

# **LSTM Neural Network Architectures for Advanced Forecasting of Stock Prices Demo**

**CS4099 - Senior Honours Major Software Project**

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# Project Description

## LSTMs for Time Series Forecasting

- Reproduce the results achieved by Qiu et al.\*
- Build variations of this network for comparison.
- Develop a trading algorithm based on the price predictions.
- Magic Window application.

\*<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0227222&type=printable>

# Method

- LSTM textbook.
- Initial models following Qiu et al. architecture.
- Hyperparameters and training protocol are kept constant for experimental validity.
- Record the performance of each model.
- Tkinter app implementation.

# Results

- Effect of wavelet transforms.
- Effect of the attention mechanism.
- Effect of sentiment analysis on trading performance.
- Final application performance.

# Live Demo

- The initial models.
- The sentiment analysis model.
- The trading algorithms.
- The final Tkinter app.