

# MD ASHIKUR RAHMAN

+880 1675964080 | [mdashikur.rafi@gmail.com](mailto:mdashikur.rafi@gmail.com) | <https://www.linkedin.com/in/mdashikrah/> <https://ashikrafi.github.io/>

## EDUCATION

American International University-Bangladesh

Jan.'11 – Feb.'15

B.Sc. in Computer Science and Engineering

CGPA: 3.87 Out of 4.00 (Class Ranking: Among Top 3%)

**Thesis:** Sentiment Analysis and Fact Extraction from RSS Feeds: An In-depth Analysis

Advisor: Prof. Dr. Tabin Hasan

## RESEARCH INTERESTS

- Machine Learning and Optimization
- Neural Networks
- Computer Vision
- Natural Language Processing

## RESEARCH PROJECT HIGHLIGHTS

### ✓ **Enhancing Mesh Generation through Multi-View Image Fusion**

Contributors: Md Ashikur Rahman, Md Arifur Rahman, Faizul Hassan, Shafayat Ahmed

Apr.'23 – Present

To overcome the drawbacks of reconstructing objects from a single viewpoint, this research project investigates the combination of images from various angles to generate more precise and intricate 3D meshes. Utilizing data from different viewpoints, the proposed method significantly improves the quality of the resultant models. Currently, we are incorporating multi-view image fusion techniques into our workflow to improve the accuracy of our reconstructions.

### ✓ **Revolutionizing Keyword Spotting and Insights Extraction from Audio Conversations**

Contributors: Md Ashikur Rahman, Kazi Sohrab Uddin, Md Nahiyen

Sept.'23 – Present

This research project investigates advanced machine learning models for audio keyword detection and insight extraction in an effort to improve keyword recognition and context comprehension in audio conversations. This study evaluates models including CNNs, RNNs, Transformers, and hybrid architectures, providing insight into their efficacy and scalability for research applications in audio data analysis.

### ✓ **Deep Network Architectures for Object Detection and Segmentation**

(National ICT Award Winning Project)

**Contributors:** Md Ashikur Rahman (Tech Lead, ML), Md Arifur Rahman, Nazmin Nahar

Apr.'21 – Present

**Project Link:** <https://retouched.ai/>

Our team has designed an advanced deep neural network for salient object detection, which has resulted in an efficient solution for "Image Background Removal." Our solution achieves a high accuracy of 96.23% using the Human Correction Efforts (HCE) metric at its best and maintains a commendable accuracy of 81.47% even in worst-case scenarios. Our team's invaluable contributions can be summarized as follows:

- Firstly, the model captures vast amount of contextual information for precise and accurate salient object extraction.
- Secondly, the model achieves increased depth through advanced pooling operations in RSU blocks, enhancing system performance with high accuracy. Specifically, the processing time for an image with a size of 257 MB is reduced to 2.27 seconds, excluding image uploading, when executed on NVIDIA A100 40GB on GCP.

### ✓ **Named Entity Recognition (NER) on the N2C2 Dataset: Obesity Challenge Factors** (Voluntary Research Project)

**Contributors:** Md Ashikur Rahman, Thanh Thieu

Jul.'20 – Sep.'20

Made significant contributions to the field by replacing LSTM with Tree-LSTM, resulting in enhanced performance for Named Entity Recognition (NER) tasks. Retrained the neural network from scratch and made the research work available on GitHub for team members to review. The following highlights our primary contributions to this research: [[The detailed work is accessible on GitHub for team members to review](#)].

- Successfully implemented a significant architectural enhancement by incorporating Tree-LSTM, resulting in a notable 7.23% improvement over the previous methods.
- Played a key role in the development of an algorithm that efficiently converts NeuroNER output to WebAnno input format.

- **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.
- NVIDIA GTC - Accelerating Data Engineering Pipelines – Nov 2021 (INSTRUCTOR-LED WORKSHOP)

## EMPLOYMENT

---

### ✓ **The KOW Company**

Lead, Artificial Intelligence (Image Processing Lab)

Jan.'23 – Present

Key Contributions:

- Conducting research on CV techniques, including 3D reconstruction, object detection, image segmentation, and retouching.
- Proactively researching machine learning models for audio keyword spotting and insights extraction.
- Collaborating closely with teammates to find optimal solutions and address challenges.
- Managing end-to-end AI projects, ensuring timely completion and delivering exceptional results.

Machine Learning Engineer (Image Processing Lab)

Jul.'20 – Dec.'22

Key Contributions:

- Implemented deep learning models, resulting in significant improvements in object recognition and segmentation tasks.
- Conducted A/B testing to assess the performance and effectiveness of different model variations or algorithms.

### ✓ **Smart Technologies (BD) Ltd**

Sr. Software Engineer

Sep.'15 – Dec.'19

Key Contributions:

- Architected and implemented a scalable Microservices architecture for a large-scale ERP system encompassing 19 modules, capable of efficiently handling 2TB dataset in SQL Server.
- Developed a Real-Time Large Scale Data Synchronization Scheduler utilizing ASP.NET MVC 4 and SSMS.

### ✓ **Proggasoft**

Software Engineer

Aug.'14 – Aug.'15

Key Contributions:

- Performed extensive debugging and troubleshooting to resolve simple & complex technical issues.
- Developed a Contest Platform for Programmers - <https://devskill.com/>

## 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).
Programming/Analytics	C/C++, Python, & C#; Databases (MySQL, MS SQL Server).
Cloud Platform & GPUs	Google Cloud Platform; GPUs (NVIDIA A100 80GB/40GB).
Software & Tools	LaTeX, PyCharm, Google Colab; NVIDIA DALI.
Python & ML Framework	FastAPI, 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 [Available for public viewing via the provided link]

---

- Problem Solving (Advanced) – GOLD Badge Level on HackerRank, ranking among the top 1% globally
- Problem Solving (Basic) – Completed comprehensive training on HackerRank
- Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning – Coursera
- Neural Networks and Convolutional Neural Networks Essential Training - LinkedIn