School of Computer Science and Engineering
California State University San Bernardino

Master's Thesis Presentation

"Stock Index Prediction with Multi-Task Learning and Word Polarity Over Time"

By Yue Zhou

Monday, March 8, 2-3pm, via Zoom (see link below)

Thesis Committee: Drs. Haiyan Qiao, Yan Zhang, and Kerstin Voigt (advisor)

Sentiment-based stock prediction systems aim to explore sentiment or event signals from online corpora and attempt to relate the signals to stock price variations. However, the frequently minor fluctuations of the stock prices restrict learning the sentiment of text from price patterns, and learning market sentiment from text can be biased if the text is irrelevant to the underlying market. In addition, when using discrete word features, the polarity of a certain term can change over time according to different events. To address these issues, we propose a two-stage system that consists of a sentiment extractor to extract the opinion on the market trend and a summarizer that predicts the direction of the index movement of the following week given the opinions of the news over the current week. We adopt BERT with multitask learning which additionally predicts the worthiness of the news and propose a metric called Polarity-Over-Time to extract the word polarity among different event periods. A Weekly-Monday prediction framework and a new dataset, the 10-year Reuters financial news dataset, are also proposed.

Time: Mar 8, 2021 02:00 PM Pacific Time (US and Canada)
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