Ashaduzzaman Sarker

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CAREER OBJECTIVE

Seeking a challenging position in a progressive and innovative environment where I can leverage my expertise in Artificial Intelligence, Data Science, and Machine Learning to contribute to organizational growth and technological excellence.

ACADEMIC BACKGROUND

Bachelor of Science (BSc) in Electrical and Electronic Engineering
BRAC University, Dhaka, Bangladesh **| CGPA:** 3.21/4.00 **| Graduated:** 2021

Higher Secondary Certificate (HSC)
Cantonment Public School and College, Rangpur **| GPA:** 5.00 (Golden A+) **| Year:** 2014

Secondary School Certificate (SSC)
Sathibari ML High School, Rangpur. **| GPA**-5.00 (Golden A+) **| Year:** 2012

EXPERIENCE

Research Assistant (Data Management)
Centre for Entrepreneurship Development (CED), BRAC University | **(*June 2022 – Present*)**

- Conducted extensive research and collected, curated, verified, analyzed and presented up-to-date data on Bangladesh's RMG industry, focusing on supply chain visibility, ESG indices, sustainability practices, and renewable energy adoption. ***Key projects include:***
  - ***Mapping export-oriented factories Mapped in Bangladesh (MiB)*** **- [*Map*] [*Link*]**
  - ***Exploring Adoption of Renewable Energy Technology (RET) among Apparel Exporters*** **- [*Link*]**
  - ***Addressing Climate Change and Plastic Waste in Bangladesh's Garment Industry*** **- [*Link*]**

CERTIFICATIONS

- **Building LLM-Powered Applications |** *Certified by* ***Weights & Biases*** **– [*Link*]**
- **IBM AI Engineering Specialization |** *Certified by* ***IBM*** – **[*Link*]**
- **Building LLM-Powered Applications |** *Certified by* ***Weights & Biases*** **– [*Link*]**
- **Deep Learning Specialization |** *Certified by* ***DeepLearning.AI*** - **[*Link*]**
- **Machine Learning Specialization |** *Certified by* ***Stanford Online & DeepLearning.AI*** - **[*Link*]**
- **IBM Data Science Specialization |** *Certified by* ***IBM*** - **[*Link*]**
- **TensorFlow Developer Specialization |** *Certified by* ***DeepLearning.AI*** **- [*Link*]**

TECHNICAL SKILLS

Large Language Models (LLMs): Experienced in building, training, and fine-tuning LLMs; skilled in using LLM APIs, LangChain, and prompt engineering.

Machine Learning & Deep Learning: Proficient in designing and implementing machine learning models using supervised and unsupervised learning techniques, including classification, regression, clustering, and dimensional reduction.

Neural Networks: Deep understanding of artificial neural networks, convolutional neural networks (CNNs), recurrent neural networks (RNNs), and their applications in computer vision and natural language processing (NLP).

Data Science: Skilled in data importing, cleaning, analysis, and visualization; experienced with SQL databases and big data technologies.

Statistical Modeling: Strong foundation in mathematical analysis, statistical methods, and regression techniques.

Computer Vision: Expertise in image processing, object detection, recognition tasks, and generative models using neural style transfer.

Network Modeling: Knowledge in network architecture and modeling, including decision trees and ensemble methods.

Programming Languages: Advanced proficiency in Python; experience with data manipulation using libraries such as NumPy, SciPy, and Pandas.

Frameworks & Tools: Keras, TensorFlow, PyTorch, and Hugging Face Transformers, Weights & Biases for model experimentation, tracking, and deployment.

Project Management: Strong analytical and problem-solving skills, with experience in executing real-world projects and building a data science portfolio.

PROJECTS

Natural Language Processing (NLP) & Large Language Models (LLMs) Projects: [*GitHub*]

- ***Text Sentiment Classification on IMDb & MRPC Datasets (PyTorch & TensorFlow):*** Designed sentiment analysis models to classify text sentiment and detect paraphrases. Utilized Bidirectional LSTM and Transformer architectures to achieve high performance.
- ***Text Summarization with T5 & mT5 (PyTorch):*** Developed models to generate concise summaries from legal and consumer review texts, demonstrating advanced sequence-to-sequence modeling.
- ***Named Entity Recognition (NER) with Transformers (PyTorch & TensorFlow):*** Created and optimized token classification models for named entity recognition, achieving high precision on datasets like CoNLL-2003.
- ***Sequence-to-Sequence Transformers (PyTorch & TensorFlow):*** Engineered translation models to convert text between English and Spanish with high accuracy, using Marian and T5 models.
- ***Masked Language Modeling with DistilBERT & DistilRoBERTa (PyTorch):*** Enhanced language models' contextual understanding through masked language modeling, improving language comprehension on datasets like IMDb.
- ***Causal Language Modeling with GPT-2 & DistilGPT2 (PyTorch):*** Implemented causal language models, generating coherent and contextually appropriate text on datasets like ELI5 and CodeParrot.
- ***Question Answering with BERT & DistilBERT (PyTorch):*** Engineered advanced question-answering models using BERT and DistilBERT, achieving high accuracy on SQuAD and SWAG datasets.

Computer Vision Projects: [*GitHub*]

- ***Image Classification with Vision Transformers & CNNs (Keras & PyTorch):*** Implemented state-of-the-art image classification models on diverse datasets like CIFAR-100 and MNIST.
- ***Object Detection with RetinaNet & Vision Transformers (PyTorch):*** Engineered object detection models, achieving high precision in localization and classification tasks.
- ***Image Segmentation with SAM & U-Net (Keras & PyTorch):*** Developed high-precision models for image segmentation, fine-tuning models like Segment Anything Model (SAM) and U-Net for exceptional accuracy.

Multimodal Vision-Language Models Projects: [*GitHub*]

- ***Image Captioning:*** Fine-tuned a GIT image captioning model on the Pokémon BLIP dataset using PyTorch and Visual Transformers to generate descriptive captions for images.
- ***Document Question Answering (DocVQA):*** Fine-tuned LayoutLMv2 for document question answering on the DocVQA dataset, utilizing PyTorch for model optimization.
- ***Visual Question Answering (VQA):*** Fine-tuned a Visual Question Answering (VQA) model (ViLT) on the Graphcore VQA dataset, employing PyTorch for enhanced performance in answering questions about images.
- ***Text-to-Speech (TTS):*** Fine-tuned SpeechT5 for the text-to-speech task on the VoxPopuli dataset, using PyTorch to improve speech synthesis quality.
- ***Image-Text-to-Text:*** Developed models for tasks involving image-text relationships, integrating various architectures.

RESEARCH INTEREST

Natural Language Processing (NLP), Large Language Models (LLMs), Vision Language Models (VLMs), Computer Vision, Generative AI

ACADEMIC ACHIEVEMENTS

Talent Pool Scholarship in Primary School Scholarship Examination (PSC) [2007]
Talent Pool Scholarship in Junior School Scholarship Examination (JSC) [2010]
BRAC University Merit Based Scholarship [2017]

LANGUAGES

ENGLISH: Proficient | **BANGLA:** Native speaker

ACADEMIC AFFILIATION

- **R&D Laboratory, Department of EEE, BRAC University |** *Research Intern (July 2019- Feb 2020)*
- **TEN'S 360-A Digital Marketing Agency |** *Digital Marketing Intern (Apr 2017- Dec 2017)*
- **IEEE BRAC University Student Branch |** *General Member (February 2018-Jan 2021)*
- **Robotics Club of BRAC University |** *General Member (Jan 2017- Dec 2020)*
- **International Conference on Energy and Power Engineering (BRACU) |** *Volunteer (March 2019)*

REFERENCES

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