CONTENTS & ABSTRACTS

AUTOMATED QUEUING AND SERVICE SYSTEMS: A THEMATIC COLLECTION

The paper reviews current state and development trends of computerized queuing systems and speech technologies. Despite scientific advances of speech technologies, computer speech recognition have not yet achieved the level typical for human individuals. The paper shows that at the current recognition level, stable and effective operation of the systems with speech recognition can be attained by means of interface adjustment and dialogue management. The approaches to performance improvement of service systems with speech recognition with the help of algorithmic techniques are discussed.

The problems of development and dissemination of modern electronic applications operating in network environment are discussed. Their structural similarity to automated service systems is shown. The technology of "electronic commerce" in the Internet environment can be considered as the current development stage of automated service systems.

The paper describes Sirena-2.3 computer-based reservation system that replaced the earlier system Sirena-2 working as long as since 1972. The solutions, applied in Sirena-2.3 enabled considerable functionality enhancement, provided a new level of resource management and opened the access to resources through a maximum number of distribution channels.

The paper describes the automated system realizing traffic signals coordination, traffic management in special and extreme situations, video surveillance and video recording, automatic traffic monitoring, traveler information, and traffic management in Lefortovo tunnel complex.

The paper describes Autovokzal-2 (Bus Station-2) system – the enhancement of the 1st Russian bus conveyance sales system. The approaches to system design are expounded, its functional, engineering, and technical features are described. In addition to its direct functions, the system became a framework for building a control loop of all commercial activities of conveyance business participants.

The features of Simscript simulation language are discussed, its development tools and the approaches to queuing systems analysis are described. A simulation model example is included.

The paper discusses work organization of taxi dispatching centre with the help of state-of-the-art technologies such as GPS, speech recognition technology, electronic payment systems, etc.

Modern electronic payment systems currently available from the Russian Internet are reviewed, their functions and services are presented. The application of computerized speech technologies for internet money transfers are described by the example of Telepath service of WebMoney payment system.

The paper presents a mathematical model for calculating the average number of retries in a speech recognition dialogue. Two algorithms of computer behavior and described and compared.

Zhirabok A. N.

A method of Hankel matrix analog design for a nonlinear discrete dynamic system is offered on the basis of the analogs of observability and controllability matrices.

Stukach O. V.

A new definition of signal-parametric invariance of a nonlinear system is offered. The conditions of invariance of system's response parameters to the source signal's amplitude are determined. The connection between classical and parametric invariance is established. The equations for invariance defect evaluation are derived, and the ways to decrease it are considered. A possibility of control system optimization with respect to the signal-parametric invariance criterion is discussed.

Podlazov V. S.

A concept of scalable multiring communications network whose throughput can be directly proportional to the number of network nodes at low ring count is offered.

Gribova V. V., Kleshchev A. S.

A new approach allowing for software systems development requirements and based on the analysis of modern user interface development toolkits is offered. The approach's message is to create the information needed for the design and implementation of a specific user interface based on the ontologies describing each component of the user interface, with the subsequent automatic generation of the interface's executable code based on this high-level specification.

Bunich A. L.

The problems of plant identification during its normal operation and the problem of main control loop synthesis for a control system are discussed. The focus is made on the problem of maximum permissible transient speed in the identifier and the maximum attainable control accuracy in the problem of main control loop synthesis when a priori information about external disturbances is available.

Sokolov S. V., Pogorelov V. A.

A solution to the identification problem for the current structure of a nonlinear multi-structural stochastic process in the course of nonlinear measurements of its state vector is proposed. The feasibility of the practical realization of the approach suggested is analyzed, and a numerical example illustrating its efficiency is adduced.

Kasimov A. M., Mamedli E. M., Chernyavsky L. T., et al.

A possibility of utilizing information flows inherent in the combined control system for solving the problem of aircraft control accuracy improvement and continuity provision under external perturbations is discussed.

Sannikova I. N.

Personnel training process is examined as a beginning of the realization of any organization's strategy. The process cannot be discrete because strategic directives in the modern world are a subject to permanent updating. The paper analyzes the elements of a learning organization, concludes about the insufficiency of the traditional approach to the monitoring of learning processes, and offers a new concept of organizational changes monitoring.

Krupornitskaya I. A.

The paper discusses the export gas deliveries market and the possibility of gas industry management improvement under the conditions of foreign-economic activities liberalization.

Karibsky A. V., Mishutin D. Yu., Shishorin Yu.R.

The essence of finance and economic simulation modeling for the budget planning of integrated companies are discussed as well as the basic concepts of budgeting simulation models development for various aggregation levels (head office, subsidiary, the whole company). The algorithms of raw data acquisition and conversion are described.