MD ASHIKUR RAHMAN

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EDUCATION

American International University-Bangladesh — Jan.'11 – Feb.'15
B.Sc. in Computer Science and Engineering (CGPA: 3.87/4.00, 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

TECHNICAL SKILLS

- Machine Learning: Supervised and Unsupervised Learning, Linear Models
- ML Key Techniques: Regression, Random Forest, PCA, Gradient Descent, SVMs
- CV/NLP Architectures: VGG, YOLO, U-Net, Mask R-CNN, BERT, Word2Vec
- Programming: C/C++, Python, R
- Databases: MySQL, PostgreSQL, MongoDB
- Cloud Platforms: GCP (Compute Engine, Cloud Functions), Microsoft Azure (Azure DevOps)
- ML Frameworks, Libraries & Tools: TensorFlow, PyTorch, FastAPI, Matplotlib, Docker
- Collaboration & Version Control: GitHub, Bitbucket, Trello, JIRA, LaTeX

KEY RESEARCH PROJECTS

✓ **Multi-View Image Fusion Techniques to Overcome Single Viewpoint Reconstruction Limitations**
Contributors: *Md Ashikur Rahman*, Md Arifur Rahman, Faizul Hassan, Shafayat Ahmed — Apr.'23 – Present

- This project addresses the limitations of single-viewpoint 3D reconstruction from 360-degree view videos or a set of images that cover a full 360-degree of the products to produce 3D meshes, generating GLB files for further post-processing
- This approach aims to reduce human 3D image editing processing time by at least 40%, providing a more efficient and scalable solution for creating 3D models

✓ **Deep Network Architectures for Object Detection and Segmentation** (The National ICT Award-Winning Project)
Contributors: *Md Ashikur Rahman*, Md Arifur Rahman, Nazmin Nahar — Apr.'21 – Present
Project Link: https://retouched.ai/

- Developed a deep neural network for salient object detection, achieving up to 96.23% accuracy (HCE metric) and processing 2.6M images globally with a daily throughput of 8,000–11,000 images
- Improved accuracy by 17% and reduced processing time by 30% compared to existing tools, processing a 257 MB image in 2.27 seconds by utilizing enhanced model depth and advanced pooling techniques in RSU blocks

✓ **Collaborative Learning for Generalized Virtual Try-On with GP-VTON**
Contributors: Md Arifur Rahman, Zakir Hossain, *Md Ashikur Rahman* — Jan.'23 – Feb' 24

- Enhanced GP-VTON framework with a new warping module and training strategy, improving image alignment by 19%, pose estimation by 6%, and garment fitting accuracy by 11%
- Despite substantial technical enhancements, the project failed due to issues with hardware integration at malls, which limited scalability and hindered commercial viability

✓ **Contextual Key Phrase Spotting and Insights Extraction from Audio Conversations**
Contributors: *Md Ashikur Rahman*, Kazi Sohrab Uddin, Md Nahiyan — Sept.'23 – Nov.'23

Deployed SeamlessM4T, a multimodal AI model, to translate text from audio files and integrated Llama 2 to extract key contextual phrases. Tested in Bangladesh to optimize operational processes for a customer service provider

✓ **Named Entity Recognition (NER) on the N2C2 Dataset: Obesity Challenge Factors** (Intl. Voluntary Research Project)
Contributors*: Md Ashikur Rahman*, Thanh Thieu — Jul.'20 – Sep.'20

This project increased NER performance on the dataset by implementing a Tree-LSTM model, achieving a 7.23% performance boost over traditional LSTM, and using an algorithm to convert NeuroNER output into WebAnno format, streamlining annotation

PUBLICATIONS & WORKSHOPS - (Google Scholar)

- 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)
- (*Under Review*) Submitted to a Q1-ranked journal, the research "AdvHSNet: An Approach Using Self-Attention Mechanism for Hate Speech Detection" proposes improvements of 8.30% in precision, 7.5% in recall, and 8% in F1 score, enhancing the model's accuracy

WORK EXPERIENCE

✓ **The KOW Company**

Lead, Artificial Intelligence — Jan.'23 – Present

Key Contributions:

- Conduct research in deep learning and computer vision SOTA areas, e.g., 3D reconstruction and Pose Estimation
- Collaborate with mathematics professors at EWU four days a week to deepen understanding of linear algebra and differential geometry, enhancing proficiency in the development of machine learning & computer vision algorithms
- Lead 8-10 intra-departmental meetings per month, manage 4 ongoing projects with 20+ team members, improving project delivery time by 15% through process optimization and ensuring 90-95% on-time, quality results

Senior Machine Learning Engineer — Jul.'21 – Dec.'22

Key Contributions:

- Conducted advanced machine learning topics, including customer segmentation and cluster-based territory map coloring, with a goal to improve healthcare marketing strategies by 15% within six months
- Improved training algorithms for Object Detection and Segmentation, increasing accuracy by 20-35% over six to seven iterative testing phases
- Led over 6 client engagements, internal technical discussions, and managed project timelines, deliverables, and team performance

Machine Learning Engineer — Jul.'20 – Jun.'21

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**

Senior Software Engineer — Sep.'16 – Dec.'19

Key Contributions:

- Developed ERP modules in .NET, including HRM, inventory management, procurement management, fixed asset management, audit management, sales and distribution, discount management, and predictive analytics, resulting in 70-75% automation and at least 45% increase in online report visualization
- Designed a .NET-based monolithic architecture to ensure scalability and seamless integration across modules, resulting in a 30-40% reduction in development time for new features
- Built a real-time scheduler for large-scale data synchronization on the ~5TB distributed databases
- Optimized SQL queries to enhance performance on the 5TB databases, ensuring efficient data handling

✓ **Proggasoft**

Software Engineer — Mar.'15 – Aug.'16

Key Contributions:

- Developed a contest platform (https://devskill.com) using ASP.NET MVC, adhering to SOLID principles and design patterns

AWARDS AND SCHOLARSHIPS

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

CERTIFICATIONS & ONLINE LEARNING [Available for public viewing via the provided link]

- Hands-on Practice in Solving Advanced Algorithms – Achieved Gold on HackerRank
- Completed comprehensive training in basic data structure & algorithm techniques on HackerRank