IBNA KOWSAR

kawser.ibn.93@gmail.com | Kowsar | kawseribn
kawseribn.github.io | Nashville, Tennessee 37209

Education

Tennessee State University [TSU] Tennessee
M.S. in Computer Science (Data Science Specialization) *2023 – 2025*

- **Research Interests**: Machine Learning, Deep Learning, Self-supervised & Unsupervised Methods, Problem-solving for Tabular and Image Data
  Supervisor: Dr. Manar Samad

Brac University [BRACU] Bangladesh
B.Sc in Computer Science and Engineering *2017 – 2021*

- CGPA: 3.87/4.0
- Undergraduate Thesis : Facial Expression Recognition: Convolutional Attentional Masking Network and Ensemble Approach
  Supervisor: Md. Hasanul Kabir, PhD. Co-Supervisor: Rasif Ajwad

Professional Experience

Graduate Research Assistant Aug'2023 – Jun'2025
***CIDA Lab**, TSU*

- Implementing and enhancing deep learning algorithms for image and tabular data
- Investigating Deep Learning-based strategies to enhance domain adaptation for image data

Machine Learning Engineer Jul'2021 – Jan'2023
Apurba Technologies Ltd.

- Enhancing and optimizing existing Machine Learning systems to address challenges in Bengali OCR (Optical Character Recognition)

Lecturer(contractual) Oct'2021 – Aug'2023
BRAC University

- Managed and mentored a diverse student body of over 150 each term while collaborating closely with fellow faculty to coordinate coursework
- Taught a range of courses including Algorithms (CSE221), Introduction to Robotics (CSE461), System Analysis and Design (CSE471), Digital Logic Design (CSE260), and Database Systems (CSE 370)

Undergraduate Teaching Assistant Jan'20 – May'21
Programming Language I (Structured Programming) & II (OOP) *Java, Python*

- Created video tutorial on Object Oriented Programming in both Java Python
- Provided Consultation Hours for Problem Solving and Exam Preparation

Publications

A Deep Learning Based Unified Solution for Character Recognition
with Apurba Technologies Ltd., Bangladesh (ICPR 2022)

- Segmentation & Recognition of Bangla, Assamese and English (Handwritten, Typewritten, Computer Composed & Printed) characters

Towards Building a Bangla Text Recognition Solution with a Multi-Headed CNN
with Apurba Technologies Ltd., Bangladesh (IEEE BigData2021)

- State-of-the-art Recognition of Bangla OCR (Handwritten, Typewritten, Computer Composed & Printed) characters

A Novel Approach to Enhance Safety on Drowsy Driving in Self-Driving Car
Springer Nature

- Collected data on drowsy driving and analyzed to detect drowsiness and proposed an algorithm to turn on autonomous mode to reach a safe parking space when drowsiness detected

An efficient Metaheuristic Approach for Finding Motifs from DNA Sequences
IEEE Conf.

- Created an algorithm that can find DNA motif using heuristic approach
- Learned various core heuristic approaches and analyzed how they affect the population

An Algorithmic Approach to Driver Drowsiness Detection in an Autonomous Car
IEEE TENSYMP

- Detecting drowsiness from driving behavior (Eye aspect ratio, Gaze, Yawning) and shifting to autonomous
- DOI: 10.1109/TENSYMP50017.2020.9230766

Projects

Facial Expression Recognition | *CNN, State-of-the-art*
Driver Drowsiness Detection and Alarming System | *Python, Opencv, ML*
Simobot: Simulation for Evolutionary Robotics | *AI, Robotics, Simulation*

Extracurriculars

BRACU Computer Club Jan 2019 - Dec 2019
Creative Department *Executive*

IEEE BRACU Student Branch Sep 2018 – Sep 2019
Apprenticeship *Student Member*

Certificates & Awards

Merit Scholarship Award, Brac University Sept 2018 - May 2021

* 10% waiver on Tuition Fees on every semester.

VC's List and Dean's List Award, Brac University

* Achieved VC's and Dean's List honors for outstanding GPA performance.

Presentation Skill, Brac University Sept 2017 - Nov 2017

* Participated in case study analysis and presentations on current affairs at Brac University Residential Campus.

Online Course Certificates

Neural Networks and Deep Learning: Issued Oct 2020

* Certification Authority: Coursera, License Number: NVYYFDCBVWDV

Sequence Models: Issued Jun 2020

* Certification Authority: Coursera, License Number: 3SMGJDBNBNDL

Convolutional Neural Networks: Issued Sep 2020

* Certification Authority: Coursera, License Number: PF9VWKNJ9RX5

Technical Skills

Languages: Python, Java, MySQL, Assembly (x86, 8051)
Hardware Description and Modeling Languages (HDLs): Verilog, VHDL
Developer Tools/Frameworks: Jupyter Notebooks, Git, Pytorch, Tensorflow, Docker, AWS., Asana
Software and Design Environments: MATLAB & Simulink, Proteus, LabVIEW, Webots.