Raghav Sharma
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Education

Indian Institute of Information Technology, Kottayam — **Aug 2023 - May 2027**

Bachelor of Technology - Computer Science and Engineering — *Kottayam, India*

Senior Secondary Education - Alpha junior College, Vile Parle, Mumbai — **Apr 2021-Apr 2023**

High School - CBSE (96.4%) — *Mumbai, India*

Technical Skills

Languages: C,C++, Python, Java, HTML, CSS.

Tools: Git/GitHub, VSCode, Jupyter Notebook, PowerBI.

Databases: SQL, MongoDB (NoSQL)

Frameworks/Libraries: Streamlit, Numpy, Pandas, Matplotlib, ScikitLearn, SpaCy, NLTK, PyTorch, TensorFlow, HuggingFace, Word2Vec, GloVe,

Relevant Academic Courses: Data Structures, Computer Networks, Mathematics III(Probability and Random Processes), Mathematics IV (Fourier Transform and Differential Equations)

Projects

IMPLEMENTATION OF VIDEOS FAKE NEWS DETECTION ON SOCIAL MEDIA (UNDER SUPERVISION OF DR. BALASUBRAMANIAN) (PRESENT)

- Understanding and Implementation of the of the Fake News Detection Model inspired from the research papers - **A Survey on Video-Based Fake News Detection Techniques** (Ronak Agrawal and Dilip Kumar Sharma), **FakeSV: A Multimodal Benchmark with Rich Social Context for Fake News Detection on Short Video Platforms** (Ping Qi et al.) , and **Effective fake news Video Detection using domain knowledge and multimodal data fusion on YouTube** (Hyewon Choi, Youngjoong Ko)
- The Model utilises certain Deep Neural Network such as ANN, RNN, CNN, LSTM, Attention mechanism to tackle the problem.
- Citing 2nd research paper in order, it aims in solving one of major issues in field of Fake News Detection of Dataset Scarcity by **generating its own dataset**, based on various parameters, and further suggest a Model for the same which utilises **BERT architecture**, CNN, RNN, LSTM, to achieve a significantly better BLEU score.
- 3rd research paper focuses on the usage of the **attention mechanism** along the with CNN techniques for the purpose and has proved in significant improvements, which are discussed in the same.

IMPLEMENTATION OF RESEARCH PAPER "ATTENTION IS ALL YOU NEED" (2017)

- Implemented the Transformer architecture from scratch based on the "Attention Is All You Need" paper.
- Designed multi-head self-attention and positional encoding mechanisms for effective sequence modeling.

- Developed an encoder-decoder structure using scaled dot-product attention for parallelized processing.
- Optimized model training using layer normalization, residual connections, and weight initialization techniques.
- Trained the model on text datasets using PyTorch/TensorFlow, leveraging GPU acceleration for efficiency.
- Fine-tuned hyperparameters such as number of heads, depth, feedforward dimensions, and dropout rates for optimal performance.

SENTIMENT ANALYSIS MODEL USING MULTINOMIAL NAIVE-BAYES ALGORITHM

- Built a sentiment classification model using the IMDB movie reviews dataset.
- Applied text preprocessing: tokenization, lemmatization, stopword removal, and TF-IDF vectorization.
- Trained a Multinomial Naïve Bayes (NB) classifier to classify reviews as positive or negative
- Split data into 80-20% train-test sets for evaluation.
- Achieved high accuracy using probabilistic text classification techniques.
- Tech Stack: Python, Scikit-learn, spaCy, NLP, TF-IDF

NEXT WORD PREDICTOR USING LSTM

- Built an LSTM-based next-word predictor trained on FAQ-style text data.
- Used a word embedding layer to convert text into vector representations.
- Implemented a sequential LSTM model with 150 hidden units to learn contextual relationships.
- Trained the model to predict the next word using a softmax classifier over 283 vocabulary words.
- Built using TensorFlow/Keras, NLP preprocessing, and text tokenization techniques.

Achievements

- Solved **100+ coding problems** across platforms like Leetcode and Codechef.
- Active part of the team which cleared the college phase of Smart India Hackathon (SIH) 2024.