
MD SADDAM HOSSEN

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Career Summary:

- AI Engineer skilled in machine learning, deep learning, computer vision, and applied AI research.
- M.Sc. in CSE with CGPA 3.85/4.00 and B.Sc. in CSE with CGPA 3.88/4.00 academic excellence.
- Develops CNN-based solutions for medical imaging, agricultural AI, and emotion recognition tasks.
- Skilled in TensorFlow, Keras, OpenCV, Scikit-learn, transfer learning, and model optimization.
- Achieved 94% fruit classification accuracy using ResNet152V2 and transfer learning techniques.
- Experienced in ML pipelines, data augmentation, model evaluation, and research manuscript writing.
- Strong research profile backed by academic awards, TOEFL iBT 103, and technical competitions.

Objective: To advance as an AI Engineer and ML Researcher by developing scalable, research-driven AI solutions for computer vision, healthcare, and agriculture.

Key Proficiencies:

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|-----------------------------|--------------------------------|
| • Applied Machine Learning | • Medical Image Analysis |
| • Deep Learning Research | • Agricultural AI Systems |
| • Computer Vision Systems | • Model Performance Evaluation |
| • CNN Model Development | • Research Experimentation |
| • Vision Transformer Models | • Scientific Research Writing |
| • Transfer Learning | • Neural Network Optimization |

Job Experience:

AI Engineer (Research-Based), Amprex Tech Solution, London, United Kingdom Jan 2024 – Present

Responsibilities:

- Develop and fine-tune CNN models for image-based disease detection and emotion recognition tasks.
- Design end-to-end ML pipelines for preprocessing, augmentation, model training, and validation.
- Evaluate AI models using Accuracy, Precision, Recall, F1-Score, AUC, and analytical comparisons.
- Optimize CNN architectures to improve classification accuracy and computational efficiency levels.
- Contribute to research manuscripts for journal submission across agricultural and medical AI fields.

Achievements:

- Developed research-driven AI solutions for medical imaging, agriculture, and emotion recognition.
- Improved experimental workflows through structured preprocessing, augmentation, and evaluation.
- Contributed to multiple research manuscripts targeting agricultural and medical AI applications.

Research Experience:

Thesis Researcher, B.Sc. & M.Sc. Research Projects

Responsibilities:

- Developed fruit classification models using ResNet152V2, MobileNet, and InceptionV3 architectures.
- Applied transfer learning and image augmentation to improve model accuracy and generalization.
- Developed crop disease monitoring with Sentinel-2 imagery, Spatial-Spectral CNN, and ViT models.
- Evaluated classification models through Accuracy, Precision, Recall, F1-Score, and related metrics.
- Investigated practical deep learning applications for agricultural automation and crop monitoring.

Achievements:

- Achieved 94% fruit classification accuracy using ResNet152V2 with transfer learning techniques.
- Achieved 91% crop disease detection accuracy using Spatial-Spectral CNN and Vision Transformers.
- Developed a cloud-based early warning framework providing proactive alerts 2–3 weeks in advance.

Selected Research Projects:

- Plant Disease Detection Using Deep Learning: CNN-based crop disease identification and evaluation.
- Diabetic Retinopathy Detection: Deep learning classification for retinal disease severity analysis.

- Brain Tumor Detection: CNN-based MRI image preprocessing, feature extraction, and classification.
- Skin Disease Classification: Automated deep learning pipeline for dermatological image analysis.
- Defect and Grain Boundary Analysis: NDT and SEM-based aluminum alloy analysis, University of Ibadan.

Selected Development Projects:

- Human Action & Emotion Recognition: Deep learning and computer vision-based behavioral analysis.
- Smart Attendance System: Facial recognition and real-time automated identity verification system.
- Heart Disease Prediction: Comparative machine learning analysis for cardiovascular risk prediction.
- Traffic Fatalities Analysis: Clustering, exploratory data analysis, and dataset pattern recognition.
- Real-Time Smile Detection: Haar Cascade-based facial detection using computer vision techniques.

Manuscripts in Preparation:

- Deep Learning-Based Fruit Detection for Agricultural Automation.
- CNN-Based Plant Disease Detection for Crop Health Monitoring.
- Automated Diabetic Retinopathy Classification Using Deep Learning.
- Emotion Recognition Using Convolutional Neural Networks.

Training and Workshops:

- Leadership and Communication Training, National Institute Bangladesh.
- RCRC Basic and First Aid Training, Bangladesh Red Crescent Society.

Educational Qualifications:

- Master of Science in Computer Science and Engineering, University of Asia Pacific, CGPA: 3.85/4.00.
- Bachelor of Science in Computer Science and Engineering, Independent University, CGPA: 3.88/4.00.
- Higher Secondary Certificate in Science, Notre Dame College, GPA: 5.00/5.00.
- Secondary School Certificate in Science, Sanandabari High School, GPA: 4.94/5.00.

Honors and Awards:

- Dean's Honour Award, 2022.
- Departmental Research Award, Final-Year Research Grade above 89%, 2023.
- Dutch-Bangla Bank Scholarship, 2016 and 2019.
- Academic Motivation Scholarships, China and Japan.
- ICPC Asia Dhaka Regional Contest Participant, 2019, 2022, and 2023.
- National Computer Programming Contest Participant, 2019.
- National & Divisional Mathematics Olympiad Winner, 2012–2019.
- National Physics Olympiad Winner, 2015–2019.
- President's Scout Award, Bangladesh Scouts, 2015.
- National Service Award, Bangladesh Scouts, 2013.

Volunteering and Leadership:

- President's Scout Award, Bangladesh Scouts, Oct 2015.
- C.D. Award, Bangladesh Scouts, National Headquarters, Dhaka, Dec 2014.
- Unit Member, Tiger Sark Open Air Rover, Dhaka.
- International Friendship Project Volunteer, Bangladesh Red Crescent Society, Jul 2014.
- National Service Award, Bangladesh Scouts, Nov 2013.
- Volunteer Participant, IFRC, BDRCS and ICRC, Sep 2014.

Soft Skills: Analytical Thinking, Research Mindset, Problem Solving, Critical Thinking, Team Collaboration, Scientific Communication, Adaptability, Decision Making, Continuous Learning, Attention to Detail.

Computer Skills: Python, C++, TensorFlow, Keras, Scikit-learn, OpenCV, NumPy, Pandas, Git, Jupyter Notebook, Google Colab, Linux, Cloud Computing.

Language: Bengali – Native, English – Proficient (TOEFL iBT 103), Chinese – Basic, Japanese – Basic.

References:

- **Dr. Alope Kumar Saha**, Professor, Department of Computer Science & Engineering, University of Asia Pacific, Cell: +8801823123452, Email: aloke@uap-bd.edu.
- **Dr. Bilkis Jamal Ferdosi**, Associate Professor, Department of Computer Science & Engineering, University of Asia Pacific, Cell: +8801323345612, Email: bjferdosi@uap-bd.edu.