

## A PROPOSAL OF HYBRID KANSEI-SOM MODEL FOR STOCK MARKET INVESTMENT

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**ABSTRACT.** *The key to successful stock market investment is achieving the best investment returns in real-world stock trading. Currently, many studies have investigated Decision Support System (DSS) techniques, soft computing models and hybrid systems for stock market investments, mostly based on historical data. However, most approaches show incomplete solutions for investors to achieve higher investment returns since many uncertain conditions are not considered concurrently in those studies, such as stock prices, technical indicators, macroeconomics, event news and investor sensibilities for buying/selling stocks. In this paper, we propose a Hybrid Kansei-SOM model, which is a new approach using Kansei evaluation integrated with DSS techniques using group decision making for stock market investment. The proposed approach aims to assist experts with a selection of the most suitable stocks at the right time for trading to achieve the greatest investment returns, dealing with complex situations on stock market dynamics. The proposed approach has also performed well in daily stock trading on the HOSE (Vietnam), NYSE and NASDAQ (US) stock markets. The experiments through case studies show the new approach, applying to Kansei evaluation based on expert's sensibilities about uncertain values together with quantitative and qualitative factors on stock market dynamics to enhance the capability of investment returns. In order to evaluate the effectiveness of this approach, the experimental results show that the proposed approach performs better than other current methods to deal with various stock market conditions.*

**Keywords:** Decision support system, Kansei evaluation, Self-organizing map, Fuzzy analytic hierarchy process, Stock market investment, Hybrid intelligent system

**1. Introduction.** The nature of stock market investment problems requires combining knowledge in the fields of both economy and engineering. Stock market investments focus on developing approaches to successfully forecast/predict stock prices, index values and market trends, aiming at higher profits based on stock trading decisions. Most existing approaches to select superior stocks at the right time for investment are broadly classified by trading activities, such as fundamental and technical approaches [1-3]. Fundamental analysis aims to select potential stocks based on study of the fundamental data of a company such as financial weights, macroeconomics, financial proportions and stock-market news. Contrary to this approach, technical analysis attempts to predict price by analyzing historical data of the correlation between prices and market behavior volumes for trading stocks. In a conventional model of stock market investments, investors/stockbrokers observe the stock market to buy stocks if they tend to gain value, to sell stocks if they tend to lose value or to hold stocks if a current stock price trend is stable. Furthermore, they wish to select potential companies (superior stocks) at the right time for investment. Even