Parthaw Goswami

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Education

University of Massachusetts Lowell **Lowell, MA**
Ph.D. student, Electrical and Computer Engineering *Started Fall 2024*

Khulna University of Engineering and Technology (KUET) **Khulna, Bangladesh**
BSc. in Electronics and Communication Engineering(ECE). *2017-2022*
CGPA: 3.57/4.00 (Among Top 30%), Dean's List for Final 2 semesters (**3.91/4.00**).

Research Experience

Undergrad Thesis Supervisor: Dr. A. B. M. Aowlad Hossain
Thesis Title: Street Object Detection from Synthesized and Processed Semantic Image: A Deep Learning based Study.
Objectives:

- A customized CGAN model has been used to generate the photorealistic image from semantic images. Brightness of the generated images is increased using neural style transfer concept and resolution of the neural style transferred image has been improved using ESRGAN based super-resolution concept to enhance sharpness and texture recovery. To the best of our knowledge, this integrated form of synthesized and processed semantic image concept might not have been used as input for street object detection.
- The objects are detected from the synthesized and processed generated image by using two separate popular street object detector named Faster R-CNN and MobileNetSSDv2 model.

Performance: A rigorous performance comparative analysis has been conducted between the Faster R-CNN and MobileNetSSDv2 model based proposed frameworks as well as with the recent techniques considering both the processed and unprocessed input images. A mAP of around 32.6% is found for Cityscape dataset using the proposed framework, whereas most of the cases, mAPs are reported in the range of 20%-28% for this particular dataset. The work has been published to "*Human-Centric Intelligent Systems*" journal.

Research Interests

✧ Machine Learning (ML) ✧ Deep Learning (DL) ✧ Computer Vision (CV)
✧ Image processing ✧ Signal processing ✧ Federated Learning (FL)

Projects

✧**An End-to-End Web-Based System for Rice Leaf Disease Classification using Deep Learning** *2023*
This research presents a deep learning based Website design to classify three common rice leaf diseases: Bacterial Leaf Blight, Brown Spot and Leaf Smut. Six transfer learning CNN models have been used for faster operation targeting the website suitability. The paper has been accepted by 7th International Joint Conference on Advances in Computational Intelligence IJCACI 2023.
Experimental Project for Research Purpose.

✧**Corn Leaf Disease Identification via Transfer Learning: A Comprehensive Web-Based Solution** *2023*
This study involves a website that uses deep learning for classifying three major diseases of maize leaves. Additionally, it conducts a comparative analysis of various state-of-the-art models considering metrics such as accuracy, precision, recall, F1-score, training time and model size. The paper has been accepted by 5th International Conference on Sustainable and Innovative Solutions for Current Challenges in Engineering & Technology.
Experimental Project for Research Purpose.

✧**Smart Dustbin: An efficient garbage monitoring system** *2019*

An Arduino based proposed System provides solution to garbage collection providing greater accessibility, planning appropriately for disposing process and at the same time enabling collection of garbage generation data. *Undergraduate Course Project for Electronics Project Design/Development*.

✧**WorldCup_Cricket** *2019*

Management of the Cricket World Cup is the basis of this DBMS project. It offers a variety of details on the many teams competing in the World Cup, in which all the main nations are represented. It also gives us details on the different players, coaches, umpires taking part in the competition.
Undergraduate Course Project for Database System Laboratory.

Standardized Test Scores

GRE: 307 *26th June,2023*

Quant: 159 (58 percentile), **Verbal:** 148 (32 percentile), **AWA:** 3.0 (15 percentile)

IELTS Academic Test: 6.5/9.0 *17th October, 2023*

Listening: 6.0/9.0 **Reading:** 8.0/9.0 **Writing:** 6.5/9.0 **Speaking:** 6.0/9.0

Professional Experience

✧ **PS Core Engineer I**, E-Zone HRM Limited, Bangladesh *12th October, 2022 - 30th May, 2024*
CloudUDN Expansion Project (Installation, Commissioning, Integration), IPv6 commercial APN pool Binding, PS discovery project.

✧ **Trainee Engineer**, E-Zone HRM Limited, Bangladesh *11th May, 2022 – 11th October, 2022*
PS Core Product Learning. Understanding of: NFV basic conception, CloudEdge layered Cloud Solution, IP routing & OSPF Protocol, GPRS & SAE fundamentals.

Software and Programming Skills

✧ *Data-Analysis:* Scikit-learn, Tensorflow, Keras, Pytorch
✧ *Data-Visualization*: Matplotlib, Seaborn, Dash, Tensorboard, MATLAB
✧ *Web Programming:* HTML, CSS, PHP, Javascript, XML
✧ *DBMS:* Oracle 10g, MySQL
✧ *Version Control: Git*
✧ *Documentation:* LaTeX, MS Office

Award & Honors

✧ **Dean's Award** – Dept. of ECE (*with GPA 3.91 out of 4.00*) May, *2023*
✧ **Outstanding Employee** of 2022 H2, 2023 H1 *April, 2023*
✧ **Top 3** in Campus Recruitment Program, 2022 at KUET *April, 2022*
✧ University Merit Scholarship *2017- 2021*

Synergistic Activities

✧ Member at DREAM (a voluntary blood donors' organization) *2017-Ongoing*
✧ Member at Manipulation of Electrons Club (MEC) *2017- 2022*
✧ Member at KUET Math Club *2017- 2022*
✧ Coordinator at Rangpur Science Club *2013- 2016*

References

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