ПРОБЛЕМЫ УПРАВЛЕНИЯ

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СОДЕРЖАНИЕ

CONTENTS & ABSTRACTS

Baranov V.V., Matrosov V.M.

A model of markovian process's transient function is built that describes a controlled aging process. The model can be used in aging systems efficiency and safety control.

Ryvkin S.E.

The sufficient observability condition is formulated and proved for a class of nonlinear dynamic systems linear with respect to the estimated subvector of the full state vector. Nonlinear estimation techniques for state variable components based on slide modes are offered. The method's efficiency is shown by the example of the estimation algorithm synthesis for mechanical variables of a synchronous motor.

Anisimov D.N., Khripkov A.V.

A new method of dynamic objects identification named the Exponential Modulation Method is considered. The paper shows that the method can be easily realized and features high noise immunity. The problems related with the selection of optimal input signal are discussed. The distribution laws of the estimates under the disturbances such as white noise and sine wave with random phase are determined.

Alexeevsky M.V.

An effective method for solving the problem of globalization and integration of separate corporate software into in unified information system is discussed. The method presumes the transition to the three-tier network architecture Client → Provider → Server using the software toolkits of COBRA/KORINF technology.

Alguliev R.M., Alyguliev R.M.

To improve Web pages ranking efficiency, the paper offers 3 modifications of PageRank algorithm. The first one features the measurement of hyperlink independence degree for calculating the hyperlink's weight. The second and third ones considering the thematic affinity of Web pages are the improved versions of algorithms WPR and Topic-Centric respectively.

Zatuliveter Yu.S., Fischenko E.A.

The contemporary problems of building multiprocessor architectures on a chip are examined. The paper suggests to develop the architecture well proven in domestic PS-2000 multiprocessor computing system for the realization on a chip.

Vasiliev I.L., Sidorov D.N.

The problem of automatic detection and categorization of flaws that arises in machine vision system development is discussed. A method of its solution is proposed. At the first stage, an autonomous process of system learning is performed where the learning samples of the analyzed flaw symptoms are split into clusters with medians. At the second stage, the real-time inspection process is performed where each incoming pattern is categorized according to the nearest median type. The paper notes that the comparative analysis against other techniques showed the effectiveness of the method proposed.

Chebotaryov P.Yu., Mit'kin A.N., Shmerling D.S.

A numerical-expert procedure for evaluating the contribution of departmental target programs into the accomplishment of Russian Federation government's goals is offered for developing the list of such programs financed from the national budget.

Nikitin V.V., Mal'tseva S.B., Dorofeyuk A.A., Mandel' A.S., Chernyavsky A.L.

The paper shows that the formation of generic notions describing the area of specialist's professional activities can be reduced to the problem of specific coupling matrix diagonalization. A human-computer solution procedure is offered.

Vinokur V.M., Myl'nikov L.A., Perminova N.V.

A hybrid approach to forecasting innovative projects at different stages of their implementation is discussed. The technique enables both near-term and long-term forecast precision improvement subject to competent management of the innovative project under investigation.

Volik B.G.

The criteria for selecting the preferable variant of control system on the basis of the cost-effectiveness analysis of competing system variants are offered.

Ougolnitsky G.A., Usov A.B.

The paper discusses general approaches to the control of environmental-economic systems. The methods of hierarchical control (compulsion, impetus, and persuasion) are offered that allow the upper level control subject to ensure the fulfillment of system's sustainable development requirements. Application examples for a river water quality control system are adduced, and the comparative analysis of different control methods is included.

Mikheev O.V., Samokhina A.S.

An algorithm for a decision-making support system intended for fast verification of a dangerous epidemic disease is developed. The system can be used for prevention and elimination of the consequences of biological attacks.

Belyakov A.Yu., Puisans S.G., Stolbova I.D., Kharitonov V.A.

Two models of quality management system for specialist training on the level of a separate program using innovative educational technology are considered.

Borisov V.G., Danilova S.K., Chinakal V.O.

The paper discusses the primary ways to improve the safety of movable nautical objects control based on the unified through computer-based technology for control hardware and systems development support, control algorithms debugging using the full mathematical model of object's dynamics and various control algorithms for both normal and abnormal operation.

Yevstigneeva L.V., Tarasov N.N., Takhtamyshev M.G.

The paper presents a filtering and nonmeasurable coordinates evaluation algorithm for synthesizing the control algorithm of movable nautical objects in "no motion" mode. The new algorithm enables significant improvement of control performance.