Nazmun Nahar

Computer Science and Engineering (BSc.)

- Research Software Engineer & Backend Lead
- MedAi (Remote)
- Portfolio

Tech Stack

- **Programming Languages**
  - *Python*
  - *C, C++*
  - *Java*
  - *SQL, TypeQL*
- **Software Development**
  - *Django REST API*
  - *TypeDB, PostgreSQL*
  - *Push notifications*
  - *Gunicorn, Nginx*
  - *Payment Gateway Integration*
- **NLP**
  - *NLU*
  - *NER*
  - *Sentence Transformers*
  - *BERT*
  - *Rasa*
- **Data Science**
  - *Pandas*
  - *Matplotlib, NumPy*
- **AWS**
  - *EC2, Elastic IP*
  - *Route53, S3 bucket*
  - *API Gateway*
  - *AMI, SES*

Biography

This is Nazmun Nahar, currently working as an AI Software Engineer and Backend Lead in MedAi Bangladesh Ltd.

I received my degree in computer science and engineering from Bangladesh University of Engineering and Technology. Even though I have a stronger preference for NLP-based research projects, I am open to working in any other topic as long as it is not repetitive. I'm excited to work on initiatives that bring computer science and medical research together. My goal is to complete my doctorate in a subject that will contribute to the advancement of medical technology and benefit humanity.

Work Experience

AI Software Engineer|Lead Backend Developer — 2021 - Present
MedAi Bangladesh Ltd.
Remote

Assistant Programmer — 2021 - 2022
Janata Bank Ltd.
Divisional Office, Dhaka-North, Bangladesh

Lecturer — 2019 - 2020
Bangladesh Institute of Science & Technology.
Dhaka, Bangladesh

Education

B.Sc. — 2015-2019
Computer Science and Engineering
Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

- **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, then trained deep neural networks on it using a variety of methods, including **CNN, RNN, LRU**, and others. .
- **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 and others

- **Project Management**
  - *Jira*
  - *Confluence*
- **Others**
  - *Beautifulsoup, Git, Sphinx*

Languages

Bengali L1

English C1

Interests

- AI Driven Software Systems
- Large Language Models
- Natural Language Processing
- Bio-Medical Informatics
- Human Computer Interaction

References

- **Dr. Shyamasree Saha**
  CTO, MedAi Bangladesh Ltd.
  Dr. Shayamasree Saha

- **Dr. Mamunur Rashid**
  Assistant Professor,
  Birmingham University, UK
  &
  MD, MedAi Bangladesh Ltd.
  Dr. Mamun Rashid

Contact

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Portfolio

oceanrahan

Nazmun-nahar

Recent Projects

AI software engineer & backend lead **2021 - Present**
MedAi Bangladesh Ltd.

Symptom-Checker:
This is an intelligent module that, in both Bengali and English, refers patients to the appropriate specialist physicians based on their identified signs, symptoms and concerns. Additionally, it prepares a preliminary diagnosis for physicians as part of ongoing research on the accuracy of our system's disease identification.

NER & Normalization:
We are currently working on this project. Our application takes in audio input, converts it to text, and then uses a NER Pipeline to extract text containing information about diseases, symptoms, drugs, and other topics. We used a **Clinical-NER** Bert model for this objective. We are now employing the English NER methodology to construct a Bengali NER. This endeavor is difficult because there aren't many dataset resources available in Bengali for NER. Gathering and annotating this dataset is our goal for future usage. Since the system is not perfect when it comes to speech to text conversion, we utilize output text normalization to obtain an appropriate mapping of that symptom. To do this, we used a range of techniques. One illustration is symptom mapping based on **LLM** BERT.

Medical Assistant Chatbot:
People can discover doctors who can aid them with their concerns by using this conversational chatbot. Patients may find it challenging to decide which expert to see, but this medical assistant AI BOT makes the process easier by suggesting physicians who focus on mental or physical health. This was created using the **RASA** (Receive Appreciate Summarise Ask) framework, which is based on **NLU**.

Amazon Web Services:
Our servers are all hosted on AWS EC2 servers. The following AWS services are being used by us: AWS API Gateway, to serve our **REST APIs**. **Route53, DNS** for our servers. **S3** bucket, for storing user files, Using an **AMI**(Amazon Machine Image), you can launch a new machine from a copy of an existing one. Simple Email Service to Verify OTP, Activate Account, Send Promotional Messages and More.

Django Back-End:
Created a complete Django back-end using **TypeDB**, **PostgreSQL**, **SQLite** and a **REST architecture** for our healthcare platform, amardoctor. A significant portion of my work was designing databases, systems and other infrastructure in addition to creating and managing APIs.

Manuscript (In Progress)

- Nazmun Nahar*1, Sumaiya Tasnia Khan*1,2, Shariar Kabir*1, Suparna Das*3, Shyamasree Saha*1, & Mamunur Rashid*1,4 "MedAi: A Multilingual Digital Platform for AI-Driven Inclusive Primary Care Triage and Health Management".
  1. MedAi Limited UK 2. Central Police Hospital, Dhaka, Bangladesh 3. National Health Services, England 4. University of Birmingham, United Kingdom

17th March 2024

Nazmun Nahar