

Alif Ashrafee

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Education

PhD	Rochester Institute of Technology , Imaging Science <ul style="list-style-type: none">• CGPA: 3.92/4.00• Supervisor: Dr. Bartosz Krawczyk• Member: Machine Learning and Computer Vision (MLVision) Lab• Research focus: Computer Vision, Continual Learning	Rochester, NY, USA Aug 2023 – present
BSc	Islamic University of Technology , Computer Science <ul style="list-style-type: none">• CGPA: 3.85/4.0• Machine Learning Instructor and Executive Secretary: IUT Computer Society• Anchor and Student Representative: IUT CS Department	Dhaka, Bangladesh Jan 2018 – May 2022

Publications and Research

A Framework for Concept-Drift Adaptive Memory Realignment in Continual Learning <i>Alif Ashrafee</i> , Jędrzej Kozal, Bartosz Krawczyk	Ongoing
On the Behavior of Experience Replay Under Data Poisoning in Continual Learning <i>Alif Ashrafee</i> , Akib M. Khan, Jan Wasilewski, Hongye Xu, Ting Cao, Bartosz Krawczyk	Ongoing
AttResDU-Net: Medical Image Segmentation Using Attention-based Residual DU-Net <i>Alif Ashrafee</i> , Akib M. Khan, Fahim S. Khan, Md. Bakhtiar Hasan, Md. Hasanul Kabir 10.1109/IJCNN54540.2023.10191528 (IJCNN 2023)	June 2023
Real-time Bangla License Plate Recognition for Low Resource Video Applications <i>Alif Ashrafee</i> , Akib M. Khan, Mohammad Sabik Irbaz 10.1109/WACVW54805.2022.00054 (WACV Workshops 2022)	Jan 2022
Rethinking Cooking State Recognition with Vision Transformers <i>Alif Ashrafee</i> , Akib M. Khan, Reeshoon Sayera, Shahriar Ivan, Sabbir Ahmed 10.1109/ICCIT57492.2022.10055869 (ICCIT 2022)	Dec 2022

Work Experience

Rochester Institute of Technology , Research Assistant <ul style="list-style-type: none">• Supervisor: Dr. Bartosz Krawczyk, MLVision Lab, Center for Imaging Science• Research Domain: Continual Learning, Data Streams, Concept Drift	Rochester, NY, USA May 2024 – present
Rochester Institute of Technology , Teaching Assistant <ul style="list-style-type: none">• IMGS-389: Machine Learning for Image Analysis• IMGS-111: Imaging Science Fundamentals	Rochester, NY, USA Aug 2023 – May 2024
RedDot Digital, Axiata Ltd. , Software Engineer <ul style="list-style-type: none">• Star Performer and Project of the Year Awards, Q3 2022• Worked on ERP and E-commerce platforms using React, Nextjs, and Redux• Developed critical CRUD functionalities, dynamic API consumption mechanisms, Authentication, Data tables, Role-based access, and User Experience• Built an automated employee attendance system using facial recognition with reverse embedding matching for identification	Dhaka, Bangladesh June 2022 – July 2023
bKash Ltd. , Cloud Engineering Consultant <ul style="list-style-type: none">• Developed expertise with Linux and scalable cloud-native environments	Dhaka, Bangladesh Oct 2021 – Mar 2022

- Micro-service tools: Docker and Kubernetes
- AWS services: EC2, S3, ECR, DynamoDB, API Gateway, VPC, Route 53, etc.
- Infrastructure provisioning languages: Terraform and Ansible

Pioneer Alpha, Research Intern

Jan 2021 – Aug 2021

- Curated a crowdsourced dataset of license plate images and videos
- Developed an end-to-end license plate recognition web application

Projects

License Plate Recognition Web Application

- Leveraged a Flask backend with a 2-stage detection module to detect and isolate plate images from video streams
- Used Google Vision API for extracting the license plate number and a MySQL database for storing them

Skin Lesion Segmentation using Conditional GANs

- Applied C-GANs with a Double U-Net generator and a patch-GAN critic network to segment skin lesions
- Achieved a DSC of 89.7% surpassing the state-of-the-art performance

Cat Learns to Jump Buildings

- Developed a reinforcement learning cat agent to learn to jump across buildings in a 2D environment
- Used Q-learning method to train the agent on past experience, rewards, and penalty policies

Image Enhancement and Registration

- Created a UI-based Matlab software for image enhancement using smoothing, Wiener, and deconvolution kernels
- Implemented FFT to visualize the frequency domain and homography transform for image registration

Construction and Raw Material Solutions

- Built a full-stack website using HTML, CSS, Bootstrap, JS, jQuery, and Django backend integrated with a database
- Developed a user authentication system, CRUD functionalities, dynamic search and filtering options

Skills

Programming Languages: C, C++, Python, Java, JavaScript

Machine Learning Frameworks: TensorFlow, Keras, PyTorch, OpenCV, Numpy, Pandas, Scikit-learn

Data Visualization: Matplotlib, Seaborn

Web Development: HTML, CSS, Bootstrap, Material UI, jQuery, React, Redux, Nextjs, Flask, Django, WordPress

Databases: MySQL, Oracle, PostgreSQL

Cloud and DevOps: AWS, Docker, Kubernetes, Terraform, Ansible, Git

UI/UX Design: Figma, Adobe XD, Canva, Photoshop

Extracurricular Activities

- Dhaka Ai Traffic Detection Challenge: Top 10 out of 100+ teams
- Climate Startup Launchpad: National round 2nd runner up out of 100+ teams

Certifications

- Stanford: Machine Learning
- Nvidia: Fundamentals of Deep Learning
- Coursera: Deep Learning Specialization
- Coursera: TensorFlow in Practice Specialization
- Coursera: Generative Adversarial Networks (GANs) Specialization