A. Baublys. Statistical Probability Models for Vehicle Fleet Management, *TRANSPORT and TELECOMMUNICATION*, vol. 3, No 3, 2002, pp. 4–22.

Some algorithms to forecast damaged vehicle repair time, time losses for lack of drivers, and various accidental hindrances during goods handling were proposed using methods of mathematical statistics and probability theory. The paper presents: 1) Processing results of the flow of vehicles coming out of order; 2) Evaluation of the statistical characteristics of vehicles coming out of order; 3) The stochastic model for the estimation of average number of vehicle repair per time period; 4) The stochastic model for determination of desirable vehicle productivity; 5) The stochastic model for short-term estimating of vehicle operation time losses; 6) The algorithm for a vehicle repair time forecasting.

Samples for checking the reliability of the proposed algorithms are presented.

Keywords: vehicle, fleet, model, probability

V. Rastrigin. Model of the Influence of Surface Factors on Road Network Traffic Conditions, *TRANSPORT and TELECOMMUNICATION*, vol. 3, No 3, 2002, pp. 23–42.

A model of the influence of surface factors to network traffic conditions is considered. Road surface quality is assumed to be weather dependent, and may change quickly for the worse as a result of snowfall, for example. In turn, road service cleaning activity may change these results to the better. Changing surface factors may cause redistribution of the flows on the links to some new equilibrium. In general, total travel time over the network will increase. This is a measure of disutility. The corresponding loss function should be minimized by optimal road service cleaning activity. The optimization problem is formulated and some approaches to decision-making are suggested. Traffic safety condition is taken into account as additional restriction for optimization process. Particular problems include the number of cleaning teams required, allocation of the links and identification of the best sequence of the links for cleaning.

Keywords: network, road, surface, traffic

H. Afanasyeva. Fuzzy Learning Classifier Systems for Classification Task, *TRANSPORT and TELECOMMUNICATION*, vol. 3, No 3, 2002, pp. 43–51.

The Fuzzy Learning Classifier System (FLCS) is a crossover between Learning Classifier System (LCS) and Fuzzy Logic controllers. The LFCS allows for variables to take continuous values basing on data interpretation implemented by fuzzy sets. We investigate some modifications of FLCS architecture and algorithms applied to classification problem.

Keywords: fuzzy logic, production system, genetic algorithms, reinforcement learning, classification task

A. Berezhnoy, P. Danilov. Content Squid Proxy Server Productivity Research, *TRANSPORT and TELECOMMUNICATION*, vol. 3, No 3, 2002, pp. 52–55.

The dynamics of web caching technology implementation for the conditions of Internet service provider activity is observed. Basically, two main rates characterizing the variation of resource usage and its effectiveness – request hits ratio and bytes hits ratios are proceeded. Another aspect deals with defining and introducing of formal dependencies and the further

analysis of its functional connection with influencing factors. The scope is performed on the basis of real statistics for the case of explicit caching model. Alongside the change of users number and their activity is presented tracing the possible growth trend for the near time period.

Keywords: server, productivity, research

A. Vasilyev. Autonomous Agent Control Using Connectionist XCS Classifier System, *TRANSPORT and TELECOMMUNICATION*, vol. 3, No 3, 2002, pp. 56–63.

In this paper a new connectionist classifier system – CXCS is proposed, which uses a layer of competitive artificial neurons for decision-making. New algorithms of the CXCS learning in multi-step problems are developed, where the correct result becomes known only at a certain system's step. CXCS is employed to control an autonomous agent in discrete environments.

Keywords: adaptive behaviour, classifier systems, competitive neural networks