Using Fuzzy Logic in Stock Market Trading

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Abstract

Artificial intelligence has significantly transformed stock markets, offering advanced tools for analysis and decision-making. Among these tools, fuzzy logic stands out for its ability to handle the uncertainty and imprecision inherent in these markets. This study focuses on exploring the application of fuzzy logic in technical analysis, specifically in the use of the Relative Strength Index (RSI), comparing its conventional use with its implementation through fuzzy logic. The results obtained over periods from the year 2000 to 2024, including bearish market phases, demonstrate that fuzzy logic offers significant advantages. It has been proven that strategies based on fuzzy logic not only improve decision-making accuracy but also optimize risk management and maximize returns. These findings suggest that the application of fuzzy logic in technical analysis could represent a powerful tool for enhancing decision-making in financial markets, surpassing conventional approaches such as the traditional use of the RSI.