Fault Diagnosis of Manufacturing Systems Using AntTreeStoch with Parameter Optimization by ACO

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Abstract : In this paper, we present three diagnostic modules for complex and dynamic systems. These modules are based on three ant colony algorithms, which are AntTreeStoch, Lumer & Faieta and Binary ant colony. We chose these algorithms for their simplicity and their wide application range. However, we cannot use these algorithms in their basement forms as they have several limitations. To use these algorithms in a diagnostic system, we have proposed three variants. We have tested these algorithms on datasets issued from two industrial systems, which are clinkering system and pasteurization system.