MOHIUDDIN MEHEDI

Full Stack Developer | AI & Cybersecurity Research Associate
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PROFESSIONAL SUMMARY

Full Stack Developer and AI/Cybersecurity Research Associate with 4+ years of experience building scalable, secure web applications using **React, Next.js, TypeScript, Node.js, Express, and PostgreSQL**. Skilled in RESTful and GraphQL API design, cloud deployment (AWS, Vercel), Docker, and CI/CD pipelines with GitHub Actions. Published researcher with **5 peer-reviewed publications** (Springer Nature, MDPI, IEEE) in machine learning, deep learning, explainable AI (SHAP), intrusion detection, and smart grid security. Holds an M.S. in Information Technology with a focus on cybersecurity and intelligent systems. Experienced in Agile, cross-functional teams, writing clean, tested code, and applying Python-based machine learning to real-world security and healthcare problems.

TECHNICAL SKILLS

Frontend: Next.js, React.js (Hooks, Context API), TypeScript, JavaScript (ES6+), Tailwind CSS, Bootstrap, Sass/SCSS, Framer Motion, Responsive Design

Backend: Node.js, Express.js, REST APIs, GraphQL, JWT, OAuth, WebSockets, Microservices Architecture

Databases: PostgreSQL, MongoDB, Firebase, Redis, SQL Query Optimization

State Management: Redux Toolkit, Context API, React Query / TanStack Query

Testing & QA: Jest, React Testing Library, Cypress (E2E), Lighthouse, Cross-Browser Testing

DevOps & Cloud: AWS (S3, EC2), Docker, GitHub Actions, CI/CD Pipelines, Vercel, Netlify

AI / Machine Learning: Python, TensorFlow/Keras, scikit-learn, NumPy, pandas, Transformers, LSTM/BiLSTM, Attention Mechanisms, SHAP, SMOTE, Jupyter

Cybersecurity: Intrusion Detection Systems (IDS), Zero-Day Attack Detection, Anomaly Detection, False Data Injection Detection, Blockchain Integrity, Penetration Testing, Vulnerability Scanning

Tools: Git, GitHub, GitLab, Figma, Adobe XD, Vite, Webpack, NPM, Yarn, LaTeX

PROFESSIONAL EXPERIENCE

Full Stack Developer — Upskill Consultancy | Queens, NY | 2025 – Present

- Architect and deliver full stack features using Next.js (App Router), Node.js/Express, and PostgreSQL in a production environment.
- Design and implement RESTful APIs and integrate third-party services to extend platform functionality.
- Collaborate with UX/UI designers and back-end engineers in two-week Agile sprints, maintaining a post-release defect rate below 2%.

Research Associate — AI & Cybersecurity Research | Washington, DC | 2024 – Present

- Conduct applied machine learning research on intrusion detection, smart grid security, and healthcare AI, resulting in 5 peer-reviewed publications.
- First author of a BiLSTM-attention and blockchain framework for detecting stealthy false data injection attacks in smart meters (96.23% accuracy, 96.09% F1-score).
- Co-developed ZD-HybridNet, an explainable Transformer-LSTM model for zero-day attack detection on UNSW-NB15 (94.04% accuracy, 95.34% F1-score); contributed to validation and manuscript review.
- Apply explainable AI (SHAP), class balancing (SMOTE), and leakage-free evaluation protocols to produce reproducible, interpretable models.

Frontend Developer — Startech & Engineering Ltd. | Dhaka, Bangladesh | 2020 – 2023

- Built and maintained responsive React UI components across 3 product lines; migrated a legacy JavaScript codebase to TypeScript with zero regressions.
- Integrated RESTful APIs (Node.js/Express) and implemented lazy loading and React Query caching, reducing average page load time by 40%.
- Developed an internal admin dashboard (React + PostgreSQL) that eliminated 6 hours per week of manual reporting for the operations team.

PUBLICATIONS

[1] **M. Mehedi** (First Author), A. A. Kabir, K. R. Ahmed, F. Mujtahid, S. S. Jamee, M. N. Rahman, "Detection of False Stealthy Data Injection Attacks in Smart Meters Using Machine Learning and Blockchain Technology," *Computers* (MDPI), vol. 15, no. 8, art. 534, Aug. 2026. DOI: 10.3390/computers15080534

[2] A. Madhiya, S. S. Jamee, K. Y. Lucky, F. Mujtahid, **M. Mehedi**, S. M. Rezvi, V. Solanki, R. Islam, "ZD-HybridNet Integrates Transformer and LSTM Models for Explainable Zero Day Cyber Attack Detection," *Discover Artificial Intelligence* (Springer Nature), vol. 6, art. 1341, Oct. 2026. DOI: 10.1007/s44163-026-02258-0 (equal contribution)

[3] D. Hossain, K. R. Ahmed, M. R. Mahmud, M. I. Khan, S. S. Jamee, **M. Mehedi**, "Attn-ChurnNet: Transformer-Based Customer Churn Prediction with Conformal Uncertainty," *Computers* (MDPI), Aug. 2026.

[4] **M. Mehedi** (Co-author), "Explainable Machine Learning Framework for Early Heart Disease Detection Using SMOTE and SHAP," *Vascular and Endovascular Review*, 2026.

[5] **M. Mehedi** (Co-author), "Analyzing Neuroimaging Epiphenomena: Machine Learning Approaches in Alzheimer's Prognostication," *IEEE International Conference on Computer Applications (ICCA)*, 2024.

Two additional manuscripts currently under peer review.

PROJECTS

IGRS LLM Learning Platform | Next.js · React · Node.js · PostgreSQL

- End-to-end learning management platform with AI-powered curriculum recommendations and adaptive quiz generation; implemented authentication, real-time progress tracking, and role-based instructor dashboards. Deployed on Vercel with GitHub Actions CI/CD.

Personal Portfolio & Blog | React · Tailwind CSS · Framer Motion

- Performance-optimized developer portfolio achieving a Lighthouse score of 98/100, featuring animated case studies and a Markdown-powered blog.

EDUCATION

Master of Science in Information Technology (MSIT) — Washington University of Science and Technology | 2023 – 2025

Focus: Cybersecurity and Intelligent Systems | GPA: 4.0/4.0

Bachelor of Science in Computer Science and Engineering (CSE) — Daffodil International University, Bangladesh | 2014 – 2018

CERTIFICATIONS

- Cybersecurity and Network Defense Fundamentals — Edureka / Coursera (May 2026)
- Penetration Testing and Vulnerability Scanning — Edureka / Coursera (May 2026)
- Responsive Web Design — freeCodeCamp (2025)
- Full JavaScript Masterclass: ES6 Modern Development — Udemy

LEADERSHIP

- **President, WUST Cybersecurity Club** (2024 – 2025) — organized Capture the Flag (CTF) competitions, security workshops, and an industry speaker series.