Evaluation approach to stock trading system using evolutionary computation

葉怡成,連哲輝,蔡宜真
Information Management
Computer Science and Informatics
icyeh@chu.edu.tw

Abstract

The past researches emphasize merely the avoidance of over-learning at the system level and ignore the problem of over-learning at the model level, which lead to the poor performance of the evolutionary computation based stock trading decision-making system. This study presents a new evaluation approach to focus on evaluating the generalization capability at the model level. An empirical study was provided and the results reveal four important findings. First, the decision-making system generated at the model design stage outperforms the system generated at the model validation stage, which shows over-learning at the model level. Secondly, for the decision-making system generated either at the model design stage or at the model validation stage, the investment performance in the training period is much better than that in the testing period, exhibiting over-learning at the system level. Third, employing moving timeframe approach is unable to improve the investment performance at the model validation stage. Fourth, reducing the evolution generation and input variables are unable to avoid the over-learning at the model level. The major contribution of this study is to clarify the issue of over-learning at the model and the system level. For future research, this study developed a more reliable evaluation approach in examining the generalization capability of evolutionary computation based decision-making system.