

## **ABSTRACT**

Topic: Structural synthesis of fuzzy neural networks for forecasting stock prices.

Explanatory note to the master thesis: 106 p., 20 fig., 9 tabl., 2 appendices, 30 sources.

Object of research – neuro-fuzzy approach to modeling and forecasting financial processes.

Aim of research – research an application of the neo-fuzzy neuron and structural synthesis for modeling and forecasting stock prices and preform a comparison analysis of different models and approaches

These papers contains an overview and analysis of the existing solutions of the formulated problem. The efficient market hypothesis, neo-fuzzy neuron model, GMDH and their learning algorithm are deeply reviewed.

A library for modeling and forecasting time series with neo-fuzzy neuron is created and computational experiments about application of the neo-fuzzy neuron application to multiple financial indexes on multiple time scales are held.

Model's and learning algorithms modifications are proposed and studied in financial indexes forecasting problems, a comparison analysis of researched models and algorithms is performed. Further development possibilities are reviewed.

**FUZZY NEURAL NETWORKS, NEO-FUZZY NEURON, GMDH, STOCK MARKETS, FORECASTING.**