

A Hybrid Unscented Kalman Filter and Support Vector Machine Model in
Option Price Forecasting

Huang, Shian-Chang; Wu, Tung-Kuang

Abstract

This study develops a hybrid model that combines unscented Kalman filters (UKFs) and support vector machines (SVMs) to implement an online option price predictor. In the hybrid model, the UKF is used to infer latent variables and make a prediction based on the Black-Scholes formula, while the SVM is employed to capture the nonlinear residuals between the actual option prices and the UKF predictions. Taking option data traded in Taiwan Futures Exchange, this study examined the forecasting accuracy of the proposed model, and found that the new hybrid model is superior to pure SVM models or hybrid neural network models in terms of three types of options. This model can also help investors for reducing their risk in online trading.