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学术报告

Stochastic Game of Data Transmission in the Presence of Buffers of Finite Capacities

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Abstract: The game-theoretic model of data transmission in a network of a given topology is presented. Two players (network nodes) tend to send as many random data packages as possible to the final nodes through one common node. Each player has a finite capacity buffer for storing data packages. A system of costs for sending and storing data packages and rewards for the successful package delivery is introduced. A dynamic conflict-controlled process is modeled as a stochastic game with a finite set of states. Existence of the Nash equilibrium and a cooperative solution is proved. The cooperative solution is a strategy profile which maximizes the total expected payoff. The price of anarchy in the network is calculated. The price compares the players' payoffs in the Nash equilibrium and cooperative solution.

Biography: Elena Parilina is the PH.D., Associate Professor of Faculty of Applied Mathematics and Control Processes, Department of Mathematical Game Theory and Statistical Decisions, Saint Petersburg State University, Russia. Parilina's research focuses on Cooperative games and applications, stochastic games and applications, statistical data analysis, modeling of social and economic systems.

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