

NIHAL MORSHED

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Education

Rajshahi University of Engineering & Technology Bachelor of Science in Computer Science & Engineering

Kazla, Rajshahi-6204, Bangladesh

Expected to graduate in June 2025

Current CGPA: 3.64

• **Relevant Coursework:** OOP, Algorithms, Data Structures, Operating Systems, Database Systems

Career Objectives

Versatile Computer Science & Engineering student with extensive experience across mobile development, web development, and machine learning domains. Combining practical experience in Flutter mobile applications, responsive web development using HTML/CSS/JavaScript/Bootstrap, and advanced machine learning implementations including transformer models and neural networks. Seeking opportunities to leverage my development capabilities and AI expertise to create innovative solutions. Aiming to join a dynamic organization where I can apply my diverse technical portfolio while continuing to grow as a well-rounded software engineer.

Skills

Languages: C, C++, Java, HTML, CSS, Dart, Python, SQL, JavaScript,
Frameworks: Flutter, Firebase, Bootstrap

Professional Experience

Niharon Technologies

Junior Software Engineer (Flutter) - Mobile Application Development Team

Rajshahi

Aug 2022 – Jan 2023

- Built UI components using Flutter to materialize customers' requirements and software operations model
- Designed and implemented JSON data models to automate backend data handling processes
- Integrated and designed the server-end API models and functions to automate backend data handling processes
- Designed and implemented functions to regulate user authentication and verification processes for multiple applications

Projects

Chat Application

June 2023

- Applications made integrating Firebase in Flutter
- A Multi-platform Chat application made using Flutter
- Implemented using real time database

GitHub Repository

Clima – Weather Application

Feb 2023

- Applications made integrating a free API called "Open Weather Map"
- The application provides weather data and updates based on geolocation of the user
- Written in Dart

[GitHub Repository](#)

Personal Expenses Application

August 2022

- Personal Expenses Management Application made with Flutter
- Written in Dart

[GitHub Repository](#)

Quiz Mobile Application

April 2022 – June 2022

- A Multi-platform Quiz application made using Flutter
- Backend system is built implementing Firebase
- Created a unique random number generator for generating unique questions for the quiz
- Written in Dart

[GitHub Repository](#)

Bitcoin Ticker – Exchange Rate Application

Jan 2023

- Applications made integrating a free API called "Coin API"
- The application provides updates on current exchange rates of different cryptocurrencies with other currency such as Dollar, Pounds, Rial etc.
- Written in Dart

[GitHub Repository](#)

Hot Gadgets E-Commerce Site

March 2023

- A landing page for online e-commerce gadgets store Live Site
- Written using Bootstrap Framework along with basic HTML, CSS & JavaScript

[GitHub Repository Link](#)

[Live Site Link](#)

Panda – An E-Commerce Site

March 2023

- A landing page of a responsive and mobile-first e-commerce Live Site for online store
- Written using Bootstrap Framework along with basic HTML, CSS & JavaScript

[GitHub Repository](#)

[Live Site Link](#)

Personal Portfolio Site

November 2022

- A responsive portfolio webpage using only HTML & CSS implementing Media Query for various screen size.
- Written in HTML, CSS

[GitHub Repository](#)

[Live Site Link](#)

Wordle Game

May 2022 – June 2022

- Applications made using JavaSwing & Java AWT imitating the popular Wordle Game
- Implemented words shuffling using random number generator
- Implemented leaderboard/scoresheet using file system
- Written in Java

[GitHub Repository](#)

Ghibli Studios -A Static Webpage

November 2022

- Responsive Static Webpage designed implementing the basic concepts of CSS (Classes, ID, Pseudo-classes, Pseudo-element, Positioning, Specificity, Media Query)
- Written in HTML, CSS

[GitHub Repository](#)

[Live Site Link](#)

Machine Learning & AI Projects

Sentiment Analysis Using DistilBERT Transformer Model

July 2024

- Implemented a sentiment analysis model using DistilBERT transformer architecture, achieving 94.86% ROC AUC Score and 92.86% F1 Score on the Twitter Airline Sentiment dataset.
- Used PyTorch and Hugging Face's Transformers library to fine-tune the pre-trained DistilBERT model, which operates 60% faster than BERT while maintaining 95% of its performance.
- Engineered a data processing pipeline using Pandas and NumPy to prepare thousands of airline-related tweets for sentiment classification.
- Optimized model training through GPU acceleration, significantly reducing computation time while maintaining high accuracy.
- Utilized Scikit-learn and Matplotlib for comprehensive model evaluation and performance visualization, demonstrating the model's effectiveness in sentiment classification.

[GitHub Repository Link](#)

Bank Customer Churn Prediction Using Neural Networks

July 2024

- Developed an Artificial Neural Network (ANN) model using TensorFlow and Keras to predict bank customer churn with 86.4% accuracy.
- Implemented comprehensive data preprocessing including categorical encoding, feature scaling, and dataset splitting using NumPy and Pandas.
- Engineered a balanced neural network architecture with two dense layers, optimizing for both performance and computational efficiency.
- Performed model evaluation using confusion matrix and analyzed 11 key customer features including credit score, geography, and banking behavior.
- Created data visualizations using Matplotlib and Seaborn to communicate model performance and customer insights effectively.

[GitHub Repository Link](#)

PawVision: CNN-Powered Image Recognition Model

Jul 2024 - Aug 2024

- Developed a robust Convolutional Neural Network (CNN) model using TensorFlow and Keras, achieving 90.81% accuracy in classifying cat and dog images.
- Implemented comprehensive data augmentation techniques including rescaling, shearing, zooming, and horizontal flipping to enhance model generalization and prevent overfitting.
- Designed and optimized a sequential CNN architecture incorporating multiple convolutional and pooling layers, followed by dense layers for effective feature extraction.
- Utilized the Adam optimizer and binary cross-entropy loss function for model training, ensuring optimal convergence and classification performance.
- Executed thorough model evaluation on unseen data validating the model's reliability and robustness in real-world applications.

[GitHub Repository Link](#)

Predictive Modeling of Stock Market Trends with LSTM Architectures Aug 2024

- Engineered a stock price prediction model using stacked Long Short-Term Memory (LSTM) neural networks in Python, using Keras and TensorFlow frameworks.
- Implemented comprehensive data preprocessing pipeline including feature scaling and temporal data structuring to optimize model performance and accuracy.
- Designed an advanced architecture combining multiple LSTM layers with dropout regularization, effectively preventing overfitting and enhancing model generalization.
- Utilized Pandas and NumPy for efficient data manipulation, incorporating historical stock data to identify and predict market trends.
- Created detailed visualizations using Matplotlib to analyze model performance across various market conditions, demonstrating strong predictive capability in tracking market trends.

[GitHub Repository Link](#)

Article Spinner Using Second Order Markov Model Aug 2024 – Sep 2024

- Developed a machine learning-based article spinner utilizing second-order Markov Model and natural language processing techniques for generating diverse text variations.
- Implemented text processing pipeline using NLTK library for tokenization and TreebankWordDetokenizer for sentence reconstruction while maintaining grammatical accuracy.
- Processed and analyzed the BBC Text Classification Dataset using Pandas to ensure balanced text generation across multiple categories.
- Built a probabilistic word prediction system based on preceding word pairs to generate coherent text sequences.
- Incorporated random selection techniques using NumPy to enhance text variability while preserving readability.

[GitHub Repository Link](#)

TF-IDF Movie Recommender System Jun 2024 - Jul 2024

- Developed a movie recommendation system using TF-IDF vectorization on the TMDB 5000 Movie Dataset, enabling personalized content suggestions based on genres and keywords.
- Implemented comprehensive data preprocessing pipeline to extract and combine movie genres and keywords, enhancing the quality of recommendations.
- Utilized Scikit-learn to create TF-IDF vectors and calculate cosine similarity scores between movies, ensuring accurate similarity measurements.
- Applied NumPy and Pandas for efficient data manipulation and analysis, streamlining the recommendation generation process.
- Created data visualizations using Matplotlib to analyze and validate recommendation patterns and system performance.

[GitHub Repository Link](#)

Handwritten Digit Recognition Oct 2023 – Dec 2023

- Utilized industry-standard Python libraries - Sci-Kit Learn, Pandas, Numpy, and Matplotlib.
- Implemented a Support Vector Classifier (SVC) to train the model.
- Successfully trained using the sample distribution produced from live-captured photos.
- Used Matplotlib to make visually appealing representations of the training data output.

[GitHub Repository Link](#)