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*Editorial*

# Computational Intelligence Application in Electrical Engineering

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Nowadays, scientists and practitioners in the field of electrical engineering observe the increasing application of information technology, computers, and computing techniques. Modern concepts such as smart power grids and smart industries require a multidisciplinary approach and a close connection and synergistic application of IT and computer hardware and software in all areas of electrical engineering. In addition, the application of advanced computational tools is essential for the simulation and modeling of complex electrical systems and devices. The application of computational tools based on numerical mathematical methods has enabled practical calculations in the field of electromagnetic field theory with more realistic models of the devices.

The Special Issue "Computational Intelligence Application in Electrical Engineering" aims to promote the techniques and procedures of computational intelligence for modeling, optimization, simulation, and computation in various fields of electrical engineering. Thanks to the authors' interest in this Special Issue, seven research and review articles were published out of the ten submitted papers.

In the review article [1], the authors provide an overview of the application of computational intelligence methods in power engineering, in particular, the application of computational intelligence in the field of power grids. The article addresses various goals of applying computational intelligence in the area of smart power grids, such as optimal scheduling of distributed generation and optimization of smart power grid management. The remaining published articles are original research papers.

The authors of [2] have proposed a co-simulation approach to solve the very complex optimization problem of optimal allocation of distributed generation assets and power control of controllable distributed generation assets. The optimization problem is of black-box type, and an artificial neural network is proposed for the distribution of the output power of the distributed generation units.

Paper [3] presents the application of a metaheuristic optimization method for optimal coordination of directional overcurrent relays and distance relays in the second zone. The authors developed a modified school-based optimization method as an improvement to the basic version of this optimizer.

In [4], the uncertainty in the scheduling of electricity distribution generation is presented considering the electricity market. The modeling and impact of different uncertainties (in the intensity of primary energy sources as well as in the energy price) at the intraday market level was developed and proposed here.

The improved method for power flow calculations in power systems was developed in [5]. The proposed method uses the Newton- S-Iteration Process and shows advantages over classical power flow methods especially for ill-conditioned systems.

The authors of [6] have developed a procedure for the analysis and optimization of a synchronous motor with line start and asymmetric permanent magnet arrangement in

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the rotor. The method includes a finite element analysis of the motor using a simulation program. The optimization method is based on a parametric analysis of the steady state and transients of the motor.

The last published article (in chronological order) [7] in the Special Issue deals with the optimal control of induction motors. In the article, the application of a fuzzy controller for the predictive current control of an induction motor was developed. It also presents the optimization of the parameters of the fuzzy controller using a co-simulation approach and a metaheuristic optimization method.

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