

## Predicting Machine-Down of Woodworking Industrial Machines

**Authors :** Matteo Calabrese, Martin Cimmino, Dimos Kapetis, Martina Manfrin, Donato Concilio, Giuseppe Toscano, Giovanni Ciandrini, Giancarlo Paccapeli, Gianluca Giarratana, Marco Siciliano, Andrea Forlani, Alberto Carrotta

**Abstract :** In this paper we describe a machine learning methodology for Predictive Maintenance (PdM) applied on woodworking industrial machines. PdM is a prominent strategy consisting of all the operational techniques and actions required to ensure machine availability and to prevent a machine-down failure. One of the challenges with PdM approach is to design and develop of an embedded smart system to enable the health status of the machine. The proposed approach allows screening simultaneously multiple connected machines, thus providing real-time monitoring that can be adopted with maintenance management. This is achieved by applying temporal feature engineering techniques and training an ensemble of classification algorithms to predict Remaining Useful Lifetime of woodworking machines. The effectiveness of the methodology is demonstrated by testing an independent sample of additional woodworking machines without presenting machine down event.

**Keywords :** predictive maintenance, machine learning, connected machines, artificial intelligence

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