Imtiaz Hossain



Full-Stack & Android Software Engineering | **Data Analytics & Power BI** | **Applied Machine Learning**

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PROFESSIONAL SUMMARY

Final-semester Computer Science student at BRAC University and digital transformation intern at BRAC Bank, developing Power BI dashboards for branch KPI and loan reporting. Builds full-stack web platforms, including live, publicly deployed products, and native Android applications using TypeScript, Next.js, Kotlin, and SQL, and completed an undergraduate thesis in computer vision. Combines software engineering and data analysis with clear technical communication, developed as a university Student Tutor for Java.

TECHNICAL SKILLS

Programming: Python, Java, JavaScript, TypeScript, Kotlin, C, SQL, PHP, HTML5, CSS3; OOP, data structures and algorithms, problem-solving
Web & Backend: React, Next.js, Node.js, Express, Hono, REST APIs, Tailwind CSS, Socket.IO, JWT, Clerk, role-based access control (RBAC), Zod validation, responsive UI, reusable components, API documentation
Data & Analytics: Power BI, Power Query, Microsoft Excel, SQL, MySQL, MongoDB, Cloudflare D1, Firebase Firestore, Drizzle ORM, pandas, NumPy, data analysis, KPI dashboards, reporting, relational data modeling
Machine Learning & AI: PyTorch, scikit-learn, Hugging Face Transformers, OpenCV, NLP, computer vision, CNNs, U-Net, BERT, LLM integration
Mobile: Android, Kotlin, Jetpack Compose, Room, Retrofit, WorkManager, Firebase, Figma wireframing and UI/UX design
Cloud, Tools & Testing: Git, GitHub, Linux/POSIX, Docker, Cloudflare Workers, Cloudflare R2, Vercel, JUnit, Vitest, Three.js
Languages: Bangla (native), English (IELTS overall band 7)

PROFESSIONAL EXPERIENCE

Branch Digital Transformation COMPASS Intern Oct 2026 - Present
BRAC Bank PLC | *Distribution Network Division, Head Office* | *Dhaka, Bangladesh*
- Develop Power BI dashboards for branch KPI monitoring and loan-related reporting, supporting visibility into operational performance.
- Analyze operational and business data in Excel and Power Query to support the division's reporting and dashboard requirements.
- Contribute to banking automation and digital-branch transformation initiatives.

Student Tutor (ST/TA), CSE110: Programming Language I (Java) Nov 2026 - Present
BRAC University | *Department of Computer Science and Engineering* | *Dhaka, Bangladesh*
- Guide CSE110 students through Java fundamentals, code tracing, debugging, and problem-solving in clear, accessible terms.
- Built and deployed a consultation platform in React, TypeScript, Vite, Tailwind CSS, and Framer Motion with an interactive timetable, instant session lookup, and a structured consultation-request composer. Live GitHub

EDUCATION

B.Sc. in Computer Science 2023 - Jan 2027 (expected)
BRAC University | *Dhaka, Bangladesh*
Relevant coursework: Data Structures and Algorithms, Database Systems, Operating Systems, Artificial Intelligence, NLP, Image Processing, Data Science, Mobile Application Development, Computer Graphics

Higher Secondary Certificate (HSC), Science 2019 - 2021
Dhaka College, Dhaka Board | General Scholarship: Dhaka Board rank 462, NCTB/Ministry of Education (2019 - 2022) **GPA 5.00/5.00**

Secondary School Certificate (SSC), Science 2019
Ideal School & College, Dhaka Board | Talent Pool Scholarship: Dhaka Board 21st place, NCTB/Ministry of Education (2019) **GPA 5.00/5.00**

PROJECTS

BRACU Vault | *Next.js, TypeScript, Cloudflare Workers, Hono, D1, R2, Drizzle ORM, Clerk* Live GitHub 2026
- Built and deployed an academic-resource platform with a Next.js/TypeScript interface, role-based access, gated uploads, moderation, secure file workflows, and auditable verification on Cloudflare infrastructure.
- Integrated REST APIs and database-backed permissions using Cloudflare Workers, Hono, D1, R2, Drizzle, and Clerk.

Polaris | *Next.js, TypeScript, MongoDB, Gemma 4, Zod* Live 2026
- Built a Bengali-first academic strategy platform that turns a student's goals, evidence, constraints, and deadlines into an adaptive roadmap with weekly actions, using a Gemma 4 strategist for roadmap generation and decision support.
- Added IELTS practice, video discovery, knowledge notes, evidence graphs, and a multimodal Essay Studio, backed by official-source retrieval, schema validation, deterministic safeguards, MongoDB persistence, signed payment webhooks, and clearly labelled fallbacks.

Vantage Arm Digital Twin | *React, TypeScript, Three.js, Zustand, Vitest* Live GitHub 2026
- Engineered a Three.js robotic-arm digital twin with inverse kinematics, safety constraints, motion replay, forward-kinematics checks, collision handling, and AI-planned command validation.

WattsUp Office Monitor | *Node.js, Express, Socket.IO, React, Three.js, Discord.js* Wokwi GitHub 2026
- Built a simulated IoT energy monitor whose Express backend manages 15-device state, virtual time, usage, and alerts, with Socket.IO synchronization and Discord.js command integration.

Custom UNIX Shell and VSFSck | *C, POSIX, Linux* Shell VSFSck 2025
- Built C systems tools: a POSIX shell with fork/exec, pipes, redirection, chaining, history, and scoped SIGINT handling, plus an fsck-style checker for superblocks, bitmaps, inodes, and block references.

Portico - Real-Estate Portfolio Intelligence (Android) | *Kotlin, Jetpack Compose, Firebase/Firestore, Clerk* Figma GitHub 2026

- Designed the app screens and user flows in Figma for CSE489 Mobile Application Development, then built the native Android application using Kotlin and Jetpack Compose with responsive phone and tablet layouts for onboarding, authentication, portfolio dashboards, property details, reports, documents, and account workflows.
- Integrated Clerk authentication, owner-scoped Firestore data, a serverless API bridge, bilingual English/Bangla interfaces, financial visualizations (ROI, cap rate, yield, cashflow), and an on-device portfolio assistant; the repository documents 116 passing tests.

Nishan - Smart Geo-Tagged Landmarks (Android) | *Kotlin, Jetpack Compose, Room, Retrofit, WorkManager* GitHub 2026

- Built an offline-first Android client for CSE489 with OpenStreetMap, GPS-based visit recording, a sortable and filterable landmark register, map interactions, activity history, and landmark create, withdraw, and restore workflows.
- Integrated REST API calls with Retrofit and OkHttp, local Room persistence, and WorkManager background queue processing and visit-status synchronization.

Additional Android Coursework | *Android SDK, Jetpack Navigation, ViewBinding, JUnit* 2026

- Built Android applications covering Activities, Fragments, lifecycle state restoration, ViewBinding, Jetpack Navigation, responsive XML resources, and JUnit-tested business logic; implemented custom broadcasts, battery status handling, Glide image loading, matrix-based pinch zoom and panning, audio/video playback, and lifecycle-aware resource cleanup.

RESEARCH EXPERIENCE

Undergraduate Thesis Researcher - Multi-Portrait Biometric Unlinkability | *BRAC University, four-member thesis team* 2026 - Present

- Completed a four-member thesis developing Obscrowd, a multi-portrait biometric unlinkability framework for protecting faces after generative editing; contributed to the model pipeline and evaluation, and the manuscript is being prepared for publication.

Machine Learning Engineer - Medical Imaging | *Brain Tumor Segmentation and Classification* 2026

- Built and compared PyTorch pipelines for brain-tumor segmentation and four-class MRI classification, including U-Net variants, CNN classifiers, and separate-versus-shared training analysis; reached 88.22% test Dice (U-Net) and 97.50% accuracy (DenseNet-121).

NLP and Machine Learning Engineer | *News Classification and AI-Generated Text Detection* 2025 - 2026

- Designed controlled NLP experiments spanning classical, recurrent, and transformer models, and analyzed how preprocessing, feature engineering, and cross-generator shifts affect reliability; reached 0.9376 macro-F1 (BERT-Base) and 97.40% in-domain detection accuracy.

RESEARCH OUTPUT

- **Multi-Portrait Biometric Unlinkability under Generative Editing.** Completed undergraduate thesis; manuscript in preparation, 2026. Obscrowd is the framework developed in this four-member BRAC University thesis.

ADDITIONAL PROJECTS

- **E-GamerHub:** Co-developed a MERN-stack social gaming platform with Socket.IO messaging, RBAC moderation, per-game statistics, and Llama 3 intent extraction for natural-language player search.
- **CampusSync:** Built a PHP and MySQL PWA with automated course ingestion, routine-based free-time matching, read-state notifications, and offline fallback support. GitHub
- **UniBoard:** Built a PHP and MySQL campus noticeboard with verified club dashboards, event discovery filters, RSVP and calendar workflows, and engagement analytics. GitHub
- **Cholo:** Designed the normalized MySQL schema and PHP backend for a university ride-sharing system with verified accounts, recurring trips, ratings, and trip management. GitHub
- **OpenGL Games Trilogy:** Implemented three PyOpenGL and GLUT games using primitive rendering, midpoint line rasterization, AABB collision, and hand-written game loops.
- **Software Quality Prediction:** Compared four classifiers and k-means/PCA on 1,600 code-metric samples, reporting the weak 0.4418 best weighted-F1 signal as the study's central finding. Demo
- **The Proposer's Dilemma:** Built a multi-round Python bargaining simulation that makes Nash equilibrium, backward induction, acceptance behavior, and changing incentives visible through score trajectories. GitHub

TEACHING & LEADERSHIP

Private Tutor | *Dhaka, Bangladesh* 2024 - Present

- Tutor programming in C, Java, and Python alongside data structures, algorithms, and mathematics; support students with problem-solving and university coursework.

Assistant Director | *BRACU E-Sports Club, BRAC University* 2025

- Supported club operations and esports event management at BRAC University.

HONORS & CERTIFICATIONS

- Six-time scholarship recipient (merit and prior academic results)
- Top 10 finalist, TECHATHON NATIONALS 2026 (presented by IUT Robotics Society)
- Finalist, The Infinity AI BuildFest 2026 hackathon
- Special Recognition for Polaris, Build with Gemma 4 Hackathon (Gemma-powered academic strategy and student planning platform)
- Final-round participant, Bit Battles Programming Contest
- Solved 233+ algorithmic problems on LeetCode
- IELTS overall band 7 (English proficiency), 29 October 2022

Certifications

- Understanding Machine Learning - DataCamp
- Data Manipulation in Python - DataCamp
- Cleaning Data in Python - DataCamp