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Artificial Intelligent Based Damping Controller Optimization for the Multi-Machine Power System: A Review (Article)

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Abstract

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Power system oscillation is a major threat to the stability of an interconnected power system. The safe operation of a modern power system is largely related to the success of oscillation damping. However, damping controller development is a constraint-based multimodal optimization problem, which is relatively difficult to resolve utilizing conventional optimization algorithms. This paper presents a critical examination of different damping schemes and a stability analysis of a damping controller to solve these existing problems and enhance the performance of a multi-machine power system. This paper also describes different approaches used to derive the objective function formulation. Consequently, a comprehensive review of the optimized objective functions and techniques is explained on the basis of their topologies, types, execution times, control difficulties, efficiencies, advantages, and disadvantages to develop intelligent damping controllers

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