Research Plan Confirmation

Student:

Zhengxin Ye

Title of Research Topic:

Using Machine Learning Models and Techniques to Perform Stock Market Prediction

Name of First Supervisor:

Dr Thomas Heinis

Name of Second Supervisor:

Professor Walter Distaso

Name of the Independent Assessor:

Professor PJ Boughton

Short Abstract of the Research Topic:

This project would entail three development/research stages:

1. Implementation of a software application/platform that perform financial forecasting using statistical learning methods, with a focus on data preprocessing techniques, current feature selection methods and current predictive models;

2. Adapt forecasting models to work with ticking data stream with a particular focus on tackling concept drifts embedded in financial time series data;

3. Design and implementation of an adaptive ensemble model that should possess better predictive power than contemporary methods and an ability to adapt to changing data features

List of Key Literature Papers:

Michael David Rechenthin, *Machine-learning classification techniques for the analysis and prediction of high-frequency stock*, 2014 PhD thesis, University of Iowa

Tristan Fletcher, *Machine Learning for Financial Market Prediction*, 2012 PhD thesis, UCL

Martin Victor Sewell, *Application of Machine Learning to Financial Time Series Analysis*, 2017 PhD thesis, UCL

Justin A. Sirignano, *Deep Learning for Limit Order Books*, November 2018 Quantitative Finance

Signature of First Supervisor: