



metadata and ontology application for raising the quality of pertinent information resources retrieval. Main aspects of ontology formation are discussed and the outcome fragment is presented.

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Using Fuzzy Interacting Observers for Fault Diagnosis in Systems with Parametric Uncertainty

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Within a fuzzy approach, a method for dynamic systems diagnosis is proposed based on the use of bank of interacting state observers. It is also analyzed whether interval observers can be applied for the diagnosis as well. Synthesis procedures for which both Hurwitz and Metzler conditions are satisfied and considered for them.

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Network-Centric Supervisory Control System for Mobile Robotic Groups

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The paper analyzes network-centric control methods for mobile robotic groups. We consider the task of controlling a group of mobile robots, performing reconnaissance for space and terrestrial applications. In the paper each robot is a

cyber-physical object consisting of mechatronic part and computer module, which analyzes data from sensors and generates commands. The use of network-centric approach allows separating these two parts, transferring resource-intensive computing tasks in a high-performance hybrid cloud environment. A cloud environment as a single point for processing of all sensory data allows us to use the advantages of centralized control method and to manage the resources of mobile robots more effectively. In this case, each robot keeps the autonomy if there is no communication with the control center. So a key element of such control systems is reliable communication links. In our work we use redundancy and duplication of various communication.

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Automatic Control System for Power Grid Voltage Stabilization

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Significant growth of power plants unit capacity, large extent of power grids, presence of weak interconnections and uneven load schedule increase are the development features of power industry that necessitate an improvement of energy facilities automatic control systems (ACS). Operating experience of electric power facilities microprocessor automatic control systems showed their advantages in comparison with the devices made from discrete components, for both service functions and reliability. A microprocessor control system in a combination with a static VAR compensator has been designed to regulate and stabilize voltage in an electric power system at a predetermined level. The ACS usage also leads to reduction of power losses in the stabilized electric power system and an improvement in electrical load operations.