

Khalid Mahmud Joy

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Education

East West University B.Sc. in Computer Science & Engineering; CGPA: 3.54/4.00	Dhaka, Bangladesh October 2022 – April 2026
RAJUK Uttara Model College Higher Secondary Certificate (HSC) – Science; GPA: 5.00/5.00	Dhaka, Bangladesh July 2020
Ideal School & College Secondary School Certificate (SSC) – Science; GPA: 5.00/5.00 – Govt. Scholarship	Dhaka, Bangladesh February 2018

Experience

Analyst, Business Development <i>Ambala IT</i>	June 2026 – Present Dhaka, Bangladesh
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- Led end-to-end client engagement and requirements gathering for a custom **Inventory & Fixed Asset Management System (FAMS) automation** project for **Technic Construction Ltd.**, aligning project scope with client business needs across multiple kickoff meetings.
- Conducted software demonstrations and product walkthroughs for prospective clients, translating technical capabilities into clear business value propositions to support the pre-sales and onboarding cycle.
- Performed process and gap analysis between existing client workflows and proposed system capabilities, identifying improvement opportunities and reducing implementation rework.
- Coordinated cross-functional communication between clients, sales, and development teams throughout the project lifecycle, ensuring alignment on scope, timeline, and deliverables.

Capstone Project

IPITCM – Integrated Platform for Intelligent Traffic Control & Management — <i>YOLOv11, Flutter, Flask, DigitalOcean</i>	April 2026
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- Developed an end-to-end intelligent traffic management system for Dhaka – real-time computer vision, adaptive signal control, violation enforcement, and incident detection – deployed at a 99.7% lower cost than commercial alternatives (SCOOT, Redflex, Iteris Vantage).
- Built a four-service Flask microservices backend (50+ REST APIs, WebSocket) and a 29-screen Flutter mobile app (Android & iOS), deployed on DigitalOcean, sustaining 10,000+ API requests at 99%+ uptime.
- Achieved a 53% efficiency gain over fixed-time signal baselines, reducing mean wait time from 99s to 68s and boosting throughput by 33%.
- Recognized by Dhaka Metropolitan Police (DMP), Hytera, Cybernetics Hi-Tech Solutions, and Spectrum Engineering Consortium.

Research Experience

Semi-Supervised and Self-Supervised Learning for Brain MRI Object Detection — <i>Co-Author</i>
Manuscript in Preparation

- Benchmarked supervised, semi-supervised, and self-supervised learning paradigms for brain MRI pathology detection; best configuration (DINOv3 + YOLOv12) achieved 94.08% mAP@0.5, surpassing the supervised baseline by 5.54 points.

TEALD-X: Degradation-Aware Multi-Expert Temporal Face Detection for CCTV Surveillance — <i>Co-Author</i>	Manuscript in Preparation
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- Co-developed a degradation-aware temporal face detection framework combining quality-weighted temporal fusion and multi-expert detection heads, extending the author's capstone research (IPITCM).

Extracurricular Experience

Assistant General Secretary

East West University Computer Programming Club (EWUCoPC)

September 2025 – Present

Dhaka, Bangladesh

- Spearheaded organization of 8+ major technical events including ICPC Dhaka Preliminary 2024, CSE FEST 2024, and the Intra-University Programming Contest, engaging 500+ participants – coordinating logistics, sponsorship, and volunteer teams.

Campus Ambassador

CareTutors

January 2024 – December 2024

Dhaka, Bangladesh

- Promoted 10+ tech events and workshops, achieving a 30% increase in event attendance; awarded "Best Campus Ambassador of the Year 2024" out of 50+ peers.

Technical Skills

Business & Project: Requirements Gathering & Analysis, Stakeholder Management, Client Onboarding, Kickoff & Demo Facilitation, Business-to-Technical Translation, Proposal Writing, Documentation, Process/Gap Analysis, Agile/SDLC Coordination

Programming Languages: C, C++, Java, Python

Web & Mobile Development: React.js, Node.js, Express.js, HTML, CSS, JavaScript, Flutter, Android Studio (XML/Java)

Databases & Cloud: MySQL, MongoDB, SQL, Firebase, JWT Authentication, DigitalOcean

Tools: Git/GitHub, Postman, VS Code, MS Office (Excel, Word, PowerPoint), Google Workspace, Cisco Packet Tracer

Other Projects

Olympic Games Webpage — *Oracle APEX, SQL*

- Created a dynamic Olympic data webpage using Oracle APEX, integrating SQL queries to fetch athlete statistics, medal counts, and event results with a user-friendly UI.

Full-Stack IoT Monitoring Dashboard — *React.js, Node.js, Express.js, MongoDB, Firebase, JWT*

- Built a scalable full-stack web dashboard handling 10,000+ sensor logs/hour, with a React.js frontend, a Node.js/Express.js REST API backend, and real-time updates via WebSocket, sustaining 99.5% uptime.

DoctorDesk – Doctor Appointment App — *Java, XML, Android Studio, SQLite*

- Built a cross-platform mobile app for booking doctor appointments with authentication, specialization filters, time-slot selection, and a SQLite-backed confirmation system.

Departmental Network Infrastructure — *Cisco Packet Tracer*

- Designed a university department's LAN/WAN network with routers, switches, subnets, and VLANs, supporting 50+ nodes with simulated DHCP and DNS services.

FAISS Large-Scale Vector Search Benchmark — *FAISS, ANN, Vector Embeddings*

- Benchmarked five FAISS indexing algorithms on SIFT-128 datasets up to 2.5M vectors; HNSW achieved 0.98 recall at 2,618 QPS, while IVFPQ delivered 96% memory compression.

Accomplishments, Awards & Certifications

- Medha Lalon Scholarship – East West University (Fall'24 – Summer'26)
- Best Campus Ambassador of the Year 2024 – CareTutors (out of 50+ peers)
- 1st Place – Rubik's Cube Competition (EWUEC)
- 1st Place – Pi Digit Memorization Contest (EWUEC)
- 2nd Place – IQ & Analytical Test (EWUSC)
- 2nd Place – Ad Making Competition (Rajuk & St. Joseph)
- JSC & SSC Government Scholarship Recipient
- Multiple Handwriting Competition Winner
- Certification: Fundamentals of Digital Marketing – Google Digital Garage (July 2020)