

# Md Tahmid Ahmed Rakib

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## Skills

**Programming Languages:** TypeScript, JavaScript, C/C++, Go, Python

**Backend Technologies:** Node.js, Express.js, Socket.io, tRPC

**Databases:** PostgreSQL, MySQL, MongoDB, Redis

**Data Streaming & Queues:** Apache Kafka, Debezium, BullMQ

**DevOps & Cloud:** AWS, Docker, Cloudflare, CI/CD, GitHub Actions, Git

**Frontend Technologies:** React, Next.js, redux, MobX, Shadcn, Tailwind

## Professional Experience

### Software Engineer, FringeCore

February 2025 – Present

- Created automated ERP and distribution scheduling systems using **TypeScript, tRPC, and PostgreSQL** to streamline purchasing, accounting, and delivery workflows, eliminating hundreds of hours of manual coordination each month.
- Developed a real-time **Change Data Capture (CDC)** pipeline using **Debezium, Apache Kafka, and Go** microservices to synchronize the operations of the Legacy System with a parallel, incrementally developing system, ensuring smooth system transition and low-latency data propagation.
- Deployed and managed **scalable cloud infrastructure on AWS and Cloudflare**, setting up **CI/CD pipelines with GitHub Actions** for automated builds and zero-downtime releases.

## Problem Solving

- Qualified from 2,500+ teams** and earned **Honorable Mention** in The 2024 ICPC Asia Dhaka Regional Contest
- Earned **12<sup>th</sup> place among 200+ participants** in Bangladesh in the AtCoder Beginner Contest 338.
- Judge and Problem Setter** of Intra NSU Junior Programming Contest 2023, 2024
- Ranked Top 50 among 200+ teams, Aust IUPC 2025
- Solved 1000+ Algorithmic Problems** using C++ in various Online Judges

## Projects

### Bondhubot

[github.com/withtahmid/BondhuBot](https://github.com/withtahmid/BondhuBot)

- Built a **mental health evaluation chatbot** using **BDI, LLM and Langchain** for early depression detection.
- Developed with the **TypeScript, React, tRPC, Gemini** ensuring privacy, scalability, and personalized reporting.

### ExamEase

[github.com/withtahmid/ExamEase](https://github.com/withtahmid/ExamEase)

- Developed an **AI-driven LMS** featuring **auto-proctoring, automated grading, and micro-viva assessments**, enabling secure and efficient online examinations.
- Integrated **speech-to-text, semantic analysis, and facial recognition** with **React.js frontend, Node.js backend**, and Separate **Python Microservice** for AI models for scalable, real-time exam management.

### Milkyway

[github.com/withtahmid/milkyway](https://github.com/withtahmid/milkyway)

- Developed a lightweight, serverless web app enabling **synchronized multi-user video playback** with real-time control, supporting local and cloud video sources.
- Implemented **End-to-End Encrypted group chat**, subtitle support, personalized room auto-join, and full-screen overlay using **Vanilla JS, HTML, CSS, and MQTT** for seamless shared viewing experiences.

## Education

North South University — BS in Computer Science and Engineering

2024

## **Research and Publication**

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Arian, M.S.H., Rakib, M.T.A., Ali, S. et al. Pseudo labelling workflow, margin losses, hard triplet mining, and PENViT backbone for explainable age and biological gender estimation using dental panoramic radiographs. **SN Applied Sciences** 5, 279 (2023). [doi.org/10.1007/s42452-023-05503-8](https://doi.org/10.1007/s42452-023-05503-8)

- Developed PENViT, a hybrid EfficientNet-Vision Transformer model for age (70.54% accuracy) and gender estimation (84.49% accuracy) from dental radiographs
- Incorporated explainable AI to identify medically significant anatomical regions
- Outperformed ViT and ResNet backbones through novel pseudo-labelling and hard triplet mining techniques