

Preface of the 2011 International Conference of Computational Intelligence and Intelligent Systems Special Session: Computational Intelligence and Intelligent Systems in Industrial Engineering

The intelligence is defined as the ability of solving complex problems. Computational intelligence is a set of nature-inspired computational methodologies and approaches to address complex problems of the real world applications to which traditional methodologies and approaches are ineffective or infeasible. Computational intelligence techniques include Multi-Agent Systems, Fuzzy Set Theory, Artificial Neural Networks, Genetic Algorithms, Genetic Programming, Evolution Strategies, Evolutionary Programming, Classifier Systems, Ant Colony Optimization, Particle Swarm Optimization, and Hybrid Systems.

The American Institute of Industrial Engineers (AIIE) defines industrial engineering as concerned with the design, improvement and installation of integrated systems of people, materials, equipment and energy. It draws upon specialized knowledge and skill in the mathematical, physical and social sciences together with the principles and methods of engineering analysis and design to specify predict and evaluate the results to be obtained from such systems. Computational intelligence techniques are relatively the new tools of industrial engineering to solve the complex problems of systems.

The special sessions entitled *Computational Intelligence and Intelligent Systems in Industrial Engineering* at ICCIIS 2011 include more than 20 papers, which were selected after a peer review process. The computational techniques in these papers are fuzzy multicriteria techniques, fuzzy cognitive maps, particle swarm optimization, fuzzy scheduling, and genetic algorithms. Application areas vary from soil erosion to job shop scheduling. The other industrial engineering application areas of the papers are real options, aviation supply chain, clean energy, single period inventory management, process capability, renewable energy power plants, aircraft selection, and investment analysis.

I hope the session Computational Intelligence and Intelligent Systems in Industrial Engineering to be useful for the participants of ICCIIS 2011 and thank the referees for their hard works in selecting the quality papers. Finally my thanks go to the authors of the papers in the session for their quality studies and for selecting ICCIIS 2011 as the scientific arena to present their invaluable products.

Prof. Cengiz Kahraman
Istanbul Technical University
Department of Industrial Engineering
Macka Besiktas Istanbul Turkey