MD. REDWAN KARIM SONY

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RESEARCH INTEREST

Computer Vision, Machine Learning, Artificial Intelligence, Data Mining

EDUCATION

- **Islamic University of Technology (IUT), Bangladesh** *January 2018 - Present*
  Master of Science in Computer Science and Engineering (CSE)
- **Islamic University of Technology (IUT), Bangladesh** *January 2013 - November 2016*
  Bachelor of Science in Computer Science and Engineering, CGPA **3.95/4.00** (**3rd** in class of **48**)

STANDARDIZED TEST RESULTS:

- **GRE General Test: 316** (Quantitative: **164**, Verbal: **152**, AWA: **3.5**) *October, 2019*
- **TOEFL Test: 110** (Reading: **29**, Listening: **29**, Speaking: **27**, Writing: **25**) *November, 2019*

PROFESSIONAL EXPERIENCE

- **Islamic University of Technology (IUT), Bangladesh** *February, 2017 - Present*
  Lecturer, Department of Computer Science and Engineering (CSE)
  Courses Taught: Computer Architecture and Organization, E-commerce and Internet Security, Data and Telecommunication, Computing for Engineers, Numerical Methods, Linear Algebra

RELEVANT COURSEWORK

Probability and Statistics, Linear Algebra, Calculus, Digital Signal Processing, Digital Image Processing, Big Data, Data Mining, Machine Learning, Pattern Recognition, Artificial Intelligence, Andrew Ng's Machine Learning Specialization course on Coursera

UNDERGRADUATE THESIS

Advanced Agglomerative Clustering Technique (AACT) for Phylogenetic Classification using Manhattan Distance.
Reducing trivial agglomerative hierarchical clustering technique's complexity $O(n^3)$. The proposed AACT method uses Manhattan distance instead of Euclidean for distance calculation among many improvements. [GitHub Repo]

PUBLICATIONS

- Mottalib, M. A., Arnob, R. I., **Sony, M. R. K**., & Akter, L. (2017). *Advanced Agglomerative Clustering Technique for Phylogenetic Classification Using Manhattan Distance.* International Conference of Bioinformatics and Computational Biology BIOCOMP'17 (pp. 9-13). [read]
- ABMA Rahman, **Sony, M. R. K**, R Kushol, MH Kabir. (2018) *Performance Comparison of Feature Descriptors in Offline Signature Verification.* IUT JOURNAL OF ENGINEERING AND TECHNOLOGY (JET), VOL. 14, NO. 1, DECEMBER 2018.[read]

MACHINE LEARNING COMPETITIONS

- **OSIC Pulmonary Fibrosis Progression on Kaggle**
  Predicting lung function decline from CT Scans (3D volumetric data).
  Result: Solo Bronze Medal (**198th out of 2097 teams, Top 10%**), **Solution:** GitHub Repo.
- **SIIM-ISIC Melanoma Classification on Kaggle**
  Identifying melanoma in lesion images.
  Result: (**Solo 386th out of 3314 teams, Top 12%**), **Solution:** GitHub Repo.
- **Flower Classification with TPUs on Kaggle**
  Classifying 104 types of flowers using Tensor Processing Units (TPU) on Kaggle Cloud Platform.
  Result: (**Solo 84th out of 848 teams, Top 10%**), **Solution:** GitHub Repo.
- **Plant Pathology 2020 - FGVC7 on Kaggle**
  Identifying the category of foliar diseases in apple trees from leaf images.
  Result: (**103rd out of 1317 teams, Top 8%**), **Solution:** GitHub Repo.
- **RSNA STR Pulmonary Embolism Detection on Kaggle**
  Classifying Pulmonary Embolism cases in chest CT scans (3D volumetric Data).
  Result: (**Solo 288th out of 784 teams, Top 37%**), **Solution:** GitHub Repo.
- **Jigsaw Multilingual Toxic Comment Classification on Kaggle**
  Identifying toxicity of the comments across multiple languages using TPUs on Kaggle.
  Result: (**Solo 330th out of 1621 teams, Top 21%**), **Solution:** GitHub Repo.
- **Global Wheat Detection on Kaggle**
  Detection and localization of wheat heads using image analysis.
  Result: (**Solo 779th out of 2245 teams, Top 21%**), **Solution:** GitHub Repo.
- **HackerEarth Machine Learning Challenge: Carnival Wars!**
  Predicting the selling price of items in an inventory.
  Result: (**Solo 310th out of 2144 teams, Top 14%**), **Solution:** GitHub Repo.
- **HackerEarth Machine Learning Challenge: Are your employees burning out?**
  Predicting the fatigue rate of the employees given relevant information.
  Result: (**Solo 40th out of 560 teams, Top 7%**), **Solution:** GitHub Repo.

UNDERGRADUATE PROJECTS

- **Automatic Home Management System**
  An android based remote home control and management system coupled with Arduino Microcontroller module capable of controlling all the electronic appliances of a house. It was developed as a project for Software Development Lab. Our group became Runner-up in Project Showcasing in **IUT ICT Fest 2015.** ***Language:*** *C, JAVA, XML,* ***Tools:*** *Andorid Studio, Arduino Development Tool*
- **Project SONAR**
  An application in Matlab using regular microphone and speaker to measure approximate distance between the system and a large wall in front of it for Digital Signal Processing Lab. GitHub ***Tool:*** *Matlab*
- **TIC TAC TOE Game**
  A simple tic toc toe game with interactive graphics experience as a requirement of Computer Graphics Lab. ***Language:*** *C++, OpenGL Utility Toolkit(glut),* ***Tool:*** *Microsoft Visual Studio 2013*
- **Online Medical Service Automation**
  A web based system designed for easy access to the doctors of the nearby hospitals for patients

and advanced appointment management as well as accessing the doctors database according to their specialty. It was developed for System Analysis and Development Lab. ***Language:*** *SQL, JAVA, HTML, CSS* , ***Database:*** *Oracle 11g,* ***Tools:*** *NetBeans, Oracle SQL Developer*

- **Routine Management System**
  A academic routine management system where class routines can be generated in an interactive way. Custom routines like routine for individual teacher, course or period basis can be generated easily from the system. It was developed as a project in Database Management Systems Lab ***Language:*** *MySQL,* ***Database:*** *MySQL database,* ***Tools:*** *XAMPP*
- **Hall Management System**
  A windows CLI application capable of managing the information of students' database residing in a residential hall. Fetching students information, regular update are some of the key features. ***Language:*** *C++,* ***Tools:*** *Code Blocks*
- **ATM Banking System**
  A basic object oriented C++ program simulating the basic operations of an ATM machine. ***Language:*** *C++,* ***Tool:*** *Code Blocks*

TECHNICAL STRENGTHS

- **Programming Languages:** Python, C/C++, Java, Matlab, Perl, Linux Shell Scripting, PlSQL
- **Cloud Environments:** Google Colab, Kaggle
- **Frameworks:** Tensorflow, Keras, PyTorch
- **Operating Systems:** Linux (Ubuntu), Windows

ACTIVITIES AND INTERESTS

- Runner-up in 15th IUT Programming Contest 2015. Certificate
- Runner-up in Project Showcasing of Automatic Home Management System in IUT ICT Fest 2015.
- Completed Machine Learning course offered by Stamford University in COURSERA. 2015. Certificate
- Completed five Deep Learning courses offered by deeplearning.ai in COURSERA. Certificates. 1 2 3 4 5

SCHOLARSHIPS

- **Full tuition Fee Waiver and OIC Scholarship**
  Islamic University of Technology (IUT), Bangladesh. *2013-2016*
- **Bangladesh Government Education Board Scholarship**
  Higher Secondary Certificate Exam *2012-2013*
- **Bangladesh Government Education Board Scholarship**
  Secondary Certificate Exam *2011-2012*

REFERENCES

Available upon request.