Innovations in Intelligent Systems and Applications Conference
6–8 October 2021, Elazig, Turkey

ASYU–2021

## AIinPOWER 2021: Special Session on Utilization of Artificial Intelligence Techniques in Power Systems: Simulation and Applications at the 2021 Innovations in Intelligent Systems and Applications Conference (ASYU 2021)

Elazig, Turkey, October 6-8, 2021
Conference website: **http://asyu.inista.org/**

**Special Session Organizer**
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### Objectives and topics

Artificial intelligence (AI) techniques that have been developed rapidly in recent years, are utilized in a very wide variety of many disciplines. AI techniques such as artificial neural networks, deep neural networks, fuzzy logic, evolutionary computation, metaheuristic algorithms and hybrid intelligent systems, etc. are applied to solve many industrial problems. A power system is a non-linear and dynamic system, which includes generation, transmission, and distribution facilities, aims to provide stable and reliable electricity to consumers. In recent years, electrical power systems have been changed dramatically in terms of generation and distribution facilities by virtue of integration of renewable sources based distributed generation units. The variable and intermittent generation characteristics of renewable energy sources have changed and complicated the structure of the power system that must be dynamically planned, operated and controlled. In this sense, AI techniques and combination of AI with cloud computing, big data and internet of things can yield improved security, reliability, controllability, and flexibility in power system as well as efficiency improving. As necessity is mother of the invention, the utilization of AI techniques has been studied by researchers over the past few decades, on a variety of topics cover from consumption and generation forecasting to real time control and protection, system modeling/analysis even predictive maintenance in the power systems.

The special session aims to present studies relating to the design and utilization of AI techniques in power systems through simulation and/or practical implementations. The studies can be applied research, development of new procedures or components, original application of existing knowledge, or new design approaches. This special session would exhibit research results on the improving of power system by utilizing AI techniques. Also, it is expected that this special session would gather researchers who study on power systems and AI in order to provide an opportunity to discuss on the research results.

The scope of the Utilization of Artificial Intelligence Techniques in Power Systems: Simulation and Applications includes, but is not limited to the following topics:

- AI in power-system optimization;
- AI-driven smart grids;
- AI-based solutions for system protection;
- Deep Learning applications on power systems;
- Renewable energy forecasting by AI techniques;
- Demand(Load) Prediction by AI techniques;
- Electricity price forecasting by AI techniques;
- Heuristic optimization algorithms in smart grids and power systems;
- Design, development and application of deep learning in smart grid;
- Demand Side Management by AI approaches;
- Artificial intelligence in advanced metering infrastructure;
- New theories and applications of machine learning algorithms in smart grid; Cloud computing based smart grid;
- Power system operation and control by AI;
- AI-based power equipment maintenance plan;
- AI Applications in power system security;
- AI -based power consumption management;
- Big-data-based intelligent decision-making in power systems;
- Intelligent optimization applications in power; system planning and electricity market trade;
- AI-based Distribution System Automation and control;
- AI-based power system operation and control;
- AI-based power system reliability and stability;
- Neuro-fuzzy modelling for fault diagnosis in; electrical machines and power electronics used in the smart grids;
- AI-based Predictive Maintenance in Power Systems.

## Important dates

Full Paper Submission: **June 21, 2021**
Notification of Acceptance*:* **August 23, 2021**
Early Registration: **August 31, 2021**
Camera-Ready Submission: **September 15, 2021**
Conference date: **6-8 October, 2021**

## Program Committee (to be invited)