SAADMAN SAKIF ARNOB

/LlinkedIn /github /google scholar /Researchgate

Lalmatia, Dhaka | +880-1610812120 | saadmansakif@iut-dhaka.edu

EDUCATION

B.Sc in Electrical & Electronic Engineering (EEE) January 2018 – May 2022
Islamic University of Technology | Gazipur

- **Relevant Coursework:** Data Communication and Networking, Digital Signal Processing, Artificial Neural Networks and Fuzzy Logic, Energy and Power Systems, Computer Programming, Embedded System Design.
- **CGPA:** 3.67/4.00, **Average of Last 4 semesters:** 3.90/4.00.
- Position among the **top 30 percent** of the department.

RESEARCH INTEREST

• Digital Energy Solutions • Energy forecasting and demand-side management • Federated learning on edge devices • Concept Drift • Renewable Energy Integration • **AI** and **IoT** enabled Smart Infrastructures • Cybersecurity in energy systems

UNDERGRADUATE THESIS

Multivariate Time-series Load Forecasting using Deep Learning 2021 – 2022

Supervisor: Prof. Dr. Ashik Ahmed, Dept. of Electrical and Electronic Engineering, Islamic University of Technology (IUT)

Investigation of short-term load forecasting for the Bangladesh power system, emphasizing its importance for system reliability and efficiency. Performance of deep neural network models, including XGBoost, LSTM, Stacked LSTM, CNN, CNN-LSTM, Time Distributed MLP, and Encoder-Decoder are compared. The models use previous load data and additional features like temperature, weekdays, weekends, and peak business hours to improve prediction accuracy. The study delineates the pros and cons of each model used. [Read Here]

RESEARCH PUBLICATIONS

JOURNAL ARTICLES

1. S.S. Arnob, A.I.M.S. Arefin, A.Y. Saber and K.A. Mamun, **'Energy Demand Forecasting and Optimizing Electric Systems for Developing Countries,'** *IEEE Access*, vol. 11, pp. 39751-39775, 2023, DOI: 10.1109/ACCESS.2023.3250110. (1)

ONGOING RESEARCH

1. S.S. Arnob, A.I.M.S. Arefin, and K.A. Mamun**, 'Online Deep Learning in Load Forecasting: A Dynamic Approach to Concept Drift Detection and Adaptation'.**

2. A.A. Shuvro, **S.S. Arnob,** and S.R. Efaz**, 'Multivariate Multistep time-series traffic flow forecasting using Temporal Fusion Transformer.'**

TECHNICAL SKILLS

Programming Languages:

- **Python:** Proficient in using Python for various machine learning and data analysis tasks. Familiar with Python libraries essential for data science and machine learning.
- **Bash:** Skilled in shell scripting and command-line operations, facilitating automation and system operations tasks.

Machine Learning and Data Science Frameworks:

- **TensorFlow, PyTorch & Keras**: Experienced in designing, training, and evaluating deep learning models using these frameworks, tailored for both research and production environments.
- **SciPy & Statsmodels:** Well-versed in scientific computing and statistical modeling using SciPy and Statsmodels. Familiar with optimization, integration, and interpolation tasks.

Database Management:

- **MySQL**: Knowledgeable in structured query language, and management using MySQL.
- **Hadoop**: Proficient in distributed data storage and processing using Hadoop framework.

Cloud & Deployment Tools:

- **AWS**: Experienced in utilizing AWS services for cloud computing, storage, and ML tasks.
- **Docker & Kubernetes:** Proficient in containerizing applications with Docker and orchestrating them using Kubernetes, ensuring scalability and efficient deployment.

TEST SCORES

- **IELTS Band 8:** Listening: 8.5, Reading: 8.5, Writing: 7 and Speaking: 7

PROJECTS

April 2023

1. Temporal Fusion Transformers in Load Forecasting [Link]

ML Project

Objective: *s*howcase the superiority of ***Temporal Fusion Transformers*** in capturing long term dependencies of historical electric load data

- Compared ***TFT****'s* performance against other models including ***N-BEATS, NHITS, RNN,*** and vanilla ***Transformer*** models.
- ***TFT*** outperformed other benchmarked models with a ***MAPE*** of ***1.15%***, showcasing its superiority in forecast accuracy.

WORK EXPERIENCE

Advanced Intelligent Multidisciplinary Systems Lab (AIMS Lab)
June 2022 - June 2023

Research Engineer

Research Project: iPower- An Intelligent Electricity Demand Forecast and Optimization Application

- Requirement analysis
- **IoT** data collection and validation
- Collaborated with Power development board and developed our solution
- Secured a grant of 1million BDT for our research project
- Writing report and relevant research articles

bKash Limited
June 2023 -

Platform and Integration Engineer, System Engineering

- F5 BIG-IP system implementation and management, including LTM and WAF provisioning, load balancing setups, and **Docker/Kubernetes** technology integration.
- Wide-ranging expertise in protecting critical backend systems using WAF, Cloudflare DNS, and business **DNS** server management.
- Integrating financial services for over **70 million** consumers, working with high-volume, large-scale distributed production systems.
- Implementing ASM security policies, **DDoS** mitigation strategies, **SQL injection**, cross-site scripting **(XSS)**, and other **OWASP** Top 10 vulnerabilities.
- Monitoring network and application performance, analyze **traffic patterns**, identify bottlenecks, and optimize resource allocation for better efficiency and reliability.

ACHIEVEMENTS

- **Partial OIC Scholarship:** Obtained partial scholarship worth USD 14,500 (75% waiver).
- Awarded **1 million BDT grant** and secured **Top 5** position in ***MUJIB 100 Idea Contest 2021.***
- **Finalist** at **Robi Datathon 2.0** in 2022.