

International Conference on Optimization, Learning Algorithms and Applications

OL2A'2022

BOOK OF ABSTRACTS

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Welcome

Welcome to OL2A 2022 - International Conference on Optimization, Learning Algorithms and Applications.

OL2A offers a forum for the research community on optimization and learning to get together and share the latest developments and techniques as well as develop new paths and collaborations. OL2A provides a broad scope of presentations, covering many areas of optimization and learning and state of the art applications to multi-objective optimization, optimization for machine learning, machine learning for optimization, optimization and learning under uncertainty and 4th industrial revolution.

It is with great pleasure that the Organizing Committee welcomes you all to OL2A 2022!

The OL2A'2022 organization committee,

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Educational Testbed in the Context of Industry 4.0 and 5.0: Literature Review

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The transformations caused by the Industrial Revolutions, over time have transformed the job profiles, causing changes in the way to qualification and the workforce. With the advent of Industry 4.0 and the next evolutionary stage known as Industry 5.0, institutions promoting qualification need to incorporate new educational models to qualification and re-qualification people. Educational testbeds are known as a virtual environment, where it is possible to integrate digital tools for the development of teaching, but it is necessary to understand what characteristics encompass an educational testbed to guide future research. With the advent of Industry 4.0 and the next evolutionary stage known as Industry 5.0, institutions promoting qualification need to incorporate new educational models to qualification and re-qualification people. Educational testbeds are known as a virtual environment, where it is possible to integrate digital tools for the development of teaching, but it is necessary to understand what characteristics encompass an educational testbed to guide future research.

An Improved Multi-Threaded Implementation of the MCSFilter Optimization Algorithm

Luís Monteiro, José Rufino, Andrey Romanenko, Florbela P. Fernandes

MORE - Laboratório Colaborativo Montanhas de Investigação; Research Center in Digitalization and Intelligent Robotics (CeDRI)

The Multistart Coordinate Search Filter (MCSFilter) is an optimization method suitable to find all minimizers of a non convex problem, with any type of constraints. When used in industrial contexts, execution time may be critical, in order to keep production processes within safe and expected bounds. One way to increase performance is through parallelization. In this work, a second parallel version of the MCSFilter method is presented, aiming at faster execution times than a previous parallel implementation. The new solver was tested with a set of fourteen problems, with different characteristics and behavior. The results obtained represent an improvement of the execution times over all previous MCSFilter implementations (sequential and parallel). They also allowed to identify bottlenecks to be lifted in future parallel versions.
