Coupling Case-Based Reasoning (CBR) and Machine Learning for Manufacturing Time Estimation

Mostafa Hajj-Chehade*[1] and Abdourahim Sylla*[2]

[1]UNIV. GRENOBLE ALPES, CNRS, GRENOBLE INP, G-SCOP – Univ. Grenoble Alpes, CNRS, Grenoble INP, F38000 Grenoble, France – France

[2]UNIV. GRENOBLE ALPES, CNRS, GRENOBLE INP, G-SCOP – Univ. Grenoble Alpes, CNRS, Grenoble INP, F38000 Grenoble, France – 46 Av. Félix Viallet, 38000 Grenoble, France, France

Résumé

In today's competitive market, customers are demanding more customised products that go out of the suppliers standard offers. In such Engineer-To-Order (ETO) industrial situations, in order to remain competitive, suppliers compete for many business opportunities. However, in order to transmit their offers to customers, they must estimate the price and the delivery time before the manufacturing of the products. Many companies use manufacturing time as key parameter to determine their offers' price and delivery time. Therefore, this article proposes the coupling of Case-Based Reasoning (CBR) and Machine Learning (ML) for manufacturing time estimation. The experiments carried out using an industrial case study from a French metallurgy industry showed that the proposed approach can provide better results than a pure CBR approach or a pure machine learning technique.

*Intervenant