**Md Abu Bakar Siddiq Sayem**

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**PROFESSIONAL SUMMARY**

I am a researcher skilled in Artificial Intelligence and Deep Learning. My work focuses on creating innovative solutions for real-world problems like emotion detection and machine translation. I have experience in conducting research, developing projects, and mentoring students. My strengths include teamwork, data analysis, and applying modern technologies effectively. I aim to contribute to advancements in computer science through a post-graduate degree.

**EDUCATION**

**International Islamic University Chittagong** Kumira, Bangladesh

M.Sc. in Computer Science and Engineering (Pursuing) Expected Dec 2025

**International Islamic University Chittagong** Kumira, Bangladesh

B.Sc. in Computer Science and Engineering (CGPA: 3.51/4.00) Dec 2019

**RESEARCH INTEREST**

* Natural Language Processing (NLP) and Chatbot Development
* Emotion Detection and Sentiment Analysis
* Neural Machine Translation
* Human Activity Recognition Using Deep Learning

**RESEARCH AND TEACHING EXPERIENCE**

**International Islamic University Chittagong** Kumira, Bangladesh

*Graduate Researcher*2020 – Present

* Working on a Chat Emotion Detection Dataset for Bangla, utilizing a fusion of three transformer models for emotion classification, level detection, and dimensional score generation. Focused on converting dimensional scores into descriptive labels to accurately identify emotions.
* Designed a system to detect stress levels from audio data, incorporating a comparative analysis of various model and dataset combinations for optimized performance.

<https://github.com/abs-sayem/stress_level_detection>

**International Islamic University Chittagong** Kumira, Bangladesh

*Research Assistant (RA)* Sep 2017 - Dec 2019

* Published research in the *EMITTER International Journal of Engineering Technology* in December 2019, showcasing a CNN-based system for recognizing seven basic human activities.
* Developed two datasets, HARDataset1 (57,441 images) and HARDataset2 (12,046 images), for robust analysis and evaluation.

<https://www.researchgate.net/publication/357871345_HActivityNet_A_Deep_Convolutional_Neural_Network_for_Human_Activity_Recognition>

***Conference Paper Contribution (during SSR Tech)*** Dec 2019

* Co-authored and published the paper *“****Monitoring Harmful Sound Density and Light Intensity State in Industrial Workplace****”* during my tenure at SSR Tech. Presented at a conference.

<https://ieeexplore.ieee.org/document/8938314?arnumber=8938314>

**International Islamic University Chittagong** Kumira, Bangladesh

*Teaching Assistant (TA)* Jun 2019 – Oct 2019

* Led discussions, tutorials, and lab sessions, providing support to students in coding problem-solving and project development.
* Return assignments to students in accordance with established deadlines and inform students of the procedures for submitting class work, like lab reports.
* Evaluate lab performance, assist students with solving coding problems.
* Notify instructors of errors or problems with assignments, give feedback to the course teacher about students' problems.
* Assist course teacher in developing teaching materials, and checking students' projects and discussing their project ideas.

**CERTIFICATIONS AND COURSES**

* **Machine Learning and Data Analysis** – NACTER Bangladesh, 2024
* **Natural Language Processing** – PyOhio (Alice Zhao), 2022
* **Neural Networks and Deep Learning** – Coursera (deeplearning.ai by Andrew Ng), 2019
* **Convolutional Neural Networks** - Coursera (deeplearning.ai by Andrew Ng), 2019
* **Introduction to Tensoflow for Artificial Intelligence, Machine Learning and Deep Learning** - Coursera (deeplearning.ai by Andrew Ng), 2019
* **Machine Learning for Everybody** - freeCodeCamp.org, 2018

**JOB EXPERIENCE**

**Alchemy Software Limited** Chittagong, Bangladesh

*Software Engineer (R&D)* Nov 2020 – Present

* Developed a specialized extractive chatbot capable of processing text files (e.g., PDF, TXT), preprocessing the content, and providing context-aware responses to user queries.
* Executed tasks such as raw data collection, data cleaning, exploratory data analysis (EDA), and extracting actionable insights from datasets.
* Designed robust web scraping solutions for collecting and parsing raw data from online sources.
* Automated the extraction of relevant information from CVs, focusing on datasets such as BdJobs CVs to enhance efficiency.
* Fine-tuned Huggingface LLM models for diverse NLP tasks, including sentiment classification, information extraction, language translation, and topic modeling.
* Developed an Encoder-Decoder architecture for Neural Machine Translation (English-Bangla), ensuring linguistic precision and fluency.
* Created optimized pipelines for specific NLP tasks, such as data cleaning, question-answering, sentiment analysis, text generation, and machine translation.
* Collect, preprocess, and annotate datasets for training and evaluating NLP models.
* Work closely with cross-functional teams to integrate NLP solutions into real-world applications and improve user experiences.

**LEADERSHIP/TEAMWORK EXPERIENCE**

**Gopalpur Ideal Club** Chittagong, Bangladesh

*President* 2020 – 2023

* Organized community events, including charity drives and environmental cleanliness campaigns.
* Provided aid to underprivileged families and facilitated financial support for social causes, like - marriage expenses, medical treatments, and housing.

**Charity Organization of Bangladesh (COBA)** Chittagong, Bangladesh

*Program Co-Ordinator* Dec 2018 – Dec 2019

* Successfully coordinated a large-scale fundraising initiative for flood-affected families in Sylhet, ensuring efficient distribution of resources and impactful assistance to those in need.
* Promoted community engagement by organizing meetup discussions on social issues, fostering teamwork, and developing detailed plans to execute programs smoothly and effectively.

**SSR Tech** IIUC, Bangladesh

*Co-founder* Jul 2017 – Dec 2019

* Developed and established a ***Voice Activated******Home Automation System***, which was showcased at the university tech fest and selected by the committee for demonstration without a registration fee due to its outstanding quality and relevance.
* Contributed to Arduino-based IoT projects and led innovative ideas that bridged academia and practical applications.

**IEEE, IIUC Student Branch** Bangladesh Section

*Executive* Jan 2018 – Dec 2018

* Organized events, workshops, and technical activities to help members learn new skills and grow professionally.
* Managed tasks like preparing reports, handling finances, and planning yearly programs to keep the branch running smoothly.
* Worked with regional representatives and encouraged teamwork by holding regular meetings and discussions among members.