

Special Session on Computational Intelligence for Optimization of Communication Networks

under the framework of:

The 16th International Conference on Intelligent Data Engineering and Automated Learning
IDEAL 2015
Wroclaw, Poland, 14th -16th October, 2015

Session Chairs

Prof. Mirosław Klinkowski	Department of Transmission and Optical Technology, National Institute of Telecommunications Szachowa 1, 04-894 Warszawa, Poland e-mail: m.klinkowski@itl.waw.pl http://www.itl.waw.pl tel. +48 71 3699857, fax +48 71 3728878
Prof. Krzysztof Walkowiak	Department of Systems and Computer Networks, Wroclaw University of Technology Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland e-mail: krzysztof.walkowiak@pwr.edu.pl http://www.kssk.pwr.edu.pl tel. +48 71 3202992, fax +48 71 3202902

Short description

Communication networks and the Internet are evolving from simple best effort packet forwarding-based infrastructures towards advanced platforms providing a rich set of various services like, e.g., cloud computing, content delivery networks, IP television, video streaming, Internet of Things. The complexity of such systems combined with ever-increasing demand for bandwidth, connection quality, and end-to-end interactivity make the optimization of communication networks very challenging. At the same time, the computational power of CPUs and GPUs is increasing every year opening new opportunities in developing more and more sophisticated algorithms. Apart from mathematical programming, which is a well-established tool for network modelling and optimization, such computationally intelligent methods as meta-heuristics are gaining much interest due to their effectiveness in providing either optimal or near-optima solutions to difficult optimization problems. Other recent trends that stimulate deployment of efficient optimization approaches for communication networks are software defined networking (SDN), network function virtualization (NFV) and Big Data concepts. The motivation of this Special Session is to provide a platform to present new ideas, achievements, and implementations in all aspects related to the application of intelligent computational techniques in network optimization. Research topics include network planning and operation, cross- and multi-layer design, network survivability, resource allocation, quality of service guarantees, energy efficiency aspects, service location, among others.

Topics of interest, but are not limited to:

- ✓ Computational intelligence methods in network optimization including algorithms like tabu search, simulated annealing, evolutionary algorithms, swarm optimization, ant algorithms, GRASP, artificial bee colony and other methods
- ✓ Heuristic algorithms for near-optimal solutions
- ✓ Mathematical programming models
- ✓ Branch-and-bound and cutting-plane methods
- ✓ Decomposition and relaxation techniques for large-scale optimization
- ✓ Hybrid optimization approaches
- ✓ Implementation issues in GPU and high-performance computer architectures
- ✓ Networking for Big Data traffic
- ✓ Content and location aware networking
- ✓ Networking aspects of distributed analysis of massive data
- ✓ Efficient data delivery in Internet of Things and machine-to-machine systems

Paper Submission and Publication

Manuscripts must be written in English and comply with the format of the LNCS/LNAI Series. The default page limit is 8 pages.

All submissions will be refereed by experts in the field based on originality, significance, quality and clarity. All contributions must be original, must not have been published elsewhere and must not be intended to be published elsewhere (conference or journal) during the review period. Accepted papers will be included in IDEAL 2015 Proceedings in the LNCS Series. All accepted papers will be considered for extension for possible publication in journal special issues dedicated to this conference.

Important dates

- ✓ Submission of papers by authors: 15th May, 2015
- ✓ Decision: 15th June, 2015
- ✓ Author registration and final submission: 6th July, 2015
- ✓ Conference: 14th -16th October, 2015