MD DIDARUL ALAM ALIF

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Education

- **American International University-Bangladesh (AIUB)** — Dhaka, Bangladesh
  Bachelor of Science in Computer Science and Engineering; **CGPA: 3.81/4.00** — April 2025
  Major: Computer Engineering
  Honors: Dean's Honorable Mention (Spring 2021–2022, Fall 2021–2022, Fall 2022–2023)
  Scholarship: Academic Scholarship
  Thesis: Hybrid Approach Towards Modernizing Efficient Vehicular Networks
  Graduated with Honors: Magna Cum Laude (Academic Honor)

Research Interests

- **Cyber-Physical Systems**
- **AI/ML for Network Intelligence**
- **Vehicular Ad-Hoc Networks (VANETs)**
- **Edge-Fog-Cloud Computing**
- **Security & Privacy**
- **IoT Security**
- **NFV, SDN, Distributed Systems**

Publications

- **An Efficient Deep Learning Model for Static ASL Gesture Recognition**: Published in ***IEEE QPAIN 2025***. Achieved **95.83% accuracy** using a lightweight CNN optimized for resource-constrained devices.
  DOI: 10.1109/QPAIN66474.2025.11172129
- **Integrating Fog Computing and Content Caching: A Hybrid Framework for Intelligent Vehicular Networks**: Research work proposing a hybrid fog-computing and content-caching framework for intelligent vehicular networks.
  DOI: 10.13140/RG.2.2.19690.07365

Ongoing Research Works

- **Hybrid Approach Towards Modernizing Efficient Vehicular Networks**: Hybrid Edge–Fog–Cloud design evaluated using OMNeT++, SUMO, NS-3; focusing on caching, latency reduction, inter-vehicle communication, and network efficiency. *(Manuscript under preparation)*
- **AI-Enhanced Network Function Virtualization (NFV)**: Exploring ML and DRL-based dynamic VNF placement, traffic steering, resource allocation, and intelligent orchestration. *(Manuscript under preparation)*
- **Explainable Drift-Aware Intrusion Detection**: Developing a BiLSTM-based NIDS with SHAP-JSD-guided drift detection and selective fine-tuning to identify attribution-level distribution shifts and recover performance across CICIDS2017/2018 and CIC-DDoS2019. *(Manuscript under preparation)*
- **LLM-Based Source Code Rewriting for Robust Malware Detection**: Exploring semantics-preserving LLM-generated code transformations, automated semantic validation, rewrite-aware malware detection, and generalization to unseen transformation families. *(Research project in preparation)*

Projects

- **ReconScience - Automated Web Vulnerability Assessment Platform**: Built **full-stack automated VAPT platform** (Next.js, FastAPI) deployed on Railway; integrated Nuclei multi-mode scanning, real-time SSE streaming, and OWASP Top 10–mapped risk dashboard.
- **OWASP-Aligned Web & API Penetration Testing Report**: Conducted authenticated/unauthenticated VAPT aligned with OWASP WSTG 4.2, API Top 10, MITRE CWE, CVSS v3.1; identified **22 vulnerabilities** including **IDOR and JWT flaws** with structured remediation guidance.
- **Secure Multi-Tenant SaaS Architecture for Resource and Billing Management**: Developed a multi-tenant meal-tracking, billing, and subscription platform using JavaScript, Vite, Firebase, Node.js, Firestore, and Cloud Functions; delivered real-time dashboards and offline-first Service Worker caching. Enforced tenant isolation, role-based access, subscription entitlements, and audit logging; integrated bKash Tokenized Checkout with duplicate-transaction safeguards.

- **ProWorkforce - Workforce Management & Payroll**: Built a workforce-management platform using Next.js, React, TypeScript, PostgreSQL, Prisma, and Tailwind CSS for rosters, timesheets, CSV imports, and compliance-document workflows. Developed payroll logic designed around Australian Fair Work requirements, with integer-based calculations, 30-minute shift rounding, and **12% superannuation contributions**; implemented HMAC-SHA256 authentication, role-based access, rate limiting, and secure document handling, supported by Vitest tests.

Experience

- **AmberIT** — Dhaka, Bangladesh
  Assistant System Engineer — *Mar 2026 – Jul 2026*
  - **Network Infrastructure**: Designing, deploying, and maintaining enterprise network architectures involving routers, switches, firewalls, Wi-Fi routers, and access points.
  - **Network Security & VAPT**: Leading security operations, vulnerability assessment, penetration testing, monitoring, and incident response across client environments.
  - **Systems & Tools**: Configuring and troubleshooting Layer 2/Layer 3 VPNs and network devices using Cisco, MikroTik, Juniper, Fortinet, Zabbix, WinBox, ABX systems, and Linux.
- **Estoma Inc. (Japan METI Govt. Internship Program)** — Tokyo, Japan
  AI/IT Intern — *Oct 2024 – Dec 2025*
  - **Global Selection**: Selected from **15,000+ global applicants** for Japan's METI internship program, joining a cohort of **50 personnel (top 0.33%)**; served as an AI/IT intern.
  - **Web Systems Engineering**: Ruby on Rails, Ruby, Vue.js, Vite, Docker.
  - **Backend Architecture**: DB modeling, API logic, system refinement.
  - **Cybersecurity**: Conducting VAPT on production systems.
- **DeshLink LTD.** — Dhaka, Bangladesh
  Cybersecurity Specialist Intern — *Jul 2023 – Nov 2023*
  - **Penetration Testing**: Internal system audits and vulnerability assessment.
  - **Reporting**: Delivered remediation and hardening guidelines.
- **Senselearner Technologies Pvt. Ltd.** — Uttarakhand, India (Remote)
  Cybersecurity Specialist Intern — *Sep 2023 – Nov 2023*
  - **Web Security Testing**: Performed VAPT identifying cross-layer threats.
  - **Technical Writing**: Authored cybersecurity documentation and articles.
  - **Knowledge Sharing**: Trained teams on emerging cyber threats.

Skills Summary

- **Programming**: Python, C++, Java, C#, Ruby
- **AI/ML**: PyTorch, CNNs, Deep Learning, Model Training, Transfer Learning
- **Data & Vision**: NumPy, Pandas, Matplotlib, OpenCV, Image Preprocessing
- **Cybersecurity**: PT, Forensics, Firewall Config, Network Defense
- **Tools**: Metasploit, Burp Suite, Wireshark, Nessus, SQLMap, Nmap
- **Web**: Ruby on Rails, PHP, Vue.js, Vite, JS, MySQL
- **DevOps**: Docker, VMware, VirtualBox
- **Database**: SQL, PL/SQL, Oracle

Certifications

- **Internship in Japan for AI and Tech Talent** - METI Govt. Japan — *December 2025*
- **CCNA** (Course Completion Certificate) - Cisco Networking Academy — *October 2025*
- **Practical Ethical Hacking** - Udemy — *September 2025*
- **AI-Driven Cybersecurity** - Udemy — *September 2025*
- **Cyber Security Internship** - Senselearner Technologies — *November 2023*
- **Cyber Security Internship** - University of Dhaka (IIT) — *October 2023*

References

- **PROF. DR. DIP NANDI**: Associate Dean & Professor, AIUB - Email: dip.nandi@aiub.edu
- **MD. MANIRUL ISLAM**: Associate Professor & Director, AIUB - Email: manirul@aiub.edu
- **JUENA AHMED NOSHIN**: Assistant Professor, AIUB - Email: juena@aiub.edu