

MD ARIFUL AMIN

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OVERVIEW

ML Researcher and Engineer with **6+ years of experience** developing real-time and scalable machine learning systems, including work within the **health tech ecosystem at Samsung R&D**. Proficient in **Python** and **PyTorch**, with experience in **biomedical time-series data** (EEG, ECG) and **multimodal learning approaches**, including skin disease detection by integrating imaging and clinical data. Currently completing my Master's thesis at Malmö University on **prototype-based, inherently interpretable machine learning models** for epileptic seizure prediction using ECG data.

EDUCATION

Master's in Applied Data Science *Sept 2024 - June 2026*
Malmö University, Sweden

Thesis Title: Inherently Interpretable ML for Epileptic Seizure Prediction Using ECG Signals.

Bachelor of Science in Computer Science and Engineering *Jan 2014 - Jan 2018*
University Of Dhaka, Bangladesh

Thesis Title: Energy-Aware Anchor Selection for Energy-Harvesting Wireless Sensor Networks.

RESEARCH EXPERIENCE

Research Assistant — Malmö University *Dec 2025 – Present*

- Contributing to an **EU-funded** research project on inherently interpretable deep learning for **biomedical time-series**, developing prototype-based CNN architectures with attention mechanisms for epileptic seizure prediction, targeting improved predictive **performance and model transparency**.

CREME – VIP Research Programme — Malmö University *Jan 2025 – Sep 2025*

- Designed and optimized a **multimodal deep learning pipeline** for **skin disease detection**, combining **dermatoscopic images** and clinical data. Used pretrained CNNs (ResNet, MobileNet, VGG16) and autoencoders for feature extraction, **fused with clinical data** via an MLP, and applied Grad-CAM and SHAP for model interpretability.

Undergraduate Thesis — Green Networking Research Group *Feb 2017 – Jan 2018*

- Investigated energy-efficient routing and **anchor selection in wireless sensor networks**, analyzing trade-offs between energy consumption and network lifetime using optimization techniques.

TEACHING EXPERIENCE

Teaching Assistant (Part-time) — Malmö University *Apr 2025 – Nov 2025*

- Conducted laboratory sessions for bachelor-level courses in **multi-threaded programming, Python, and C#/.NET**, emphasizing concurrent programming and system-level concepts and also coordinated departmental academic activities as a **Program Assistant**.

INDUSTRY EXPERIENCE

Coal Power Generation Company Bangladesh Limited

– **Software Programmer**

April 2022 – Aug 2024

- Developed and deployed time-series **forecasting** models (**LSTM, PyTorch**) with end-to-end data pipelines, enabling data-driven decision-making and improving predictive accuracy in large-scale energy systems.

- Built a cloud-based monitoring system (**Docker, AWS, React, Django**) for real-time analytics, enhancing operational visibility and **improving decision-making by 10%** in industrial environments.

Samsung R&D Institute Bangladesh, Dhaka

– **Lead Engineer**

Jan 2022 – April 2022

- Led development of the **HeartWise wearable health monitoring system** for cardiac patients, collaborating with Samsung Research America, focusing on reliable real-time data processing under latency and power constraints.
- Designed **real-time data synchronization pipelines (C++, BLE)** and ensured reliability and efficient health-data processing for smartwatch apps through code analysis and testing.

Samsung R&D Institute Bangladesh, Dhaka

– **Software Engineer**

April 2018 – Dec 2021

- Implemented **firmware-level IPC data pipelines (C/C++)** for real-time wearable systems, ensuring efficient data flow and reliable inter-process communication in resource-constrained devices.
- Developed **OTA update mechanisms (Tizen)** and performed log-based debugging (Kibana), improving system reliability, maintainability, and continuous deployment.

TECHNICAL SKILLS

- **Programming & Systems:** C/C++, Python, SQL, Linux
- **Machine Learning:** PyTorch, Time-series modeling, Spatio-temporal learning, Model interpretability, Pruning, Quantization, Model optimization
- **Software Systems:** Distributed systems, containerization (Docker), cloud platforms (AWS), CI/CD (GitHub Actions, Jenkins), MLOps
- **Data Processing:** Apache Spark, Databricks
- **Engineering Practices:** Collaboration, Profiling, system optimization, Git, Agile/Scrum

PUBLICATIONS

- [Network Lifetime Aware Anchor Selection For Energy Harvesting Wireless Sensor Networks, IEEE International Conference On Humanitarian Technology \(HTC\), 2018](#)

AWARDS, AND ACHIEVEMENTS

- SI Scholarship for Global Professionals (2024).
- Best Societal Impact Prize (2025) - Malmö University Stormathon.
- Icon of the Month (2019) – Samsung R&D Institute.
- Award for Sustainable Solution (2017) - Power and Energy Hackathon,
- Digital Bridges Program (2025) at Volvo Group Trucks Technology (Malmö).

LINGUISTIC PROFICIENCY

- English (Fluent), Bangla (Native), Swedish (Learning)

LINKS

- GitHub: <https://github.com/ariful59/>
- LinkedIn: <https://www.linkedin.com/in/ariful-amin>

REFERENCE

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