Doctoral School of Information and Biomedical Technologies of the Polish Academy of Sciences

Subject:

Analysis and optimization of the functioning of network-modeled technical and organizational systems

Supervisor, contact, place of research:

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Project Description:

The subject matter of the thesis will cover one of a variety of issues comprising the development and analysis of different types of network modeled systems, such as technical, industrial, institutional, business, social, etc. The basis for such analysis is a general network model as a collection of nodes interconnected by definite relations, between which flows of certain resources may take place. A network can be characterized by constant or varying parameters and structure. The aim of the analysis is the optimization of the modeled system's operation by means of appropriate selection and/or adjustment of input and internal parameters, and the organization of structural links of the constructed model. The parameters' values can be specified imprecisely or as random magnitudes. The aim of the optimization is the assumed objective functional, expressed, for example, by the overall cost incurred during the system operation, which we want to minimize, or by the revenue earned by the system, which, in turn, we want to maximize. Let us note that both the cost and the revenue need not be monetary.

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