Department of Computer Science

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Financial KOLs' Opinion Mining based on Pre-trained Language Models

CS6534 Project Proposal

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Introduction

The purpose of this project is to enhance the precision of sentiment analysis in the existing Financial Sentiment Analysis System by adopting advanced models and optimizing the analysis techniques. Specifically, we aim to improve the accuracy of sentiment classification for Key Opinion Leader (KOL) opinions related to stocks. This involves developing more efficient models and fine-tuning strategies to analyze KOLs' opinions and sentiments about various stocks.

This project consists of three main research areas:

1. Optimization models

Experiment with more pre-trained models such as DistilBERT, the T5 model, Mistral-7B and Llama-2-7B/13B. These models have been shown to have high accuracy and efficiency in the financial domain. By exploring their feasibility, we can build better financial sentiment analysis models.

2. Wider use of fine-tuning datasets and training strategies

In order to enhance the performance of our models, we should consider utilizing a diverse range of Fine-tuning datasets and strategies like LoRa (Low-Rank Adaptation) and observe their impacts on the model's performance. Doing so allows us to explore different possibilities and potentially discover more effective solutions. This will aid us in optimizing the accuracy and efficiency of our models, ultimately leading to better outcomes and improved overall performance.

3. Evaluation

Compare the combination of new models and fine-tuning strategies with the existing baseline. Evaluate the advantages and scenarios of the models in terms of performance, efficiency, and adaptability to the task. This will help us to understand which models work best in different situations.

Importance

Incorporating news and social media sentiment analysis into the process of constructing investment strategies can prove to be highly beneficial for investors. By analyzing the KOL's emotions and opinions towards current market trends and events, investors can make informed decisions and potentially gain an edge in the competitive world of finance. By employing suitable language pre-training models and fine-tuning strategies, we can gain a more comprehensive understanding of the economic market through the viewpoints of Key Opinion Leaders (KOLs) from diverse perspectives. This approach can enable us to acquire valuable insights and make well-informed decisions.

Deliverables

1. The codes of the models used.
2. The evaluation indicators and their respective results.
3. The final report.