ABSTRACT

The task of construction of hybrid Bayesian networks is researched in this work. Theoretical data concerning the methods of structure construction and estimation of Bayesian networks parameters are considered. Developed software product results are compared with existing commercial product-analogue.

The relevance of this work consist in owing to building models in the form of Bayesian networks can be addressed the uncertainty statistics, parametric and structural nature. Due to the correct presentation in the form of interrelation graphs Bayesian networks solve applied problems very easily.

The main purpose: implementation of hybrid Bayesian networks design approach. Developed software product for designing hybrid Bayesian networks. A comparison of developed software with existing commercial product-analogue.

The object of study: hybrid Bayesian networks.

The subject of study: methods of structure construction and estimation of Bayesian networks parameters, methods of making conclusion.

Methods: probability theory, mathematical statistics, graph theory, Bayesian probability theory, making conclusion and other methods of data mining.

The scientific novelty of the results. Software product for designing and using probabilistic models in form of Bayesian networks. Original models in form of Bayesian networks were built. This models were tested at macroeconomic forecasting processes - the GDP of China and the United States. Highly accurate assessments of forecasts was achieved.