1. **Methods and Design**

The proposed deep-learning architecture for stock price prediction is shown in Figure below. The historical stock data and the sentiment scores of financial news headlines are combined as a single vector to generate a time series sequence as the input. Two deep-learning models, LSTM and GRU, are then trained in supervised learning settings with the mean absolute error (MAE) chosen as the main loss function

A diagram of a data processing process

Description automatically generated

1. Data Preparations

Historical stock data are scraped from Github and updated regularly .Financial news headlines are scraped from website ([www.sharesansar.com](http://www.sharesansar.com)) using a web crawler.