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A knowledge-based measure of product complexity

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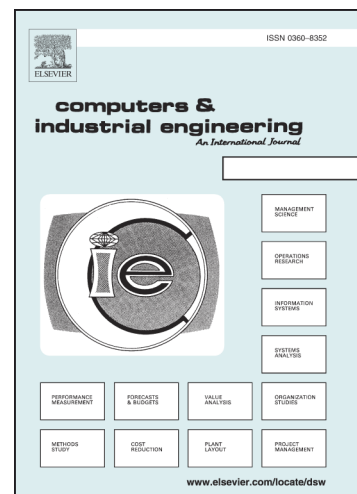
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A knowledge-based measure of product complexity

Abstract: This paper introduces a measure of product complexity from a knowledge perspective. A product is considered to be the result of integrating functions; so, the measure considers the complexity of individual functions as well as integration tasks. Disciplinary knowledge required in product design is classified and quantified. The complexity of each individual function is a measure of the intensity of knowledge requirements. The complexity of integrating two functions is a measure of the product of knowledge difference and interdependency. The application of the new method for the estimation of design effort and project duration is illustrated with an example of a hydroelectric generator.

Keywords: measure; product design; complexity

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