

## Generation of fully automated machine learning algorithms (*Insight Generator, IG*)

CSIC and Technical University of Madrid have developed a method for optimizing the performance of a manufacturing shop floor through the generation of automatic machine learning algorithms for the generation of useful information and smart recommendations that allow improving the performance of the production processes of a manufacturing shop floor.

Small and medium-sized companies in the industrial sector interested in the Patent Licensing for the application of the invention in a manufacturing shop floor that allow a substantial improvement in the performance of the shop floor.

### *An offer for Patent Licensing*

#### Optimizing the performance of a manufacturing shop floor through machine learning algorithms

Still, there are many difficulties in implementing and using intelligent systems for data mining in small and medium-sized companies. Furthermore, the methods for developing a machine learning solution are mostly done manually, which creates a high reliance on experts in the field and long-running development processes.

In this invention, an end-to-end automated machine learning method is presented, focused on production processes of a manufacturing shop floor. It includes the stages of selection of representative variables, automatic modeling using artificial intelligence, hyperparameter optimization of the models and automatic model selection. Next, an evolutionary algorithm is used to carry out an optimization process that allows determining parameterizations that improve the performance of the manufacturing shop floor.



IG configuration and application scheme in a manufacturing shop floor.

#### Main innovations and advantages

- Information on the most important variables in relation to performance indices (production, rejection, quality/time, etc.)
- Smart recommendations on the value of the necessary parameters and variables.
- Improve the efficiency of processes in manufacturing companies, taking advantage of historical data already collected and stored.
- Achieve productivity and efficiency objectives through useful information on the parameterization of the process and the machines.
- Determine the most relevant characteristics to model productivity and the occurrence of product failures and generate optimal settings.

#### Patent Status

Priority patent application filed suitable for international extension

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