MD SAFAYET ISLAM

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Narsingdi, Dhaka, Bangladesh

Education

- **Rajshahi University of Engineering & Technology** *Jan 2017 - Oct 2022*
  Bachelor of Science in Electrical & Computer Engineering Rajshahi, Bangladesh
  - CGPA: 3.38/4.00 (Last 60 credits average: 3.63)

Standardized Test Scores

- **GRE:** 324 (Quantitative: 165, Verbal: 159, Analytical Writing: 4.0)
- **IELTS:** 7.5 (Listening: 8.0, Reading: 7.5, Writing: 7.0, Speaking: 7.0)

Relevant Courses

Neural Networks & Fuzzy Systems, Digital Image Processing, Data Structures and Algorithms, Database Systems, Computer Networks, Object-Oriented Programming.

Undergraduate Thesis

- **Thesis:** *An Efficient Image Classification Method Using Depthwise Separable Convolution by a Supervised Learning Approach*
  - Proposed a CNN architecture using depthwise separable convolution and two-stage 1x1 convolution layers, significantly reducing trainable parameters (130,442) and FLOPS (0.0325G) for efficient small-scale models.
  - Achieved up to 97% accuracy on the CIFAR-10 dataset with a large model featuring 998,666 parameters and 1.0092 GFLOPS, balancing accuracy and computational efficiency.
  - Integrated residual connections to address vanishing gradient issues, improving training stability and performance across varying model sizes.
  - Applied state-of-the-art augmentation techniques (AutoAugment, RandAugment, CutMix, MixUp) and used the AdamW optimizer, resulting in a 3-7% increase in accuracy and reduced overfitting.

Research and Publications

C=Conference, J=Journal, S=In Submission, T=Thesis

[C.1] T.M.R. Bashar, M. Munem, **M.S. Islam**, M. Hossain, T.B. Shawkat, and H. Rahaman, *Optimized Hybrid Neural Network for Wind Speed Forecasting*, in *Proceedings of the 2022 IEEE Electrical Power and Energy Conference (EPEC)*, IEEE, 2022, DOI: 10.1109/EPEC56903.2022.10000164.

[S.1] **M.S. Islam**, M. Shafiuzzaman, G. Mahmud, N. Nowshin, P. Reza, J. Hasan, M. Nahiduzzaman, M.A. Ayari, and A. Khandakar, *Explainable Deep Learning for Rainfall Prediction: A CNN-XGBoost Hybrid Approach in Northern Bangladesh*, *IEEE Access*, under review.

[S.2] M. Shafiuzzaman, **M.S. Islam**, T.M.R. Bashar, M. Munem, M. Nahiduzzaman, M. Ahsan, and J. Haider, *Enhanced Short-Term Load Forecasting with Multi-Lag Feature Engineering and Prophet XGB-CatBoost Architecture*, *Energy*, Elsevier, under review.

Research Interests

Computer Vision, Deep Learning Architectures, Time Series Analysis, Explainable AI, Predictive Analytics.

Professional Experience

- **Anchorblock Technology LLC [🌐]** *March 2023 - May 2024*
  Quantitative Analyst Dhaka, Bangladesh
  - **Almanac: ML-Powered Algorithmic Trading Framework**
    - Led the development of a Python package for backtesting machine learning trading strategies in global futures markets.
    - Implemented time series models (ARIMA, SARIMA, Prophet) and deep learning architectures (LSTM, GRU, Transformer) to improve market prediction accuracy.
  - **Lucrum Ignis: AI-Driven Algorithmic Trading System for Dhaka Stock Exchange**
    - Developed a comprehensive algorithmic trading system tailored for the Dhaka Stock Exchange (DSE), including data acquisition, preprocessing, predictive modeling, and time-series data storage.

    - Applied machine learning techniques, including Principal Component Analysis (PCA), clustering algorithms, and Hidden Markov Models (HMM), for strategy optimization and signal generation.
    - Leveraged deep learning models such as Convolutional Neural Networks (CNN) and Recurrent Neural Networks (RNN) for feature extraction and forecasting, enhancing the robustness and accuracy of trading signals.
- **QuantStats-X: Enhanced Cross-Market Portfolio Analytics Suite**
    - Enhanced the open-source QuantStats library for market-specific reporting and integration with the Dhaka Stock Exchange.
    - Conducted time series analysis using ARIMA and GARCH models for forecasting market trends and volatility.

Internship Experience

- **SELISE Digital Platforms** *May 2021*
  Intern Dhaka, Bangladesh
  - Gained foundational knowledge in MEAN stack development and API testing using Postman.
  - Developed a comprehensive MEAN stack CRUD application, utilizing core programming principles.
  - Learned industry-standard coding practices, project management tools, and the software development life cycle.

Awards and Scholarships

- **Government Scholarship (HSC):** Received for academic excellence in the Higher Secondary Certificate examination, 2016.
- **Government Scholarship (JSC):** Awarded for exceptional performance in the Junior School Certificate examination, 2012.

Technical Skills

Problem Solving:	Demonstrated proficiency through competitive programming platforms: Codeforces (600+), LeetCode (100+), HackerRank (100+), Other OJs (100+).
Programming Languages:	Python, C++, MATLAB.
Machine Learning Frameworks:	TensorFlow, Keras, PyTorch, Scikit-Learn.
Data Analysis:	Pandas, NumPy, SciPy.
Visualization:	Matplotlib, Seaborn, Plotly.
Version Control:	Git, GitHub.
Cloud Computing:	AWS (EC2, S3).
Research Tools:	LaTeX, Jupyter Notebooks, Overleaf.

Projects

- **Video Games Database Website** *2021*
  Tools: Angular, TypeScript, HTML, CSS, MongoDB, Node.js, Express.js [GitHub]
  - Developed a game database website using the MEAN stack during an industrial attachment at SELISE Digital Platforms.
  - Implemented RESTful APIs for efficient data management and created responsive UI components with Angular.
  - Utilized MongoDB as a NoSQL database to handle complex game data structures.
- **E-Commerce Website** *2019*
  Tools: HTML, CSS, MySQL, PHP
  - Developed an e-commerce site as part of a second-year academic project at "Technocracy 2019."
  - Implemented user authentication and created a product catalog with inventory management features.
  - Designed and optimized the MySQL database for efficient data retrieval.

References

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