Abir Ahmed

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PROFILE

AI researcher experienced in generative models, passionate about applying reinforcement learning and robotics to advance intelligent systems.

EDUCATION

BSc. in Software Engineering, Shahjalal University of Science and Technology
2019 – 2024
CGPA 3.58

POSITION OF RESPONSIBLITY

Meherpur Math Competition
Worked as a volunteer

Sust Tech Fest
Worked as a volunteer

LANGUAGES

Bangla, English

SKILLS

Languages
Python, C, C++, Octive, SQL, Java

Framework, Libraries and Tools
PyTorch, OpenCV, Numpy, Pandas, Git, Matplotlib, FastApi, Next.js

WORK EXPERIENCE

Advanced Machine Intelligence Research Lab-AMIRL, research assistant
April 2024 – August 2024
- Learned different **diffusion** algorithms
- Fine-tuned large image models (text to image)
- Working in diffusion-inpainting.

LogiQbits (Internship)
February 2023 – August 2023
- Seven months internship.
- Learned ML algorithms for **time series** forecasting.
- Created four machine-learning solutions for prediction.
- Retrieved desired data from a large database.
- Analyzed and visualized sales data.

RESEARCH

IHC Image Generation in HER2 Breast Cancer
- Applied DreamBooth fine-tuning on four pre-trained stable diffusion models for class-conditioned image generation
- Our optimized model achieved a CLIP score of **26**, an FID score of **226**, a KID mean of **0.0087**, and a KID std of **0.0047**
- **Accepted** in the 3ICT 2024

Voice Clonning
- We adopted 2 different approaches for Bengali **Zero-Shot Voice Cloning**.
- Obtained Mean Opinion Score (MOS) **3.8 ± 0.11** and **4.0 ± 0.11**.
- **Accepted** at ICCIT 2024; extending with large datasets and emotion-controlled generation..

Optimizing a Vision Transformer Model for Blood Cancer Detection from Peripheral Smear Images through Ablation Study
- Experimented with CNN-based transfer learning models (e.g., VGG19) and ViTs, with **ViTs outperforming**
- Applied preprocessing techniques and ablation studies, achieved **98.2%** accuracy
- Manuscript currently under **review** in the *International Journal of Electrical and Computer Engineering (IJECE)*

PROJECTS

Stock Market Forecasting(Internship Project)
- Created predictive models using LSTM, GRU, and Random Forest algorithms to forecast stock market trends as part of an ambitious in-house project
- Attained a 61% accuracy rate in initial models, laying the foundation for improving the company's forecasting capabilities

Sales-Sense(Internship Project)
- Develop a system to analyze sales data easily using FastAPI, PostgreSQL, and Recharts (Next.js), with added maps for salesman
- Achievements: Achieved quick data access, accurate results, fast loading, and received positive feedback for user-friendly data display
- Led the setup for efficient data processing and visualization, improving business insights and attracting attention for potential revenue growth.