

A REVIEW OF FAULT DETECTION AND DIAGNOSIS IN POWER SYSTEMS: ARTIFICIAL INTELLIGENCE-BASED METHODS

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Abstract

Fault detection and diagnosis is an important problem in power engineering. It is the central component of abnormal event management (AEM), which has attracted a lot of attention recently. Early detection and diagnosis of faults while the plant is still operating in a controllable region can help avoid abnormal event progression and reduce productivity loss. The paper focuses on the problem of fault detection and diagnosis in power systems using artificial intelligence techniques. It presents an overview on the progress of research and industrial development to provide background information on the present status of fault diagnosis methods using artificial neural networks, fuzzy logic, expert systems, and genetic algorithm. Emphasis is placed on introducing the AI techniques as applied to a specific problem, followed by a description of the methodologies adopted. This paper describes the usefulness of artificial intelligence techniques to fault detection, faulty phase(s) identification, and faulty section estimation and fault location determination and much more. The current research work being undertaken by various authors in the area of intelligent fault identification and diagnosis is also highlighted.

Keywords: Fault Diagnosis, Fault Detection, Artificial Intelligence, Power Systems.