

# Resumen de Tesis Doctoral



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Título de la tesis	Contributions to industrial process condition forecasting applied to copper rod manufacturing process
Unidad estructural	Departament Enginyeria Electrònica
Programa	Doctorat en Enginyeria ELectrònica
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(Mínimo 1 y máximo 4, podéis verlos en <http://doctorat.upc.edu/gestion-academica/carpeta-impresos/tesis-matricula-y-deposito/codigos-unesco>)

## Resumen de la tesis de 4000 caracteres máximo (si se superan los 4000 se cortará automáticamente)

Ensuring reliability and robustness of operation is one of the main concerns in industrial manufacturing processes, due to the ever-increasing demand for improvements over the cost and quality of the processes outcome. In this regard, a deviation from the nominal operating behaviours implies a divergence from the optimal condition specification, and a misalignment from the nominal product quality, causing a critical loss of potential earnings. Indeed, since a decade ago, the industrial sector has been carried out a significant effort towards process condition monitoring approaches, that is to extract knowledge regarding the condition of the different machines and process involved in the manufacturing processes.

However, information about the future condition of an industrial process represents a significant tool in order to gain response time against undesired deviations of the process condition. Thus, the combination of the future knowledge of the process status and the consequent assessment of the future condition, is a required objective towards the next generation of industrial monitoring strategies.

In this regard, the proposed thesis consists on the investigation of a novel industrial process condition forecasting methodology able to assess the current and the future condition of an industrial process with high accuracy and generalization capabilities. This is faced by the modelling and the forecasting of the target signals representative of the global behaviour of the industrial process. For then, fuse the future behaviours of the target signals to provide information regarding the future condition of the whole industrial process. The suitability and the performances of the proposed methodologies have been validated by means of experimental data of a real industrial process, a copper rod manufacturing process.

Lugar	Terrassa	Fecha	11/05/2017
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Firma

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