

Expert system for supervision of real time control processes

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This paper appears in: **Systems, Man, and Cybernetics, 1997. Computational Cybernetics and Simulation., 1997 IEEE International Conference on**

On page(s): 1966 - 1971 vol.2

12-15 Oct. 1997

1997

Volume: 2

ISBN: 0-7803-4053-1

IEEE Catalog Number: 97CH36088-5

Number of Pages: 5 vol. 4535

References Cited: 16

INSPEC Accession Number: 5761082

Abstract:

The general task of an **expert system** for real time **monitoring** and supervision consists of evaluating the quality of the current situation of a dynamic **system** and acting consequently, or proposing an action upon the **system** to an operator, so that its future behaviour leads to an acceptable situation. The particular functions of such an **expert system** are reduced to the **monitoring** and supervision processes. While some software packages allow the **monitoring** function to be made practical, real time supervision of dynamic **systems** arises as an attempt to aid the human operator in developing its functions, constituting the main way to guarantee the quality of the **system** response. Guaranteeing the constraints about the response time of the **expert system** demands adequate information in an optimal state of processing about the functions of the control **system**. A generic **expert system** model to implement the **monitoring** and supervision functions based on inductive learning techniques, together with a data structure to store information from the **expert** and the control **systems**, called evolutionary database for supervision, are presented.

Index Terms:

process control; **expert systems**; intelligent control; computerised **monitoring**; real-time **systems**; deductive databases; knowledge acquisition; real time control; **monitoring**; supervisory control; **expert system**; dynamic **system**; **system** response; inductive learning; data structure; evolutionary database; process control; knowledge acquisition