# Hasin Ahmed

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## Education

**BSc in Software Engineering**, Institute of Information Technology, University of Dhaka 2022–Present
CGPA: 3.54/4.00 (till 5th semester)
**Key coursework:** Web Technologies, Data Structures & Algorithms, Software Requirement Specification, Software Project Lab I & II, Design Patterns, Information Security, Software Security

**Higher Secondary Certificate**, Notre Dame College, Dhaka 2019–2021
GPA: 5.00/5.00

**Secondary School Certificate**, Ahmed Uddin Shah Shishu Niketan School & College, Gaibandha 2017–2019
GPA: 5.00/5.00

## Technical Skills

- **Programming Languages**: Python, C++, C, Java, PHP
- **Frameworks & Libraries**: FastAPI, Spring Boot, PyTorch, Next.js, Hugging Face, LangGraph, Scikit-learn, NumPy, Pandas, YoloV8, Selenium , JUnit 5
- **Databases**: PostgreSQL, Qdrant, FAISS, MongoDB, MySQL, Oracle SQL
- **Tools & Platforms**: Git, GitHub, Postman, PgAdmin, VsCode, Jupyter Notebook, Kaggle , Google Colab, Docker, Wireshark

## Awards & Recognition

- **2025**: Winner – "Fintech" Category at **AI Hackathon** organized by Akij Resource and Mutual Trust Bank PLC, in collaboration with Bangladesh Innovation Conclave, BRAC University, and Bangladesh Brand Forum
- **2025**: Special Mention – **AI Engineering Hackathon** by Poridhi.io & Brain Station 23
- **2025**: Finalist – **JavaFest 2025**
- **2024**: Finalist – **Learnathon 3.0**
- **2024**: 53rd Position – **DL Enigma 1.0** at SUST CSE Carnival 2024
- **2019**: Participant – Inter School and College Programming Contest (ISCPC) ,National Round

## Projects

**International Payment Gateway System (FastAPI)** (2025) `github.com/Hasin-ai/Payment-Gateway-Microservice`
Designed and developed a microservices-based international payment gateway system using FastAPI and Docker, enabling secure and scalable cross-border money transfers. The system includes separate services for authentication (JWT with role-based access), payment processing via SSLCommerz and PayPal, real-time currency exchange integration, and complete transaction tracking from BDT collection to foreign currency payout. Each service communicates over REST APIs, ensuring modularity, maintainability, and high system availability.

**Smart Library System (FastAPI, Docker)** (2025) `github.com/Hasin-ai/smart_library_system`
Built a scalable Smart Library System by evolving from a monolithic architecture to microservices. Implemented REST APIs, reverse proxy with Nginx, containerization with Docker, and orchestration using Docker Compose and Swarm.

**ScratchGPT: GPT-2 Language Model (PyTorch)** (2025) `github.com/Hasin-ai/decoder_only_transformer`
Implemented a complete GPT-2 model decoder-only transformer from ground up using PyTorch. Built full autoregressive language model architecture including masked self-attention mechanisms, positional encodings, and layer normalization. Trained model on OpenWebText dataset using Byte Pair Encoding (BPE) tokenization with 50k vocabulary.

**Intent-Based Search System (FastAPI)** (2025) `github.com/Hasin-ai/Intent-Based-Search`
Developed an advanced e-commerce platform featuring semantic search functionality powered by vector embeddings. Implemented PostgreSQL and Redis for efficient data management and retrieval. Fine-tuned and quantized the baai-bge-small embedding model to optimize search accuracy and performance while minimizing computational requirements.

**E-Commerce Platform (Spring Boot, Docker)** (2025) `github.com/Hasin-ai/E-commerce`
Developed a scalable eCommerce application with features like secure user account creation, intelligent natural language search with advanced filters, personalized notifications, product comparisons, reviews, and wishlists. Implemented inventory management, user dashboards, and email marketing integration using microservices architecture.

**StockFlow AI - Intelligent Stock Trading System (FastAPI)** (2025) `github.com/Hasin-ai/stock-flow-ai`
Developed a comprehensive AI-powered stock trading platform integrating advanced analytics tools for market analysis, trade execution, and client activity monitoring. Implemented FinGPT integration with a modified Black-Scholes model for sophisticated risk assessment and trading decision support.

**Amateur Astro Engine (C++)** (2023) `github.com/Hasin-ai/SPL-01`
Designed a computational astronomy toolkit incorporating gradient descent regression, spherical coordinate transformations, principal component analysis, and multi-frame image stacking as part of a semester project for Software Project Lab 1. The system facilitates celestial object tracking and astronomical event prediction for educational and research applications.

## Leadership & Activities

- 2024–2025: Program Coordinator – IEEE Computer Society Student Branch Chapter, University of Dhaka
- 2023: Volunteer – ITVerse
- 2023: Volunteer – Flutter Frenzy
- 2022–Present: FastBowler – IIT Cricket Team
- 2023–Present: General Member – Dhaka University Tourist Society

## Research Experience

- 2024–Present: Research Mentee – IIT HCI Community
  Contributed on a research investigating community smells and collaboration patterns in software development teams, with a focus on identifying and addressing community-related challenges in the industry.
- 2023–2024: Research Collaborator – NSU Optics Research Group
  Conducted research on mechanistic interpretability of transformer models in the domain of Explainable AI (XAI) under the supervision of Dr. Mahdy Rahman Chowdhury.
- 2024–Present: Research Mentee – Fintech R&D
  Currently conducting research on payment gateway technologies under the supervision of Dr. Monir Bhuiyan.