

Hybridizing Rule-Based Power System Stabilizers With Geneticalgorithms

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Summary

A hybrid genetic rule-based power system stabilizer (GRBPSS) is presented in this paper. The proposed approach uses genetic algorithms (GA) to search for optimal settings of rule-based power system stabilizer (RBPSS) parameters. Incorporation of GA in RBPSSs design will add an intelligent dimension to these stabilizers and significantly reduce the time consumed in the design process. It is shown in this paper that the performance of RBPSS can be improved significantly by incorporating a genetic-based learning mechanism. The performance of the proposed GRBPSS under different disturbances and loading conditions is investigated for a single machine infinite bus system and two multimachine power systems. The results show the superiority of the proposed GRBPSS as compared to both conventional lead-lag PSS (CPSS) and classical RBPSS. The capability of the proposed GRBPSS to damp out the local as well as the interarea modes of oscillations is also demonstrated

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