S M Azwad Ul Alam

Web Page   Bogura, Bangladesh   Cell Phone

Education	**BRAC University**, Dhaka, Bangladesh	September 2018-May 2023
	Bachelor of Science (BSc) in Computer Science	Graduation: May 2023
	GPA: Overall 3.70/4.0 with High Distinction	

Research

M. I. Tasin, M. R. Hossain, N. Chowdhury, **S. M. A. U. Alam** and M. S. Ferdous. *Revolutionizing Microfinance: A Blockchain-Driven Decentralized Finance (DeFi) Model for Collateral-Free Loans.* Working towards conference publication.

Ongoing Work

Applications of Diffusion AI Models in the Medical Field and Their Data Analysis.

Research Experience

BRACU AI Research with Dr. Md. Golam Rabiul Alam   December 2023-Present
Worked on *Applications of Diffusion AI Models in the Medical Field* as the first author

- Conducted a systematic review of Transformers and Diffusion AI Models on academic websites, utilizing LLMs for feature engineering and Selenium for web scraping.
- Assessed the capabilities of each Diffusion model to provide insights into improved clinical decision-making and innovative healthcare solutions by categorizing major medical research areas.
- Constructed a research hierarchy by connecting knowledge lattices based on data extraction, which revealed research rates in academic libraries and journals on the web (e.g., 2% for Clinical and Healthcare Operations and 0.81% for Healthcare Information Systems).

BRACU Blockchain Research with Dr. Md Sadek Ferdous   July 2021-May 2023
Worked on *Revolutionizing Microfinance* research paper.

- Developed a novel blockchain-based decentralized finance model for microfinance that enables collateral-free disbursement using Hyperledger Fabric and Solidity.
- Designed a three-tier architecture that integrated blockchain nodes, smart contracts, and decentralized data storage, achieving 99.59% theoretical reduction in employee costs (from 463 Million USD to 1.89 Million USD annually) and reducing loan processing time significantly.
- Developed 6 protocol flows and 7 major algorithms for automated loan origination, NID-based verification, credit scoring, and staking mechanisms that ensuring transparency and security.

BRACU Thesis Research with Dr. Mahbub Alam Majumdar   January 2019-January 2021
Worked on *Blockchain-based Land Registry with Delegated Proof of Stake (DPoS)* research paper.

- Developed a land registry system using DPoS consensus by implementing cryptographic hashes and the SHA256 hash function to ensure data integrity and immutability.
- Made a three-layer hierarchy (Computational, Information, and Council Nodes) to prevent 51% attacks by distributing computational tasks and integrating zoning to enhance data security and scalability.
- Enhanced system with a Council Protocol to improve election fairness and prevent centralization, which reduced computational waste and increased energy efficiency.

Projects

AI-Matching Platform For VCs and Investors   August 2024-Present

- Developed a novel AI matchmaking hub using Python, Streamlit, and Google Gemini AI that connected founders with investors, resulting in a more streamlined process for securing funding.
- Built a LLM pipeline using LangChain and Relevance AI for accurate data extraction and matching that enhanced the personalization of investor-founder connections through tailored responses.
- Received an invitation to present the idea at the Buildspace (YC-funded) startup conference in San Francisco, demonstrating its potential impact on the venture capital ecosystem.

Web 3.0 App Transaction App   January 2022-May 2022

- Developed a decentralized exchange platform on the Ethereum blockchain using Solidity smart contracts and Next.js, enabling secure peer-to-peer token transactions and integration through MetaMask.
- Built full-stack app Next.js frontend with Tailwind CSS styling, integrating Sanity.io database for efficient user data and transaction history management through GROQ queries and Sanity API.

- Created a secure deployment pipeline using Hardhat for smart contract testing and Vercel for production hosting, demonstrating enactment of Web3 technology in a decentralized application.

Predicting Taxi Fares in New York City January 2023-May 2022
- Developed machine learning models using XGBoost and LightGBM to predict taxi fares in NYC, analyzing 1.5 million taxi trip records with key geographic and time features.
- Created data preprocessing pipeline to handle 3.5 million taxi trips, including data cleansing, feature engineering of temporal variables, and optimization of numeric data types for efficient model training.
- Demonstrated practical fare prediction accuracy within $1-2 of actual fares for most trips with LightGBM achieving 7x faster computation time compared to XGBoost on CPU implementation.

Industry Experience	**FazTrack Technology LLC, Arizona** May 2023-December 2023

Data Integration Manager and Web Developer(Dhaka Office)
- Led successful migration of .NET website to Webflow for Treehouse Communities, implementing complex data architecture managing 700+ RV properties across 114 US locations, with property management system integration until acquisition by Roots Management Group.
- Implemented a sophisticated data pipeline connecting PostgreSQL and Microsoft SQL databases on Azure, creating automated Extract, Transform, Load (ETL) processes for property data
- Developed robust Python scripts for data integration, implementing comprehensive unit testing and automated validation using Postman, while managing complex database schemas.
- Demonstrated technical leadership by successfully managing senior developers as a junior developer, coordinating complex database migrations and implementing automated data flow processes.

Teaching Experience	**BRACU Mathematics and Natural Sciences Department** May 2022-January 2023

Student Tutor for MAT092 (Remedial Course in Mathematics)
- Collaborated with 3 faculty members to mentor 110+ students, conducting regular 1-on-1 sessions.
- Assisted faculty staff with grading assignments and proctoring quizzes, midterms, and final exams.

Primus Institute August 2023-March 2024
GCE O and AS-Level Physics Instructor
- Conducted 3 weekly classes with 30+ students per class at the afterschool teaching center.

Networking Venture	**NotFixedYet Podcast** December 2023- Present

Creator and Founder
- Interview with Tom Sosnoff (CEO of *tastylive*. Sold Tastytrade for 1 billion dollars and Thinkorswim for 750 million dollars)
- Interview with Alex Costa (Ex-Googler and Founder of Forte Series) and Michael Sartain (Former US Air Force Captain and Founder of MOA Mentoring)

Awards & Achievements	2022 BRACU Dean's List

2022 BRACU Dean's List
2021 BRACU VC's List
2021 National Round Finalist in Bangladesh Blockchain Olympiad for Team Landchain (Top 10%)
2019 BRACU Dean's List

Community Involvement	MedicsKit, *Founder* 2021

COVID-19 Relief Initiative that provided essential 1000+ PPE (personal protective equipment) to doctors in remote areas.

References

Dr. Mahbubul Alam Majumdar
Professor and Dean of School of Data and Sciences at BRACU, **Email:** majumdar@bracu.ac.bd

Dr. Md. Golam Rabiul Alam
Professor of Computer Science and Engineering at BRACU, **Email:** rabiul.alam@bracu.ac.bd

Dr. Sadek Ferdous
Professor of Computer Science and Engineering at BRACU, **Email:** sadek.ferdous@bracu.ac.bd

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