

YouTube comments Sentiment Analysis

Video Analyzed - EMERGENCY EPISODE: Ex-Google Officer Finally Speaks Out On The Dangers Of AI! - Mo Gawdat | E252

https://www.youtube.com/watch?v=bk-nQ7HF6k4&ab_channel=TheDiaryOfACEO

7.6M views 6 months ago

30,315 Comments

The Diary Of A CEO

4.22M subscribers

In this video on the dangers of AI understanding viewer sentiments becomes crucial. Deciphering the diverse reactions in comments is challenging, hindering effective community engagement. A sentiment analysis solution is needed to unveil insights, enabling the creator to adapt and address audience concerns for a more impactful channel."



Machine Learning and Deep Learning
Bhavesh Waghela & Siri Srujana Karnala

Data Extraction & Initial Labeling with Vader

- **Set Up API Access**
- **Build YouTube API Request**
- **Extract Relevant Information and save as CSV**
- **Import nltk, Tokenize and Preprocess Text**
- **Initialize VADER Sentiment Analyzer which assigns sentiment scores to text based on a pre-built lexicon**
- **Calculate Sentiment Scores - Compound score.**
- **Categorize Sentiments as 'positive', 'negative', or 'neutral'.**

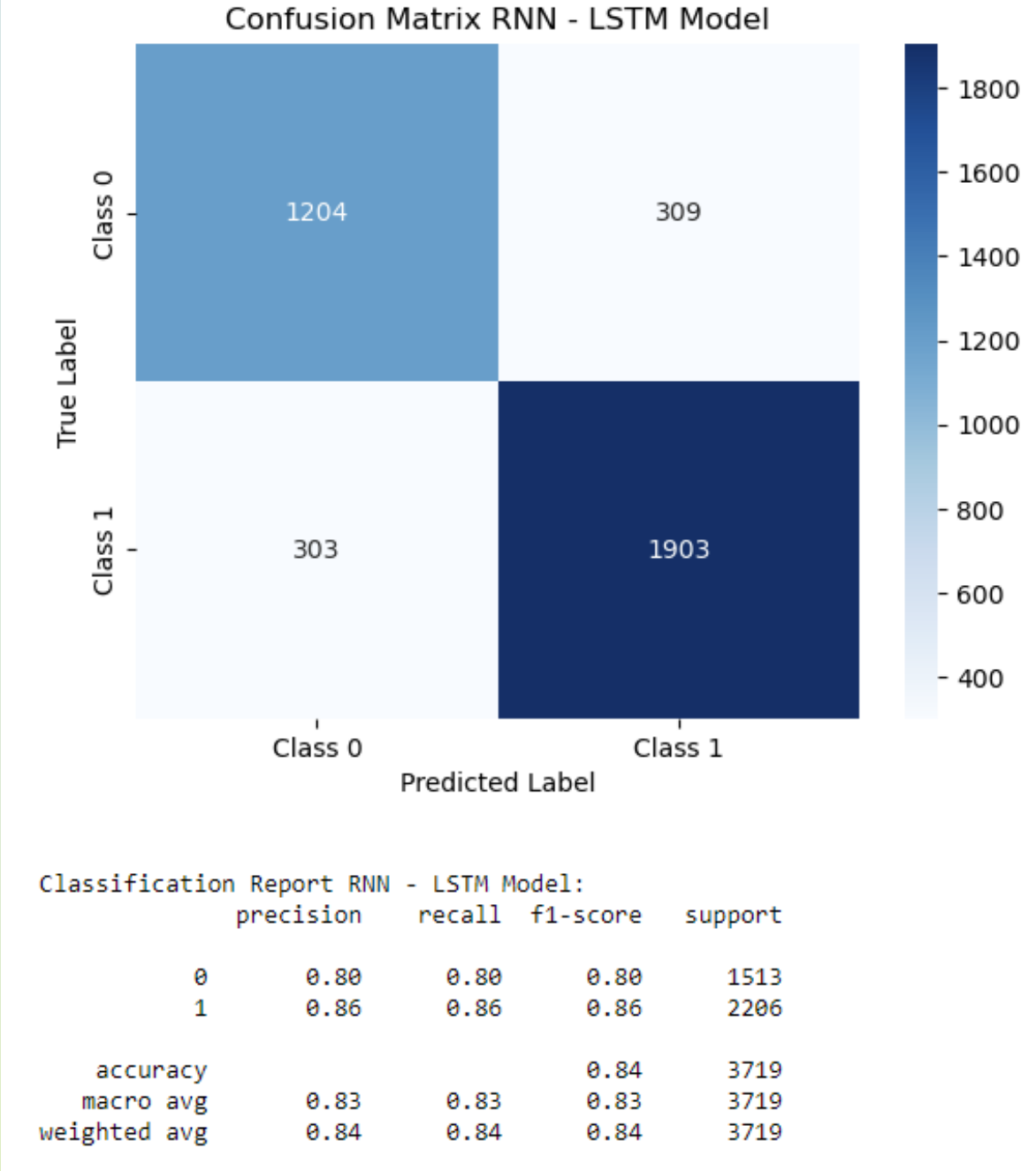
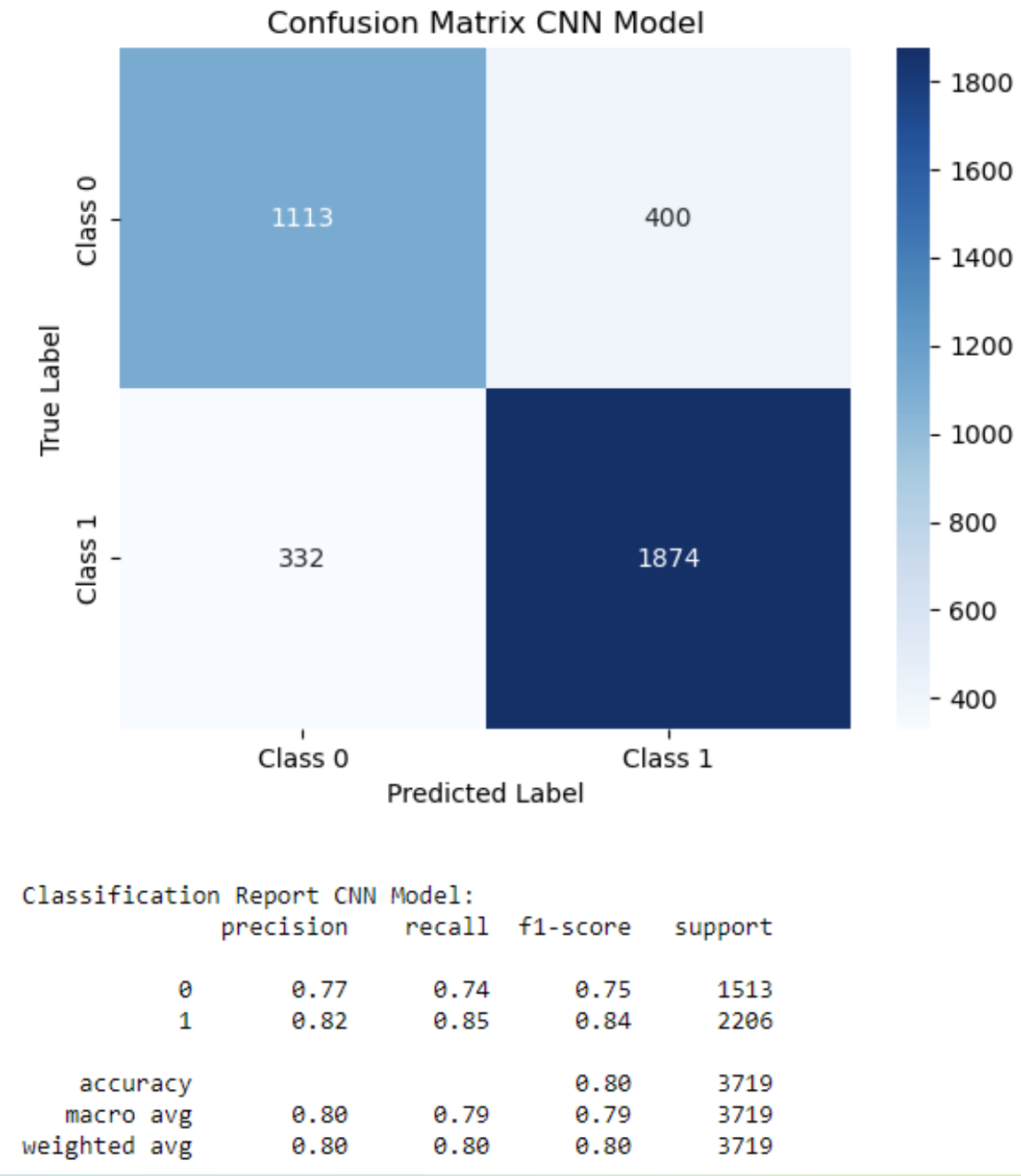
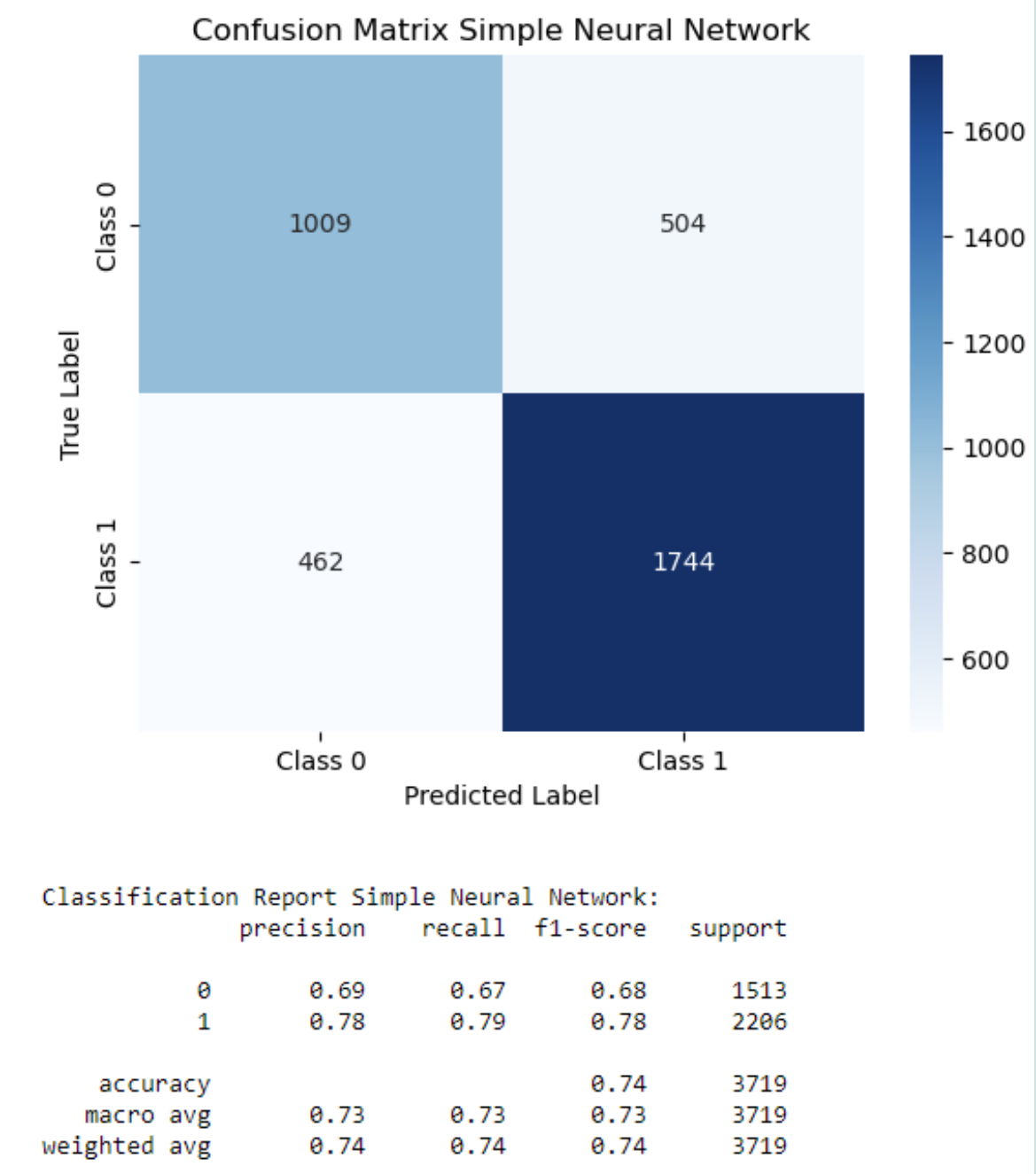


Data Preprocessing & Model Training

- **Extract Comments as features 'X' and sentiments as labels 'y' for model training and testing.**
- **Tokenization and Padding - Processed comments into numerical sequences using the Tokenizer, Pad the sequences to ensure uniform length.**
- **GloVe embeddings**
 - **GloVe embedding is a way to represent words as vectors in a high-dimensional space.**
 - **Each word has a unique vector that captures its meaning based on its context.**
 - **These pre-trained vectors already contain semantic information about words**
- **Build the Neural Network Model**
 - **Simple Neural Network, CNN, and RNN - LSTM.**
- **Compile the Model and Train the Model**
- **Evaluate and Visualize Results - Plot training, validation accuracy, and loss over epochs.**



Model Comparison & Evaluation



Defining a Use Cases & it's Applications

- **Audience Feedback Analysis** - Identify positive feedback to understand what content resonates well, and address negative feedback to improve future content.
- **Content Optimization** - Tailor content strategy, topics, and style based on sentiments expressed in comments for increased engagement.
- **Monitoring Brand Perception** - Identify sentiment trends related to the brand, address issues promptly, and enhance overall brand reputation.
- **Adapting to Viewer Sentiment during Livestreams** - For livestream content, real-time sentiment analysis helps creators adapt to viewer reactions.
- **Measuring Video Impact** - Creators can measure the success of different types of content and adjust their strategy based on emotional responses.
- **This model is applicable for analyzing sentiments in product reviews as well.**

