20th World Congress of the International Federation of Automatic Control 9-14 July 2017, Toulouse, France

http://www.ifac2017.org/

Open Invited Track on Intelligent Control and Automation

Organisers:

A. Javier Barragán Piña, Universidad de Huelva, antonio.barragan@diesia.uhu.es
Eloy Irigogyen, Universidad del País Vasco, eloy.irigoyen@ehu.eus
Matilde Santos, University Complutense of Madrid, msantos@ucm.es

Abstract: The aim of this track is to bring together different communities working on different aspects of intelligent control and advanced algorithms in system engineering and automation. The track will discuss some fundamental issues on control of complex systems, including application of soft computing techniques, heuristic optimization, intelligent approaches, both for system modelling and control design, and potential applications to real-world systems.

IFAC technical committee for evaluation: TC3.2 (Computational Intelligence in Control)

Detailed description:

Many computational intelligence and learning methods, including expert systems, fuzzy control, neural networks, genetic algorithm, artificial immune networks, swarm particle techniques, ACO, reinforcement learning, etc., have gained successful applications in many control automation fields. Intelligent Control, which is distinguished from conventional approaches since it is historically based on methodologies borrowed from Artificial Intelligence, mainly Soft Computing techniques, has been proved able to cope with problems – especially industrial ones – where conventional methods were reputed less efficient or unsuccessful.

Applications of Intelligent Control may include without restrictions: transportation systems, medical, biomedical and biological systems, aerospace, automation, biotechnology, mechatronics, manufacturing, process control, power systems, energy and smart grid, agriculture, environmental systems, robotics and autonomous systems, economics and business systems… In recent years, a trend has emerged in which techniques of computational intelligence, learning control and automation have been integrated into

intelligent control or automation systems on a variety of scales to meet the needs of implementation at the angle of products.

This special session aims to disseminate high quality research results regarding not only the theoretic development in integration of computational intelligence theories and control techniques, but also related effective applications to some new and useful physical systems.

This open invited track is devoted to all topics related with intelligent control and its applications, including (but not limited to) the following subjects:

- Intelligent Control: fuzzy control, neuro-control, neuro-fuzzy, intelligent-PID control, hybrid techniques, etc
- Optimization by heuristic techniques in system engineering and control
- Modelling and identification by Intelligent Techniques
- Engineering Application of Intelligent Computation
- Applications in industry, aerospace, marine, aerial systems, ….
- Other related topics