Nazmun Nahar

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RESEARCH INTEREST

Digital Health | **HCI** | **Mental Health** | **Human-centered NLP** | **Data Science** | **Social Computing**

PUBLICATIONS

1. Shariar Kabir; **Nazmun Nahar**; Mamunur Rashid; Shyamasree Saha."Automatic Speech Recognition for Biomedical Data in Bengali Language" **arXiv preprint arXiv:2406.12931** [pdf] [**2024**]
2. **Nazmun Nahar**; Shariar Kabir; Sumaiya tasnia khan; Suparna Das; Shyamasree Saha; Mamunur Rashid. "AmarDoctor: First Multilingual Digital Platform For AI-Driven Primary Care Triage And Patient Management System For Bengali Speakers". [**pdf**][**suppl. data**] [**in-progress**]

Awards & Achievements

1. **MIT Solve Global Health Equity Challenge Award** for AmarDoctor (6 selected out of 2200+ competitors). [**2024**]
2. University Merit Scholarship from BUET. [**2015-19**]
3. Primary Government Scholarship, Dhaka Education Board, Bangladesh. [**2006**]

WORK EXPERIENCE

R & D SOFTWARE ENGINEER (Tech Team Lead) [**2021 - Present**]
MedAi Limited (UK Based, Remote)

- Architected and developed AmarDoctor's complete system infrastructure, APIs, and multilingual (Bengali/English) symptom checker with clinical decision support algorithm achieving **87%** overall accuracy for South Asian health trends. Since launching in 2025, the platform has facilitated **2,300+** consultations and registered **10,000+** patients.
- Investigated and implemented **AI-driven**, **patient-centric** tools to support effective healthcare navigation—such as a **symptom assessment chatbot** and **personalized dietary recommendations** based on medical history using computer vision techniques.
- Built and maintained robust, end-to-end **ML pipelines**—from implementation (e.g., future disease risk prediction using **DELPHI-2M**) to validation and deployment—ensuring sustained performance and reliability.
- Led development efforts and provided technical guidance to the engineering team in a **collaborative**, **cross-functional environment**, working closely with clinicians to ensure clinical relevance, accuracy, and responsible delivery of healthcare solutions.

ASSISTANT PROGRAMMER [**2021 - 2022**]
Janata Bank PLC

- Acquired practical experience in **administrative operations** within a highly regulated environment.
- Strengthened attention to detail by strictly following procedures and maintaining accurate documentation.

TEACHING [**2019 - 2020**]
Bangladesh Institute of Science and Technology

- Delivered university-level lectures, **effectively communicating** complex technical concepts and led lab sessions to enhance students' hands-on understanding.
- Administered and graded examinations, developing **skills in assessment** and **providing constructive feedback**.

SKILLS

PROGRAMMING LANGUAGES	Python | C/C++ | Java | SQL | PostgreSQL | TypeQL | Assembly | Bash
NATURAL LANGUAGE PROCESSING	NER | NLU | LLM | Rasa | NLTK | RAG
MACHING LEARNING	Scikit-Learn | Tensorflow | Keras | Trnasformers | Diffusers
DATA SCIENCE	Pandas | Matplotlib | NumPy | Seaborn
SOFTWARE DEVELOPMENT	Django | REST API | Firebase & VOIP notification | Git | Locust | CI/CD
AWS	EC2 | Route53 | S3 bucket | API Gateway | SES | AMI | Load balancer | Auto Scaling Group | VPC | Launch Template | Lambda Function
OTHERS	Beautifulsoup | Sphinx | Jira | Confluence

EDUCATION

BSc. Computer Science & Engineering **[2015 - 2019]**

Bangladesh University of Engineering and Technology (BUET)

- **Project & thesis**: *Bengali Text Recognition Using Deep Learning*, under the supervision of Professor **Dr. Md. Monirul Islam**. In this project, I developed a dataset of Bengali word images from printed documents, annotated the data, and trained a deep neural network model that achieved an overall accuracy of **87.3%** in Bengali word recognition.
- **Coursework**: AI, Structured programming language, OOP language, Data Structures, Algorithms, Database, Computer architecture, SE and information system design, Software development, Basic graph theory, VLSI Design, and others.

PROJECTS

- ***Personalized Food Recommendation System for Disease-Based Dietary Guidance*** **[2025]**
  Designed and developed a personalized food recommendation system that suggests dietary restrictions based on user medical conditions. This involved ux design oversight, backend implementation, and integrating Google Cloud Vision API for food recognition to provide tailored nutritional advice.
- ***AmarDoctor – Bangladesh's First AI-Powered Digital Health Platform*** **[2021-24]**
  Led the end-to-end development of **AmarDoctor**, pioneering Bangladesh's first AI-driven digital health platform. [**pub.2**]. Designed the system architecture and database with a medical knowledge graph comprising symptoms, diseases, and their weighted relationships. The symptom data also contributed to the collection of audio samples to train our Bengali ASR module [**pub.1**]. Furthermore, developed the backend using Django REST framework, and guided app and web development teams for efficient product delivery. Also architected a scalable and secure cloud infrastructure on AWS to support the platform's growth and reliability.
- ***Conversational Symptom Assessment Chatbot Using RASA*** **[2023]**
  Developed an interactive **chatbot** using **RASA** to deliver a conversational symptom checker experience. The chatbot initiates casual dialogue to assess user intent and dynamically directs the conversation based on whether the responses suggest mental or physical health concerns. It uses a looped questioning system to classify the user's condition by analyzing intent patterns and ultimately provides a recommendation to consult either a mental health specialist or a physical health professional.
- **Secure SaaS API Client Management System** **[2023]**
  Designed and implemented an API-driven client management platform for a SaaS product, enabling secure access via JWT-based authentication. Integrated a flexible subscription model that allows clients to purchase and manage services based on customizable, pre-defined packages and durations..
- ***Symptom Checker & Clinical Decision Support System*** **[2022-23]**
  Designed and validated the core algorithm for AmarDoctor's multilingual clinical decision support system, in collaboration with clinical researchers; benchmarked against five physicians' assessments using **185** simulated South Asian patient cases, achieving **87%** diagnostic accuracy with support for English, Bengali, and regional dialects.

REFERENCES

1. Dr. Mamunur Rashid

Assistant Professor
Birmingham University, UK
Email: m.rashid.1@bham.ac.uk

2. Dr. Md. Monirul Islam

Professor
Bangladesh University of Engineering & Technology
Email: mdmonirulislam@cse.buet.ac.bd

3. Dr. Shyamasree Saha

Founder, CTO
MedAi Pvt. Limited
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