Nazmun Nahar

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Research Interests

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

Work Experience

R & D Software Engineer, Tech Team Lead [2021 - Present]
MedAi Pvt. Limited

Assistant Programmer [2021 - 2022]
Janata Bank PLC

Teaching [2019 - 2020]
Bangladesh Institute of Science and Technology

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. Our project **AmarDoctor** has been selected as one of the six solvers out of 2200+ participants worldwide for the **MIT Solve Global Health Equity Challenge Award** for its innovative approach to accessible healthcare. [2024]
2. University Merit Scholarship from BUET. [2015-19]
3. Primary Government Scholarship, Dhaka Education Board, Bangladesh. [2006]

Education

BSc. Computer Science & Engineering [2015 - 2019]
Bangladesh University of Engineering and Technology

- **Project & thesis**: Bengali Text Recognition Using Deep Learning, under the supervision of Professor **Dr. Md. Monirul Islam**. For this project, I created a word image dataset from printed documents, annotated it and trained a deep neural network model. [pdf]
- **Coursework**: Artificial intelligence, Structured programming language, Object oriented programming language, Data Structures, Algorithms, Database, Computer architecture, Software engineering and information system design, Software development, Basic graph theory, VLSI Design, and others.

Skills

Programming Languages	Python, C/C++, Java, SQL, PostgreSQL, TypeQL, Assembly, Bash
Natural Language Processing	NER, NLU, LLM, Rasa, NLTK, RAG
Machine Learning	Scikit-Learn, Tensorflow, Keras, Trnasformers, Diffusers
Data Science	Pandas, Matplotlib, NumPy, Seaborn
Software Development	Django, REST API, Firebase, VOIP notification, Git, Locust, API testing
Amazon Web Services	EC2, Route53, S3 bucket, API Gateway, SES, AMI, Load balancer, Auto Scaling Group, VPC, Launch Template
Others	Web Scraping, Sphinx, Jira, Confluence

Recent 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

3. Dr. Md. Monirul Islam

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

2. Dr. Shyamasree Saha

Founder, CTO
MedAi Pvt. Limited
Email: shyama.saha@medaihealth.com