Abdullah Khondoker

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Education

- **BRAC University, Dhaka, Bangladesh** *2020-2024*
  Bachelor of Science in Computer Science and Engineering (CSE) CGPA: 3.96/4.00

Experience

- **Undergraduate Teaching Assistant, School of Data and Sciences, BRAC University** *Feb'23-Apr'24*
  Part-Time Dhaka, Bangladesh
  – Course(s): Structured Programming (Python), Object-oriented Programming, Data Structures and Algorithms
  – Responsibilities: Script Checking, Consultation for problem-solving, Lab Tutoring, Lab Exam Invigilation

Research Works

- **How Effectively Can BERT Models Interpret Context and Detect Bengali Communal Violent Text?** *Link*
  Developed a fine-tuned BanglaBERT model to detect communal violence in Bengali social media comments. Submitted to a journal for review and awaiting acceptance.

Projects

Software and Web Developemnt Projects:

- **uSavior: Academic Aid & Online Education Based Website** *Link*
  Led the development of an online learning platform with user authorization, class preview integration, and database optimization. Utilized HTML, CSS, Flask, Python, and MongoDB. Applied SDLC, Requirements Engineering, Agile Project Management, software architecture, and UML for high-quality software and thorough documentation.
- **Life Card: Health Insurance & Treatment Application** *Link*
  Led the design and prototyping of a health insurance and treatment app using Figma, accompanied by SRS documentation. Utilized SDLC, Software Project Management, UML, Activity Diagrams, Data-flow Diagrams, Sequence Diagrams, User Interface Design, and Feasibility Studies. Managed software deployment and design for comprehensive project execution.
- **Sahazzo: Cashless Fundraising & Voluntary Work Management System** *Link*
  Led the development of a cashless fundraising site, managing frontend, backend, and system design tasks. Handled transaction processing, amount verification, and user/product validation. Utilized Django, Database Architecture, Database Security, Data Integration, Schema Design, and SQL.
- **uSavior Bot** *Link*
  Developed a chatbot for Discord using Python, OpenAI, and Google API. Utilized Discord API, OpenAI, Google API, Selenium, Discord.py, and Music API for comprehensive functionality and integration.

AI-ML-DL Projects:

- **Heart Attack Alert System** *Link*
  Developed a Python-based machine learning model using SVC to predict heart attacks. Utilized skills in Machine Learning, Python, Algorithms, Pandas, and NumPy for accurate and efficient predictions.
- **Analyzing Text Classification Models on Movie Reviews** *Link*
  Compared RNN, LSTM, and GRU models on IMDb Movie Review data. Utilized GloVe vectorizer for enhanced semantic understanding, improving accuracy and sentiment analysis. Leveraged skills in NLP, Machine Learning, LSTM, GRU, Data Analysis, Data Processing, and Data Visualization.
- **Unlocking the Potential of Multiple BERT Models for Bangla QA in NCTB Textbooks** *Link*
  Researched automated Bangla text comprehension using RoBERTa, Bangla-BERT, and BERT Base models. Evaluated 3,000 NCTB textbook instances, with Bangla-BERT achieving the highest F1 Score. Leveraged skills in NLP, Deep Learning, Machine Learning, and Dataset analysis to inform future educational assessment advancements.
- **Advancements and Challenges in Bangla Question Answering Models** *Link*
  Conducted a comprehensive survey of Bangla QA research papers to explore current directions and trends in the field. Utilized skills in Natural Language Processing (NLP) and Machine Learning to analyze and synthesize findings.

Hardware Projects:

- **PlantPal: Automated Irrigation Robot** *Link*
  Led an automated irrigation robot using machine learning for plant detection, precise movement, and soil moisture sensing. Utilized Raspberry Pi and Arduino for real-time feedback, irrigation control, and water level monitoring. Applied skills in Robotics, Raspberry Pi, OpenCV, Python, Computer Vision, Sensors, and Circuit Design.
- **Automated Waste Segregation System** *Link*
  Implemented an object detection system using AI and Robotics concepts along with various sensors and actuators. Utilized skills in Robotics, Raspberry Pi, OpenCV, Python, Computer Vision, Sensors, and Circuit Design for effective waste segregation.

Technical Skills and Interests

OOP, Data Structures and Algorithms: Python, C/C++, Java
AI-ML-DL: PyTorch, Tensorflow/Keras, ScikitLearn, OpenCV, NLTK
Research Tools: NumPy, Pandas, Matplotlib, Seaborn
Developer Tools: Bootstrap, Git, Docker, Postman, Arduino, BeautifulSoup, Selenium
Frameworks: Django, Flask, Next.JS, React
Cloud/Databases: MySQL, MongoDB, PostgreSQL
Software and Design Environments: MATLAB, Proteus, Figma, Flutter, Adobe
Hardware Description and Modeling Languages (HDLs): Assembly(x86, 8051), Verilog, VHDL
Soft Skills: Fast learner, Problem solving, Teamwork, Critical thinking, Leadership
Coursework: DataCamp, Coursera
Areas of Interest: AI-ML-DL, NLP, Computer Vision, and Robotics

Achievements

- **Merit Scholarship Award, BRAC University** *2021-2024*
  Awarded for maintaining high CGPA. Got upto 100% scholarship.
- **VC's List and Dean's List Award, BRAC University** *2021-2024*
  As recognition of achieving a GPA of 3.90-4.00.
- **Regional NHSPC Winner Award, National High School Programming Contest, Bangladesh** *2016*
  Recognised for winning NHSPC at regional level, Reg. No-749
- **Champion: 36th National Science and Technology Week, Bangladesh** *2015*
  Achieved 1st place at divisional level showcasing science project (Campus FM Radio)

Positions of Responsibility

- **GM, Creative Department,** BRAC University Computer Club (BUCC) *Feb'21-Feb'24*
- **GM, Arts & Design,** BRAC University Robotics Club (ROBU) *Feb'21-Feb'24*

References

Farig Yousuf Sadeque, PhD
Associate Professor, Department of Computer Science and Engineering, BRAC University
Somoy Subandhu Barua
R&D at Ericsson, Former Software Engineer at BJIT
Muhammad Iqbal Hossain, PhD
Associate Professor, Department of Computer Science and Engineering, BRAC University
Md. Khalilur Rahman, PhD
Associate Professor, Department of Computer Science and Engineering, BRAC University