

MUHTASIM IBTEDA SHOCHCHO

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PROFESSIONAL SUMMARY

AI-enabled Software Engineer with hands-on experience in developing intelligent systems, full-stack applications, and data-driven solutions. Skilled in integrating Large Language Models (LLMs), building scalable web platforms, and applying machine learning to real-world challenges. Experienced in research and industry projects spanning education technology, healthcare AI, financial systems, and enterprise applications. Adept at translating complex requirements into innovative software solutions while ensuring usability, scalability, and performance. Passionate about leveraging AI to create impactful, user-centric applications across diverse domains.

EDUCATION

Independent University, Bangladesh

BSc Computer Science and Engineering

Related Coursework: Artificial Intelligence, Image Processing, Web Application and Internet, Numerical Method, Linear Algebra, Calculus

January 2020 - November 2024

WORK EXPERIENCE

Bangladesh Finance PLC.

Motijheel, Dhaka

IT Intern

April 2025 – August 2025

- Contributed to multiple enterprise-level projects, including Audit Management System, Asset Management System, eKYC mobile application using FastAPI, MySQL, Oracle, React and Flutter.
- Developed structured APIs with JWT authentication, OTP verification, and role-based access control for secure data handling.
- Integrated AI-powered OCR for NID and business card data extraction using OpenCV and generative AI.
- Built a RAG-enabled financial chatbot with LangChain, Gemini API, and FAISS for multilingual query answering.
- Collaborated with cross-functional teams, following Git best practices and API-first development, ensuring smooth deployment on IIS with NSSM.

Center for Computational & Data Sciences (CCDS, IUB)

Bashundhara RA, Dhaka

Research Intern

December 2024 – July 2025

- Contributed to the development of PACE (Python AI Companion for Enhanced Learning), an AI-powered tutoring system designed to support scalable, personalized Python education in large classroom settings.
- Explored advanced strategies for integrating Large Language Models (LLMs) into intelligent tutoring systems to enhance student engagement and adaptive learning.
- Designed and conducted a student survey to evaluate system usability and gather feedback for iterative improvements.
- Authored a peer-reviewed research paper accepted at the ACM CHI 2025 conference, highlighting the pedagogical impact of LLM-driven AI tutors.

Omdena Liberia Local Chapter Challenge

Remote

Junior ML Engineer

January 2024 – May 2024

- Performed exploratory data analysis (EDA) and feature engineering for malaria transmission prediction.
- Collaborated with a global team to build an AI-powered application for malaria prevention in Liberia.
- Contributed to model training and optimization, improving predictive performance for public health insights.

Undergraduate Student Researcher

October 2023 - November 2024

- Designed and fine-tuned an LLM-powered Python Tutoring System as part of an undergraduate thesis.
- Performed research on AI's role in personalized education and presented findings to diverse audiences.
- Participated in a Systematic Literature Review workshop to improve research paper writing and documentation.
- Participated in ACM SIGCHI Winter School on Human-Computer Interaction workshop held in South Asia led by renowned HCI experts, gaining practical insights into usability testing, prototyping, and user-centered design.

SKILLS**Programming Languages:** Python, JavaScript, C++, Go**Web Application:** React.js, FastAPI, Tailwind CSS, Node.js, Express.js, Flutter**Database:** MySQL, PostgreSQL, Oracle**AI/ML Tools:** Hugging Face, LangChain, Ollama, PyTorch, Scikit-learn, Numpy, Pandas, Matplotlib, Seaborn**Others:** Git, Linux, Docker, Figma, Adobe After Effects, Adobe Illustrator, Power BI, Excel, Google Sheet, Canva**PROJECTS****Smart Audit Management System**

Private Repo

FastAPI, MySQL, React.js, Ant Design

- Designed and deployed a compliance dashboard with analytics visualization for audit records.
- Developed APIs for chapter-wise and section-wise compliance tracking, integrated with user-specific audit logs.
- Implemented Excel report generation and role-based access control for enterprise use.

eKYC Mobile Application

Private Repo

Flutter, FastAPI, Oracle, ML Kit, Groq

- Built a multi-step onboarding flow including branch selection, mobile number verification via OTP, NID scanning, liveliness check, additional info, nominee info, product selection, and signature capture.
- Integrated cloth detection and liveliness checks using ML Kit Face Detection and a FastAPI AI service.
- Implemented state management with Bloc and secure API integration with JWT and session handling.
- Designed UI screens following structured design patterns with reusable widgets, global navigation, and consistent theming.

Asset Management System

Private Repo

FastAPI, MySQL, React.js, Chakra UI

- Developed a centralized platform for tracking organizational assets, ownership, and lifecycle management.
- Built APIs for asset creation, categorization, and criticality assessment, integrated with audit logs for full traceability.
- Designed a React-based frontend dashboard to display asset health, ownership type, and compliance status.
- Ensured scalability with Alembic migrations and role-based access control, enabling secure enterprise deployment.

PACE : Python AI Companion for Enhanced Learning

Python, FastAPI, React.js, MySQL, LLMs

Private Repo

- Developed an interactive learning platform powered by fine-tuned Lightweight LLMs for beginner Python students.
- Implemented personalized learning paths, progress tracking, and real-time feedback mechanisms.

Lead Management System

FastAPI, MySQL, Alembic, JWT Auth

Private Repo

- Built a CRM-style lead tracking system with authentication, file upload integration, and structured lead management APIs.
- Enhanced data structure by implementing relational tables for roles, users, leads, and activity logs.
- Added OTP verification during registration and activity logging for better security and traceability.

AI-Powered Malaria Prevention App

Python, Scikit-Learn, XGBoost, Pandas, Matplotlib

Private Repo

- Developed models for malaria risk prediction using historical transmission data, climate patterns, and demographic insights.
- Applied ensemble techniques (bagging and boosting) to enhance model performance.
- Visualized predictions through interactive dashboards to assist public health decision-making.

EXTRACURRICULAR ACTIVITIES

- **Vice Chair, IEEE Computer Society IUB SBC (2023–2024):** Led membership drives, organized workshops on Blockchain, Cloud Computing, and the STEAM Olympiad Bootcamp, and co-managed Techfest events.
- **Visual Executive, IUB Esports Club (2022–2023):** Designed promotional content and branding materials to enhance club visibility and event outreach.

PUBLICATION

- Muhtasim Ibteda Shochcho, Mohammad Ashfaq Ur Rahman, Shadman Rohan, Ashraful Islam, Hasnain Heickal, AKM Mahbubur Rahman, M. Ashraful Amin, and Amin Ahsan Ali. 2025. **Improving User Engagement and Learning Outcomes in LLM-Based Python Tutor: A Study of PACE**. Published at Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA 25), Yokohama, Japan.
- Shadman Rohan, Ishita Sur Apan, Muhtasim Ibteda Shochcho, Md Fahim, Mohammad Ashfaq Ur Rahman, AKM Mahbubur Rahman, and Amin Ahsan Ali. 2025. **BD at BEA 2025 Shared Task: MPNet Ensembles for Pedagogical Mistake Identification and Localization in AI Tutor Responses**. In Proceedings of the 20th Workshop on Innovative Use of NLP for Building Educational Applications (BEA 2025), pages 1266–1277, Vienna, Austria. Association for Computational Linguistics.

CERTIFICATIONS

- **Coursera:** Machine Learning Specialization
- **Kodekloud:** Kubernetes, Docker Basics, Linux Basics
- **DataCamp:** Deep Learning with PyTorch