

Nazmul Hasan

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Dhaka Cantonment, Dhaka - 1206, Bangladesh

EDUCATION

- **Bangladesh University of Engineering and Technology (BUET)** March 2018 - May 2023
Bachelor of Science Dhaka- 1200, Bangladesh
 - CGPA: 3.45/4.00 (3.69 in last 77.5/160 Credits)
 - **BSc Thesis:**
Building a Semantic Search Engine using an Ontology: A Case Study on Social Media Influencers.

RESEARCH INTERESTS

- Deep Learning for resource-constrained devices
- Natural Language Processing
- Software Engineering
- Internet of Things
- Knowledge Acquisition
- HCI

ONGOING RESEARCH

- **Semantic Search Engine using an Ontology** January 2023 - Current
Tools: Neo4j, Django, Python, NumPy, Pandas [Supervisor][🔗]
 - Developed a novel ontology for social media influencers to categorize them by audience location, interaction rates, and content types in our thesis. Current work focuses on refining assumptions from prior methods by fine-tuning LLaMA2 and utilizing prompt engineering techniques.
- **Gradient Prediction for backpropagation using Deep Reinforcement Learning** October 2024 - Current
Tools: Python, Colab [Supervisor][🔗]
 - Replaced backpropagation partially to reduce the training time of a large model. Gradients are calculated from previous layers using backpropagation method. The prediction makes the weight updates independent of previous layers. With gradual tuning, the accuracy is increasing over time
- **Leveraging LLMs to offer psychological support in Bangla.** November 2024 - Current
[Supervisor]
 - Faced obstacles regarding data availability while working on the field. After receiving erudite guidelines from [Dr. Shubra Kanti Karmaker](#) and [Dr. Rifat Shahriyar](#), my focus shifted to finding appropriate prompting techniques to generate viable synthetic mental health data, prioritizing the sensitivity and privacy of these data. Our findings hopefully will open the door for further research opportunities.

WORK EXPERIENCE

- **Presidency University** January 2024 - Current
Lecturer, Department of Computer Science and Engineering Dhaka- 1212, Bangladesh
 - Developed comprehensive course outlines and instructional materials for undergraduate courses, designed exams, set question papers, and prepared student results.
- **Universal Computer System** May 2023 - December 2023
Intern Ginza, Tokyo, Japan
Tools: Flutter, Python3.10, AWS-lambda, AWS-RDS, PostGres, Docker, Localstack
 - **End-to-End Development:** Built a web application from scratch, covering the full lifecycle from requirements gathering to deployment.
 - **Comprehensive Contribution:** Led UI/UX design, coding, testing, and deployment, ensuring a seamless user experience.
 - **Cross-Cultural Collaboration:** Worked with a dynamic team, excelling in communication and adaptability while collaborating with a Japanese team.

CERTIFICATIONS

- **Certificate of Internship** December 2023
Presented after number of examinations both technical and behavioral
- **Algorithms, Part I** August 2020
Course by Princeton University (Grade 89.40%)

PUBLICATIONS

C=CONFERENCE, J=JOURNAL

- IJ] M. N. Bhuiyan et al., "Design and Implementation of a Feasible Model for the IoT Based Ubiquitous Healthcare Monitoring System for Rural and Urban Areas," in IEEE Access, vol. 10, pp. 91984-91997, 2022, doi: 10.1109/ACCESS.2022.3202551. [Paper Link](#)

My Contribution:

- Collected health data by connecting sensors to Arduino and NodeMCU.
- Uploaded data to Firebase and implemented a mobile app **HSMART** to visualize the real-time data.
- Processed data, produced infographics, and tested the device with several users.

TEST SCORE

- **International English Language Testing System (IELTS) Score** November 2024
Overall Band 7.00 (Reading - 8, Listening - 6.5, Writing - 5.5, Speaking - 7)
- **Graduate Record Examination (GRE) Score** May 2024
321 (Quantitative - 167 (78th Percentile), Verbal - 154(59th Percentile), AWA - 3.5(41st Percentile))

HONORS AND AWARDS

- **University merit** 2023
Bangladesh University of Engineering and Technology (BUET)
 - Awarded the University Merit for achieving a GPA of 4.00 in a particular semester of an academic year.
- **Scholarship** 2015, 2017
Sylhet Cadet College
 - Awarded scholarships in 2015 and 2017 for securing top positions in the Secondary School Certificate (**Talent Pool Scholarship**) and Higher Secondary School Certificate (**General Board Scholarship**) exams from Sylhet Board.

PROJECTS

- **UCOIN** May - December 2023
Tools: Flutter, AWS, Project Management [🔗]
 - Following company guidelines, we developed a project to monitor and evaluate employee performance. While details are confidential due to an NDA, I gained extensive experience across the full project lifecycle, from requirement analysis to testing and deployment in a cross-cultural work environment.
- **UltraSound Nerve Segmentation** March - May 2023
Tools: Python, Colab [🔗]
 - Accurate identification of nerve structures in ultrasound images is essential for effective catheter insertion in pain management; using a fine-tuned ResNet-34 with RPA and APF modules, we segmented the Brachial Plexus nerve group.
- **CNN From Scratch** December 2022 - May 2023
Tools: Python [🔗]
 - This is a simple implementation of a convolutional neural network (CNN) from scratch using only Numpy. The project is the accumulation of machine learning lab course assignments with the purpose of learning the mathematical foundation of ML. The network is trained on the NumtaDB dataset to recognize Bengali numerical digits.
- **Tax Computation & Consultation** June - September 2022
Tools: MongoDB, Expressjs, React, Nodejs [🔗][🔗][🔗]
 - Developed an automated system for calculating income tax, business tax, and other taxes.
- **Laboratory Monitoring and Evaluation System (LMES)** April - October 2022
Tools: Android Studio, Java, Figma, Survey [🔗][🔗]
 - It was my first government project. I conducted a field study, installed CCTV cameras in all high school labs in Cumilla district, and developed an Android app to monitor each lab under guidelines from the district commissioner. Figma design is created by a professional; we implemented the exact Android application.
- **Two Step Authentication System** September - October 2021
Tools: Atmega32, Atmel Video[🔗]
 - A microcontroller project that integrates fingerprint and voice recognition for two-step user authentication.
- **FoodPanda2.0** January - February 2021
Tools: Javascript, Django and Oracle [🔗][🔗]
 - Developed a nearby restaurant and food ordering app with dedicated functionality for customers, admins, and delivery personnel, featuring a cart and promo system. The project utilized an Oracle database and was built on the Django framework.

LEADERSHIP AND VOLUNTEER EXPERIENCE

- **Assistant Proctor**

November 2024 - Current

Presidency University

- Conducting regular visits within the campus premises.
- Handled multiple disciplinary incidents.
- Attending regular coordination meetings to maintain safety of the students.

- **Public Relations Secretary**

January 2020 - Current

Old Cadets Association of Sylhet (OCAS)

- Organize different activities for our alumni and current cadets of Sylhet Cadet College.
- This vibrant organization performs social activities on regular basis. I cooperate in every collaborative task and fund raising activities.

- **Moderator of PUAIC**

April 2024 - Current

Presidency University AI club

- Managing workshop on regular basis.
- Advertising the club and recruiting new members.
- Taking regular class to inspire my students to learn and explore AI.

- **Team Leader of Internship Team**

June 2023 - Dec 2023

Universal Computer System. Tokyo Japan

- Maintaining git pull request for the team.
- Teaching Japanese to teammates.
- Learning Flutter and teaching teammates.

- **Team Captain of Hall Football Team**

January 2023 - March 2023

Bangladesh University of Business and Technology (Ahsanullah Hall)

- Managing the team's moral.
- Maintaining discipline and practicing on daily basis.
- Monitoring and guiding the players.

SKILLS

- **Programming Languages:** C/C++, Python, JavaScript, SQL, Bash, JAVA, HTML, CSS, DART, Intel 8086 Assembly Language
- **Database Systems:** MongoDB, Oracle, SQLite, PostGres
- **Scripting** LaTeX, Shell Script
- **Tools:** AWS Lamba, Source Tree, Jira, Git, VS Code, JetBrains Products, Wireshark, Atmel Studio, Logisim, Emu8086, Cisco Packet Tracer, ns-3, Docker, Wireshark, Android Studio
- **Language:** English, Japanese, Arabic

REFERENCES

1. **Dr. Muhammad Masroor Ali**

Professor, CSE

Bangladesh University of Engineering and Technology

Email: mmasroorali@cse.buet.ac.bd

Tel: +880 2 9665612, +880 2 9665650/6502

Relationship: Thesis Supervisor

2. **Dr. Muhammad Abdullah Adnan**

Professor, CSE

Bangladesh University of Engineering and Technology

Email: abdullah.adnan@gmail.com

Tel: +880 1552336926, +880 2 9665650/7109

Relationship: Project Supervisor and undergraduate advisor

3. **Dr. Rifat Shahriyar**

Professor, CSE

Bangladesh University of Engineering and Technology

Email: rifat.shahriyar@gmail.com, rifat@cse.buet.ac.bd

Tel: +8801777403791

Relationship: Project Supervisor