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Process for diagnostic reasoning integrating uncertain and temporal information. (English)

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Summary: A technique appropriate for performing diagnostic reasoning in models which contain both imprecise temporal information and uncertainty is described. Temporal delays along different causal paths can be modelled, including reasoning based on temporal precedence. Nominal-behaviour models and fault-mode models can be used. The single-fault assumption is not made, though it can be included as a degenerate case. A cost function is used to control the generation of explanations for observed events. The algorithm is incremental, with the cheapest explanations found first, when constraints on the cost function are satisfied.

MSC:

90B25 Reliability, availability, maintenance, inspection in operations research

Keywords:

diagnostic reasoning; imprecise temporal information; uncertainty

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