

Stock Movement Prediction using Technical and Fundamental Data

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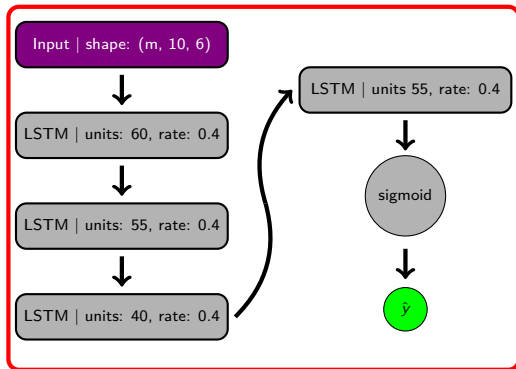
December 2, 2021

Valence Aware Dictionary for Sentiment Reasoning

VADER Score	Article Title
0.8979	"Tesla shares surge 10% as strong deliveries drive profit optimism"
0.6041	"Tesla's profit run not derailed by coronavirus, full-year forecast scrapped"
-0.5358	"Musk sees no immediate boost from 'Battery Day' tech unveil"
-0.8934	"U.S. probing fatal Tesla crash that killed pedestrian"

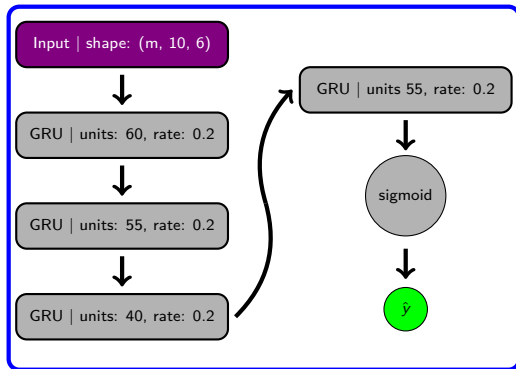
Base Model Architectures: LSTM

LSTM Model



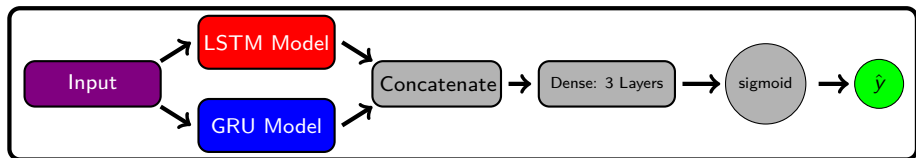
Base Model Architectures: GRU

GRU Model



Blended Ensemble Architecture

BE Model



Blended Ensemble Workflow:

1. Train both the LSTM & GRU models on the training data
2. Predict the validation results using each model and concatenate
3. Train the dense layer on these predictions as input
4. Predict the test set by running it through the entire procedure

Resulting Accuracies

Model	Day 1 Prediction	Day 3 Prediction	Day 5 Prediction
LSTM	36.25%	22.12%	17.85%
GRU	59.35%	52.67%	26.75%
BE	65.12%	—	—

- The largest accuracy found was 67%
- Using fundamental information contributes to this accuracy