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METODI DELLA COMPLESSITÀ E ALGORITMI PER IL DECISION MAKING NEL CONTESTO DEL TRADING FINANZIARIO

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Abstract

This work is related to decision support systems research field, specifically to their evolution in Automated Decision Systems for financial computing. This choice is the result of the many environmental variables that the solution must evaluate in order to allow the decision maker to implement its trading strategies.

Furthermore, in order to remove the human component and to automate specific high frequency trading techniques, has been created automated solutions that are able to acquire data from environment, identify and analyze all possible trading strategies based on the system state and finally execute them according to the decision maker constraints.

To this aim has been designed and developed an automated decision-making system based mainly on two trading strategies, one for high-volatility markets and the other one for the directional markets. Specifically, the first trading strategies models the price dynamics, by analyzing speed and acceleration of the financial instrument. The second instead, based on the breakout of the Bollinger Bands, incorporates a self-learning module for the daily optimization of input constraints.

The communication between all components of the solution and the trading platform MetaTrader4 was realized designing and developing an interface library.

In addition, some modules have been designed and integrated in the solution to provide extra services to both the decision maker and to the automated trading strategies. This modules are used by the latter in order to adapt their behavior according to the demands of the trader and / or market conditions. Specifically the work refers to a remote operativity cloning service and an economic calendar used to detect daily financial and macro economics news.

In the final section of this thesis are shown the test methodology of the decision-making system, with results analysis.