Md Ashikur Rahman

+8801675964080 | mdashikrah@gmail.com | https://www.linkedin.com/in/mdashikrah/ | https://ashikrafi.github.io/

EDUCATION

American International University-Bangladesh
B.Sc. in Computer Science and Engineering
CGPA: 3.87 Out of 4.00 (Class Ranking: Among Top 3%)
Thesis: Analysis of Sentiment and Extraction of Facts from RSS Feeds Advisor: Prof. Dr. Tabin Hasan

RESEARCH PROJECT HIGHLIGHTS

✓ **Deep Network Architectures for Object Detection and Segmentation** (National ICT Award Winning Project)
Contributors: Md Ashikur Rahman (Tech Lead), Md Arifur Rahman, Nazmin Nahar Apr.'21 – Present

In this project, we have developed powerful deep network architecture for salient object detection (SOD) to improve the efficiency of the "Image Background Removal". So far, this reduces the workload of manual image processing by about 85.23% to date for about 21,000 images per day. Our main contributions to this work are as follows: [GitHub-Private]

- It captures more contextual information while generating image masking from raw images
- It increases the depth of the whole architecture without significantly increasing the computational cost because of the pooling operations used in these RSU blocks.
- It handles larger image files than remove.bg. So far it can process up to 257 MB for each image whereas remove.bg processes up to 25 MB (Reference: https://www.remove.bg/api#rate-limit)

✓ **Named Entity Recognition (NER) on the N2C2 Dataset: Obesity Challenge Factors** (Voluntary Research Project)
Contributors: Md Ashikur Rahman, Thanh Thieu (Assistant Professor, CSE; Oklahoma State University) Jul.'20 – Sep.'20

NeuroNER lies on a variant of recurrent neural network (RNN) called long short-term memory (LSTM). However, we have replaced LSTM with Tree-LSTM. Afterward, on the Dataset, we have trained the neural network from scratch that performs the NER on the dataset. Our main contributions to this work are as follows: [GitHub-Public]

- A major change (Tree-LSTM) in the architecture has been implemented which provides about 7% improvement over the previous approach.
- We have contributed to developing an algorithm that converts NeuroNER output to WebAnno input format.

✓ **A novel approach to joining curves to edges to resize images**
Contributors**:** Md Arifur Rahman(TL), Md Ashikur Rahman Nov.'20 – Jan.'21

In this project, we have developed a novel algorithm (accuracy: ~ 99.15%) that can join all the curves of all the uninterrupted points on the edge and automatically resize the images. The algorithm has the following advantages: [GitHub-Public]

- It removes the unwanted objects, keeps the salient objects in the images.
- It automatically margins objects and resizes the images.

PUBLICATIONS & WORKSHOPS

Journal Paper(s)

1. **Md Ashikur Rahman,** Md Arifur Rahman and Juena Ahmed Noshin. Automated Detection of Diabetic Retinopathy using Deep Residual Learning. International Journal of Computer Applications 177(42):25-32, March 2020.

2. Nested U-Structure like Pure Transformer for Medical Image Segmentation – August 2022 (Manuscripts in progress)
3. *NVIDIA GTC - Accelerating Data Engineering Pipelines – Nov 2021 (INSTRUCTOR-LED WORKSHOP)*

EMPLOYMENT

- ✓ **CutOutWiz Ltd., Bangladesh**
  Machine Learning Engineer (Image Processing Lab) Jul.'20 – Present

  Contributions:
  - Conducting research limitations, impediments & feasibility when developing neural architecture
  - Working on Deep Network Architectures for Object Detection and Segmentation
  - Developing the training & validation procedure to increase the efficiency
  - Writing optimized and clean code while maintaining design principles

- ✓ **Smart Technologies (BD) Ltd**
  Sr. Software Engineer Sep.'16 – Dec.'19

  Contributions:
  - Designed Microservices architecture for large scale ERP for about 19 modules
  - Implemented messaging integrations with other products.
  - Developed the Supply-Chain Management from scratch using .Net Core
  - Developed Real Time Large Scale Data Synchronization Scheduler using ASP.NET MVC 4 & SSMS

- ✓ **Proggasoft**
  Software Engineer Mar.'15 – Aug.'16

  Contributions:
  - Debugged and troubleshot for solving technical issues
  - Contributed to developing Contest Platform for Programmers - https://devskill.com/

RESEARCH INTERESTS

Machine Learning and Optimization
Neural Networks
Computer Vision
Natural Language Processing

TECHNICAL SKILLS

Machine Learning	Supervised and Unsupervised Learning, Linear Models
Familiar ML Techniques	Regression, Decision Tree, Naive Bayes, KNN, SVM, Random Forest, Gradient Decent.
Computer Vision	Deep Network Architecture: - U2-Net, Mask R-CNN etc.
Programming/Analytics	Python and C/C++; Database: - (MySQL, MS SQL Server)
Cloud Platform & GPUs	Google Cloud Platform; GPUs: NVIDIA Tesla A100 & NVIDIA Tesla V100
Software & Tools	LaTeX, PyCharm, Google Colab; NVIDIA DALI, ASGI Framework (Starlette)
ML Framework	PyTorch, TensorFlow, Keras
Version Control	GitHub, Bitbucket

AWARDS AND SCHOLARSHIPS

- 2021: APICTA 2021 - The Asia Pacific ICT Alliance Award-2021 (FINALIST)
- 2021: Basis National ICT Awards-2020 (CHAMPION)
- 2015: Academic Award (Magna Cum Laude)
- 2012-2014: Merit Scholarship & Tuition Fee Waiver , AIUB

ONLINE COURSES & CERTIFICATION

- Problem Solving (Advanced) – HackerRank
- Problem Solving (Basic) – HackerRank
- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning – Coursera
- Neural Networks and Convolutional Neural Networks Essential Training - LinkedIn

PROBLEM SOLVING & COMPETITIVE PROGRAMMING

- HackerRank: Badge Level: 6 STAR - GOLD (World Ranking: Among Top 1%)
- LeetCode: Status- Learner
- Kaggle: Took Part in a Few Competitions (Status:- Learner)