Web-Based Learning and Fault Diagnostic System

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ABSTRACT

This paper presents a novel knowledge-based multi-agent system for remote fault diagnosis, which is composed of learning and diagnostic agents (LDAs), machine agents (MAs) and a central management agent (CMA). Machines are remotely diagnosed by the LDAs through the communication channels between the MAs and the LDAs. When faults that cannot be solved with the present knowledge base occur, the DLA can acquire new knowledge, translate it into rules using a rule builder, and update the rules into the CKB. The CKB will become mature through a continuous learning process. A prototype system has been developed and used for remote fault diagnostics of tool wear in computer numerically controlled (CNC) machining.

Keywords: Expert systems; Fault diagnosis; Knowledge acquisition; Multi-agent systems