A Genetic-Based Fuzzy Logic Power System Stabilizer Formultimachine Power Systems

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Summary

This paper presents a novel approach to combine genetic algorithms (GA) with fuzzy logic systems to design a genetic-based fuzzy logic power system stabilizer (GFLPSS) for multimachine power systems. Incorporation of GA in fuzzy logic power system stabilizers (FLPSSs) design will significantly reduce the time consumed in the design process of FLPSSs. It is shown in this paper that the performance of FLPSS can be improved significantly by incorporating a genetic-based learning mechanism. The performance of the proposed GFLPSS under different disturbances is investigated. The results show the superiority of the proposed GFLPSS as compared to the classical PSS and its capability to enhance system damping to local as well as interarea modes of oscillations. The capability of the proposed GFLPSS to work cooperatively with the existing classical PSSs is also demonstrated