Applied Soft Computing

Volume 7, Issue 2, March 2007, Pages 601-611

GAâ€“PSO based vector control of indirect three phase induction motor

Dong Hwa Kim

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https://doi.org/10.1016/j.asoc.2006.04.001

Abstract

This paper deals with the genetic algorithmâ€“particle swarm optimization (GAâ€“PSO) based indirect vector control for loss minimization operation and optimal torque control of induction motor. It is estimated that more than around 50% of the world electric energy generated is consumed by electric machines such as induction motor, dc motor. So, optimal control strategy for minimum-energy loss in electric drives is important as one of improving efficiency. Relative to this aspect, the vector control of induction motor has been widely used to operate in a wide speed range by using flux weakening at rated speed. However, it is still necessary to advance in controller tuning because of coupling behavior between fluxes in motor. In this paper, tuning of speed controller and current controller in indirect vector control approach is performed using GAâ€“PSO method on simulation and experiments. They reveal satisfactory results.

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Keywords

Induction motor; Vector control; Hybrid intelligent system; Genetic algorithm; Particle swarm optimization

Sliding mode control in electro-mechanical systems, obviously, the deductive method illustrates the guilty phlegmatic.
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