CONTENTS & ABSTRACTS

Epstein V.L.

The paper discusses the history and paradigm of scientific journal, the crisis of traditional journals and libraries, electronic journals, electronic preprint archives, CD archives, citation of electronic publications, investigations and forecasts. Some conclusions for authors, publishers and scientific libraries are made.

Lebedev V.N., Moskalkov D.V., Orlov V.L.

The problem of data exchange in distributed heterogeneous databases is formulated and its solution algorithm is presented. A three-element order model is proposed and an underlying automaton is designed. An alogorithm that implements the model in relational database management systems is developed and some recommendations for its possible applications are made.

Kuznetsov L.A., Domashnev P.A.

A methodology for developing a model of a complex multi-stage process based on multi-layer neuron network is described. The neuronet model structure for a multi-stage process and an algorithm for its formation are described. The neuronet model learning procedure is considered. The paper shows that the learning process can be reduced to the minimization of a multivariable function. The equations for analytical recalculation of loss function's gradient are derived that allow the application of effective optimization techniques for network learning.

Zhevnerov V.A.

The paper suggests to use the optimization direction choice law when solving an LP problem. The choice law is based on the parameter evolution principle. It is shown that the application of this law eliminates cycling and ensures appreciable problem time reduction as against the simplex-method under equal realization complexity.

Kulba V.V., V.M.Temkin, D.B.Ryvkin

Design concepts, structure and operation technology of industrial environmental safety systems are examined. The paper discusses the problems of applying mathematical modeling of environmental processes in such systems, in particular of pollution transport in the atmosphere. The results presented were applied in the development of environmental monitoring systems for Astrakhan Gas-Chemical Complex, Orenburg Gas Processing Plant and Russia−Turkey gas-main pipeline.

Mokrov D.V., Bakhtadze N.N.

The paper analyzes the prospect of solving the optimization tasks of the logistic cycle in on-line production management with the help of the advanced methods of automatic control theory. The problem of current budgeting in transportation and logistics services is solved as an example.

Nizhegorodtsev R.M.

The paper substantiates the relationship between macroeconomic dynamic and technological priorities of investment and offers a Cobb−Douglas-type production function that contains an information factor as a generalized logistic function of the information involved. A logistic model, which connects final consumption with real income, is offered as a base for a procedure of middle-run forecasting of these values.

Topolya I.V.

The paper discusses the models of corporate objective function developed in the key branches of contemporary economic theory. New models of corporate objective function developed in the context of shareholder value creation theory are advised. Merits and drawbacks of corporate objective function models are described.

Babayan R.R., Morozov V.P.

Basic development stages and state of the art of analog computation are briefly discussed. Drastic narrowing of its application domain results in the reduction of knowledge base in control sciences and to certain narrow-mindedness in specialists education. Against this background, the paper advocates the expedience of wider application of small specialised analog computers both for training purposes and for verifying mobile object control algorithms.