

DISSERTATION ABSTRACT

DISSERTATION TITLE: PREDICTION OF INDUSTRIAL EQUIPMENT FAILURES BASED ON VIBRODIAGNOSTIC ANALYSIS USING ARTIFICIAL INTELLIGENCE

The dissertation presents a description of industrial implementations, the use of commercially available cloud tools and the proprietary application of artificial intelligence algorithms to failure prediction of industrial equipment taking into account process and vibrodiagnostics data. The contribution to the implementations was fully comprehensive. It included the acquisition of client, for whom the implementation was carried out, implementation of the algorithms and a set of programs included in the failure prediction system, consultation and presentation of the results to the client. A comparison was made between the tools used to synthesize a mature system of failure prediction both in cloud computing infrastructure and seated in the client's infrastructure. Cases of implementations where Internet access was full, limited, or nonexistent are described. A description of the problems and limitations resulting from the use of specific technologies in different hardware configurations is carried out. The proprietary algorithm for classification and prediction of failure of industrial equipment was presented based on vibrodiagnostic analysis using artificial intelligence. In addition, the algorithm enables the presentation of results in a clear and understandable way for the customer at whom the failure prediction system is implemented. Algorithm developed within the dissertation is the greatest added value, from a research perspective, that is included in the dissertation.