

BIG DATA & ALGORITHMIC FINANCE



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QUANTUM-ENHANCED VERSUS CLASSICAL SUPPORT VECTOR MACHINE: AN APPLICATION TO STOCK INDEX FORECASTING

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This paper synthesizes the quantum machine learning literature, focusing on quantum Support Vector Machine (SVM). Although its efficiency is recognized theoretically, it has limitations in practice, for instance, it is not mature enough for financial applications. Therefore, empirically, this study provides two experiments in which the quantum-enhanced SVM, using the quantum kernel estimator, is compared with the classical SVM. According to standard performance metrics, the current quantum-enhanced SVM does not show superior performances in forecasting the movement direction of stock market indexes. To the best of my knowledge, this study is a pioneer attempt applying this quantum algorithm in stock market index forecasting which provides insight to financial researchers and practitioners.

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