



# A New Approach for Fault Diagnosis of Industrial Processes During Transitions

Danyer L. Acevedo Galán  
Marcos Quiñones Grueiro  
Alberto Prieto Moreno  
Orestes Llanes Santiago

Departamento de Automática y Computación.  
Universidad Tecnológica de la Habana, Havana, Cuba. marcosqg@automatica.cujae.edu.cu

## Abstract

*This paper presents a new approach for fault diagnosis of industrial processes during transitions. The proposed diagnosis strategy is based on the combination of the nearest-neighbor classification rule and the multi-variate Dynamic Time Warping time series similarity measure. The proposal is compared with four different classification methods: Bayes Classifier, Multi-Layer Perceptron Neural Network, Support Vector Machines and Long Short-Term Memory Network which have high performance in the specialized scientific bibliography. The continuous stirred tank heater benchmark is used under scenarios of faults occurring at different moments of a transition and scarce fault data. The proposed approach achieves a classification performance approximately 20% superior compared to the best results of the four instance-based classifiers.*

**Keywords:** *Fault diagnosis, Transition process, Dynamic time warping*

Disponible en <https://www.springer.com/gp/book/9783030011314>



Este contenido se publica bajo licencia CC-BY 4.0

