

ASHRAF-UL-ALAM

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EDUCATION

Rajshahi University of Engineering & Technology (RUET), Rajshahi, Bangladesh

2019-2024

Bachelor of Science in Computer Science and Engineering

CGPA: 3.44 out of 4.00

- Relevant Coursework:** Neural Networks & Fuzzy Systems, Data Mining, Artificial Intelligence, Digital Image Processing, Database Systems, Parallel and Distributed Processing, Digital Signal Processing, Data Structure, Object Oriented Programming, Computer Algorithms, Applied Statistics & Queuing Theory.
- Thesis: KD-UDA: Knowledge Distillation-based Unsupervised Domain Adaptation for Improved Medical Image Segmentation**

EXPERIENCE

Young Learners' Research Lab

March 2023 - May 2024

Research Assistant

Lab Head and Supervisor: Md. Azmain Yakin Srizon

- Key responsibilities included designing optimized CNNs for medical image analysis, constructing OCR datasets, and developing algorithms for extracting handwritten Bengali text. Additionally, published two conference papers in Taylor & Francis and IEEE.

PUBLICATIONS

Optic Disc and Cup Segmentation via Enhanced U-Net with Residual and Attention Mechanisms

ICEEICT 2024 — IEEE Xplore DOI: [10.1109/ICEEICT62016.2024.10534436](https://doi.org/10.1109/ICEEICT62016.2024.10534436)

- Evaluated various pretrained models as U-Net backbones, validated across Drishti-GS, REFUGE, and RIM-ONE-R3 datasets, and finally, developed an enhanced U-Net with residual and attention mechanisms.
- Award Nomination:** Nominated for Best Poster Award at ICEEICT 2024.

BanglaOngko : A New Dataset for Accurate Bengali Mathematical Expression Detection Utilizing YOLOv8 Architecture

BIM 2023 — Taylor and Francis

- Created and annotated the BanglaOngko dataset with Roboflow, developed an efficient algorithm integrating statistical concepts to accurately localize handwritten Bengali mathematical expressions, addressing YOLOv8's unsorted bounding box challenges.

Advancing Ophthalmology through Transfer Learning and Channel-wise Attention for Retinal Disease Classification

ICEEICT 2024 — IEEE Xplore DOI: [10.1109/ICEEICT62016.2024.10534342](https://doi.org/10.1109/ICEEICT62016.2024.10534342)

- Developed a hybrid model merging EfficientNetB0 and InceptionV3 with channel-wise attention, improving discriminative ability by dynamically adjusting attention across channels, outperforming state-of-the-art models.

PROJECTS

github.com/ashraf-ul-alam-amit

Cycle Thief Detection from Realtime Footage using YOLOv5 and DeepSORT

OpenCV, YOLOv5, DeepSORT, KD-Tree, Face_Matcher

- Developed a real-time cycle thief detection system utilizing YOLOv5 for object detection, DeepSORT for tracking, KD-Tree algorithm for efficient nearest neighbor search, and Face_Matcher for facial recognition from live CCTV footage.

NeuroSeg3D: 3D Attention U-Net for Accurate Brain Tumor Segmentation (BraTS 2021)

3D U-Net, Residual Blocks, Spatial Attention

- Developed the NeuroSeg3D architecture, enhanced with residual blocks and spatial attention modules, to achieve accurate brain tumor segmentation, and demonstrated the model's performance on the BraTS 2021 dataset.

Chronic Kidney Disease Prediction using Machine Learning

Python, Flask API, HTML, CSS

- Performed comprehensive exploratory data analysis and feature engineering to enhance the accuracy of a CKD prediction model. Deployed the model using Flask API and designed a user-friendly web interface with HTML and CSS for CKD risk assessment.

TECHNICAL SKILLS AND INTERESTS

Research Areas	: Computer Vision, Domain Adaptation, Object Detection, NLP, LLM, Transfer & Conventional Learning
Programming	: Python, C, C++, Java, PHP
Frameworks	: TensorFlow, Scikit-Learn, Keras, OpenCV, PyTorch, Bootstrap
Web & Databases	: HTML, CSS, PHP, MySQL
Technologies	: Flask, Android Studio, LaTeX, Git

REFERENCES

S. M. Mahedy Hasan (Undergraduate Thesis Supervisor)
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