisal Muhammad Shah, "**Automated COVID-19 Detection from Chest X-Ray Images : A High Resolution Network (HRNet) Approach**", Pre-print version published at *Research Square.* 🗎

o Shithi Maitra, **Tonmoy Hossain**, Khan Md. Hasib, Fairuz Shadmani Shishir, "**Graph Theory for Dimensionality Reduction: A Case Study to Prognosticate Parkinson's**" Accepted in *The 11th Annual IEEE Information Technology, Electronics and Mobile Communication Conference* (IEEE-IEMCON 2020)

o Faizah Naquib, Sharika Tabassom, Fariha Elahee, Farhana Mim, **Tonmoy Hossain**, Kazi A Kalpoma, "**Modified Maximum Curvature Method (MMCM) and Logistic Regression: A Hybrid Architecture for Finger Vein Biometric Recognition System**" Accepted in *23rd International Conference on Computer and Information Technology (ICCIT), Dhaka, Bangladesh* (ICCIT 2020)

o Fariha Elahee, Farhana Mim, Faizah Naquib, Sharika Tabassom, **Tonmoy Hossain**, Kazi A Kalpoma, "**Comparative Study of Deep Learning-based Finger Vein Biometric Authentication Systems**" Accepted in *2nd International Conference on Advanced Information and Communication Technology, Dhaka, Bangladesh.* (ICAICT 2020)

o Faisal Muhammad Shah, Sajib Kumar Saha Joy, Farzad Ahmed, **Tonmoy Hossain**, Mayeesha Humaira, Amit Saha Ami, Shimul Paul, Md Abidur Rahman Khan Jim, Sifat Ahmed, "**A Comprehensive Survey of COVID-19 Detectionusing Medical Images**", Pre-print version published at *engrXiv* (Submitted at *SN Computer Science Journal*) 🗎

o Fairuz Shadmani Shishir, **Tonmoy Hossain** and Faisal Muhammad Shah, "**EsharaGAN: An Approach to Generate Disentangle Representation of Sign Language using InfoGAN,**" *2020 IEEE Region 10 Symposium (TENSYMP), 5-7 June 2020, Dhaka, Bangladesh*

o Shithi Maitra, Nasrin Akter, Afrina Zahan Mithila, **Tonmoy Hossain**, and Mohammad Shafiul Alam, "**Apriori-backed Fuzzy Unification and Statistical Inference in Feature Reduction: An Application in Prognosis of Autism in Toddlers**", Accepted and Presented in *5th International Conference on Advanced Computing and Intelligent Engineering (ICACIE), Mauritius.*

o **Tonmoy Hossain**, Fairuz Shadmani Shishir and Faisal Muhammad Shah, "**A Novel Approach to Classify Bangla Sign Digits using Capsule Network,**" *2019 22nd International Conference on Computer and Information Technology (ICCIT), Dhaka, Bangladesh, 2019, pp. 1-6, doi: 10.1109/IC-CIT48885.2019.9038609.* 🗎

o **Tonmoy Hossain**, Fairuz Shadmani Shishir, Mohsena Ashraf,MD Abdullah Al Nasim and Faisal Muhammad Shah, "**Brain Tumor Detection Using Convolutional Neural Network,**" *2019 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT), Dhaka, Bangladesh, 2019, pp. 1-6, doi: 10.1109/ICASERT.2019.8934561.* 🗎

o Shithi Maitra & **Tonmoy Hossain** & Abdullah Al-Sakin & Sheikh Inzamamuzzaman & Md Mamun Or Rashid & Syeda Shabnam Hasan (2019). "**A Gender-Neutral Approach to Detect Early Alzheimer's Disease Applying a Three-layer NN**". *International Journal of Advanced Computer*

Science and Applications. 10. 10.14569/IJACSA.2019.0100368. 🗋

o Faisal Muhammad Shah, **Tonmoy Hossain**, Mohsena Ashraf, Fairuz Shadmani Shishir, MD Abdullah Al Nasim, Md. Hasanul Kabir. **"Brain Tumor Segmentation Techniques on Medical Images - A Review",** *International Journal of Scientific & Engineering Research, Volume 10, Issue 2, February-2019. ISSN 2229-5518* 🗋

o Shithi Maitra, **Tonmoy Hosain**, Abdullah Al-Sakin and Faisal Muhammad Shah, **"Artificial Prognosis of Cardiac Disease using an NN: A Data-scientific Approach in Outlier Handling,"** *2019 4th International Conference on Electrical Information and Communication Technology (EICT), Khulna, Bangladesh, 2019, pp. 1-12, doi: 10.1109/EICT48899.2019.9068847.* 🗋

o Fayza Amreen, Md. Golam Muktadir, **Tonmoy Hossain** and Nazmus Sakib **"A Proposal of Weight based Similarities Hybrid Algorithm on Social Media Posts through Crowdsourcing to Achieve High Performance Recommendation"**. *International Journal of Applied Information Systems (IJAIS) ISSN : 2249-0868 Foundation of Computer Science FCS, November 2019* 🗋

Standardized Test Scores

o Test of English as a Foreign Language (**TOEFL**)
Reading – 24 | Listening – 25 | Speaking – 23 | Writing – 26 (**Total – 98**)

Technical Skills

Languages: Python, C, C++, C#, JAVA, HTML5, PHP, XML, JavaScript, R, .net, 80x86 Assembly
Framework: CSS, OpenGL, WebGL
Database: MySQL, SQLite, Oracle
Design Tools: Eclipse, NetBeans, Microsoft Visual Studio, PyCharm
Operating System: Windows, Android, LINUX
Hardware: ATMEL (AVR Programming)
Deep Learning Tools: Keras, PyTorch, Tensorflow
Others: PL/SQL, UML, LaTeX

Academic Projects

o Supershop Management System
o Optimal Location Detection for a Food Restaurant
o Text Extraction from Images using a modified OCR algorithm
o Segmentation of Brain Tumor using Image Processing Techniques
o Melitus Detector
o Diabetes Prediction

Awards & Achievements

o "Dean's List of Honor" (based on B.Sc. result)
o 7th **Place** out of 200 participants from 25 Universities in the EWU Inter University Math Olympiad 2019
o Admission sub-committee member of fall-2019 semester at Ahsanullah University of Science and Technology
o Certificate on Presentation at 22nd International Conference on Computer and Information Technology (ICCIT - 2019)
o Serving as an IT sub-committee member at 23rd International Conference on Computer and Infor-

mation Technology (ICCIT - 2020)
o Certificate on Presentation at 2020 IEEE Region 10 Symposium (TENSYMP), 5-7 June 2020, Dhaka, Bangladesh
o Certificate on Presentation at 22nd International Conference on Computer and Information Technology (ICCIT - 2019)
o Certificate on Presentation at 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT - 2019)

Conference & Workshop

o Presented a paper on 2020 IEEE Region 10 Symposium (TENSYMP), 5-7 June 2020, Dhaka, Bangladesh
o Presented a paper on 4th International Conference on Electrical Information and Communication Technology (EICT - 2019), Khulna, Bangladesh
o Presented a paper on 22nd International Conference on Computer and Information Technology (ICCIT - 2019)
o Presented a paper on 1st International Conference on Advances in Science, Engineering and Robotics Technology (ICASERT, 2019)
o Participated in "How Computer Program Works", organized by Innovation for Poverty Action associated with University of California, San Diego and Cornell University.

Reference

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