# Artificial Intelligence Techniques for the Optimization of Electric Power Distribution Systems

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**Abstract:**

Artificial Intelligence Techniques for the Optimization of Electric Power Distribution Systems is a project funded by *Fundação para a Ciência e Tecnologia* (FCT) and *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES) that considers the theoretical analysis and computational implementation of artificial intelligence techniques applied to the optimization of electrical distribution systems' operation and planning. The project includes the development and adaptation of metaheuristic techniques, namely particle swarm optimization, evolutionary techniques and dispersed searching. Metaheuristic models are complemented by learning methodologies, which enable the automatic identification of the most appropriate parameterization to be applied by analyzing the execution history, taking into account the characteristics of the problem and restrictions related to the execution time. Optimization methods are also endowed with runtime adaptation capabilities so that they can automatically direct the search process through learning outcomes. In this way, the project aims at achieving adaptable and efficient models to boost optimization models' performance, especially when applied to large and highly complex problems in the power and energy domain.

**Related References:**

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