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Softcomputing Identification Techniques of Asynchronous Machine Parameters: Evolutionary Strategy and Chemotaxis Algorithm

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Abstract: Softcomputing techniques are receiving attention as optimisation techniques for many industrial applications. Although these techniques eliminate the need for derivatives computation, they require much work to adjust their parameters at the stage of research and development. Issues such as speed, stability, and parameters convergence remain much to be investigated. This paper discusses the application of the method of reference model to determine parameters of asynchronous machines using two optimisation techniques. Softcomputing techniques used in this paper are evolutionary strategy and the chemotaxis algorithm. Identification results using the two techniques are presented and compared with respect to the conventional simplex technique of Nelder and Mead. Discussion about the chemotaxis algorithm as the most promising optimisation technique is presented, giving its advantages and disadvantages.

Key Words: Asynchronous machine, Identification, Optimization, Softcomputing techniques, Evolutionary strategy, Chemotaxis algorithm.

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