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STRESZCZENIA

THE PROJECT OF TRAINING IN MATHEMATICS BLENDED TEACHING FOR THE ECONOMIC UNIVERSITIES

Summary

The e-learning courses are the future for the Polish economic university education. Therefore, it is important to build effective electronic materials for every subject taught. Mathematics is a difficult subject to study, so the electronic materials for this subject must be prepared taking into account the psychological and didactic elements of this subject.

The main goal of this article has been the presentation of the project on The Training in Mathematics Blended Teaching for the Economic Universities. The paper describes the distance learning courses, the electronic and blended learning courses. It also shows the elements of psychology of learning and didactics of mathematics used in the project.

COMPOSITE FORECASTING MODEL FOR SANITARY CERAMICS ENTERPRISE

Summary

The forecast methodology of sale value of a ceramics company has been presented in the paper. Three sources of information have been used, i.e.: sale in the past, forecasts of marketing department and forecasts based on orders. The relevance of the alternative solutions has been verified by the means of data sample from the selected company for the time period from January 2001 to December 2003. The empirical results seem to confirm the reasonability of inclusion of a new element, namely composite forecasts, into the forecasting system.

A MODEL OF EVALUATING ENTERPRISES BY INCOME METHOD

Summary

The article describes the task of value estimating shares by the income method together with a detailed description of the problems of estimating cash flow, cost of capital and residual value.

In order to consider the way of the benefits from the inexpensively bought shares of the correctly estimated enterprise, we should solve the problem how to estimate the enterprises in order to show these which are undervalued and have the biggest potential to increase on the capital market.

The income method evaluating the enterprise is connected with the sum of incomes or any other forms of the net income of the enterprise obtained by its owners during their activity.

An important element is also the correct estimation of the level of the discount rate. The discount rate should properly reflect the so called the price of the present ex-change income related to the future one.

ANALYSIS OF THE FLUCTUATION IN THE DYNAMICS OF THE PROCESSES FINANCED ON THE BASIS OF THE SPECTRAL DENSITY FUNCTION

Summary

The paper presents an analysis of the revenues from the Stock Exchange. The data covers the period from 2 November 2005 to 30 December 2005. A model was constructed, its stationary character was proved and its forecast was prepared – Janusowy ratio stands at less than 1, which means that the forecast is accurate.

MULTIFRACTIONAL BROWNIAN MOTION AND WEIERSTRASS FUNCTION – COMPARISON OF THE SELECTED PROPERTIES

Summary

In this article we compare the selected properties of Multifractional Brownian Motion and Generalised Weierstrass Function. As it turned out the main fractional properties are the same (for example the local fractional dimension). So, we have concluded that it is possible to replace the Multifractional Brownian Motion by the Generalised Weierstrass Function.

ON THE LINEARISATION AND THE GENERALIZED SOLUTIONS OF THE QUOTIENT OPTIMIZATION PROBLEMS

Summary

In the paper we have proposed the author's generalizations of the selected, classical, theoretical methods to be used to the aid of the treat of the optimal decisions of the economy and management with the use of some ideas of applying the methods of the generalized inverse matrices in the linear optimization.

THE APPLICATIONS OF THE TAKENS THEOREM TO NONLINEAR DYNAMIC SYSTEMS' ANALYSIS

Summary

This paper describes the Takens theorem and its applications to the time series analysis. The Takens theorem allows to prepare a phase space reconstruction on the basis of a single observations series. This paper also describes a measure of degree of determinism in the dynamic systems using a one-dimensional time series. The empirical research conducted on the basis of the real economic data.

DIGITAL SIGNATURES – ELGAMAL SIGNATURE SCHEME

Summary

For the sake of many applications of the Internet, digital signatures become more and more important. It is an additional information attached to the message. A signature provides authenticity of a message – the message may be anything, from a common e-mail to an important contract. One of the most important things connected with such activities as sending messages is safety of these actions. In this case, advanced mathematical and computer tools, such as modern cryptography, are of crucial importance.

The purpose of the article is to present ElGamal signature scheme, the main definitions and theorems and illustrate it with an example. It is an algorithm based on asymmetric cryptography – it uses a pair of cryptographic keys – a public key (which may be distributed) and a private key (which is secret). A message is signed with a sender's private key and is verified by anyone who knows the public key. The ElGamal signature scheme is a digital signature scheme which is based on the difficulty of computing discrete logarithms.

USE OF FUZZY LOGIC IN FINANCE – RISK MANAGEMENT THROUGH PORTFOLIO METHOD

Summary

The article presents the concept of creating a fuzzy investment portfolio. The selection criteria and the methodology of designating the effective portfolio have been formulated.

ROBUSTNESS OF SOME NONPARAMETRIC REGRESSION MODELS

Summary

The main goal of the paper was to show that some nonparametric regression models such as POLYMARS and PPR were resistant to noise and outliers. The analysis was performed on benchmark data sets. The results confirmed the hypothesis of robustness of POLYMARS and PPR.

ON SOME SELECTED PROPERTIES OF SUPPORT VECTOR CLUSTERING

Summary

There are many different methods of unsupervised learning. It is impossible to predict which method is the „best“ in general. Given a specific problem the user can decide which method to apply considering some properties of clustering methods. These properties are known as admissibility conditions. The reasonably new Support Vector Clustering method is analysed in terms of the satisfying admissibility conditions. The results are compared within a group of different clustering methods.

THE METHODS USED IN DISTINGUISHING RANDOM AND DETERMINISTIC SYSTEMS

Summary

In this paper we discuss some recent techniques used in distinguishing between probabilistic and deterministic behavior in stock price: the correlation dimension, Brock's residual theorem, the „shuffle diagnostic“. Our data set has been composed of daily data obtained from GPW in Warsaw.