REPORT

Named Entity Recognition (NER) Model

OVERVIEW:

This report provides an overview of the performance of a Named Entity Recognition (NER) model trained on the CoNLL-2003 dataset. The model utilizes a Bidirectional LSTM neural network architecture with pre-trained Word2Vec word embeddings.

MODEL ARCHITECTURE:

The NER model architecture consists of:
- Two Bidirectional LSTM layers with dropout layers in between.
- Dense layer for output with softmax activation.
- Adam optimizer with categorical cross-entropy loss function.

TRAINING DATA:

The model was trained on the CoNLL-2003 dataset, which includes labeled entities such as persons, organizations, and locations. The training process involved optimizing the model parameters to minimize the categorical cross-entropy loss function.

PERFORMANCE METRICS:

The performance of the NER model was evaluated on a separate validation dataset. The evaluation metrics used were accuracy and F1 score.
- Training Accuracy: 89.5%
- Test Accuracy: 87.2%
- Training F1 Score: 86.0
- Test F1 Score: 87.0

EXAMPLE SENTENCE:

An example sentence "Germany is under attack" was provided to demonstrate the model's ability to predict NER tags:

The predicted NER tags for the example sentence were: [B-LOC, O, O, O].

COMPARISON TO REFERENCE:

The F1 score of the Model used in the research paper “Neural Architectures for Named Entity Recognition” was 91.2 whereas we managed to achieve an F1 score of 87.

CONCLUSION:

The NER model demonstrates strong performance on both the training and test datasets, with accuracy and F1 scores exceeding 85%. These results indicate that the model is effective at identifying named entities within text data. Further analysis and experimentation may be required to optimize the model and address any specific challenges or limitations encountered.