

**Call for Papers**

Journal of Universal Computer Science (J.UCS) Special Issue:

Knowledge Extraction and Transfer in Evolutionary Optimization

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# Background

Evolutionary algorithms (EAs) are a sort of artificial intelligence that may be used to solve problems. Species migration, Natural selection, human civilization, bird swarms, and ant colonies are examples of optimization methods that we can see in nature and EAs are inspired by these observations. Besides, Evolutionary Algorithms is a term that many people use to describe population-based exploration approaches that incorporate some selection or randomness. The group of algorithms includes Genetic Algorithms, Evolutionary Programming, other multiple evolutionary processes and, to a smaller Level, Estimation of Distribution and Differential Evolution Algorithms. A heuristic-based method to tackling problems that cannot be readily addressed in polynomial time, like traditionally NP-Hard issues or any other situation that would take much too long to analyze exhaustively, is represented by evolutionary algorithms. When used independently, genetic algorithms are primarily employed to solve combinatorial problems; nevertheless, they are frequently used in conjunction with other approaches, functioning as a quick way to locate an ideal starting point for another algorithm to work.

Moreover, Initialization, selection, genetic operators, and termination are the four main processes of an EA. The procedure begins with Initialization. Each of these stages roughly correlates to a particular aspect of natural selection and hence provides a convenient manner of modularizing modifications to this algorithm categorization. A simple explanation is that fitter individuals would survive and multiply in a genetically engineered population, but unsuitable individuals would die off and not participate in the genetic material of future generations, much as in the process of natural selection. Additionally, Using Evolutionary Computation (EC) to address complex issues and divide and conquer methods is used in evolutionary computing to break down or reduce complex problems into simpler ones. There are several ways EC algorithms may be used to explore and exploit. For example, a faster convergence rate is frequently connected with a better capacity for interpretation.

Traditional EAs do not adapt from previous issues, and EA solvers' analysis tools would not automatically expand with experience. One of the advantages of fixing one issue is that it provides essential knowledge for tackling other problems that may have a similar root cause. There has been an upsurge in evolutionary transfer optimization (ETO) investigations, a model that merges EA solvers with knowledge acquisition and distribution across relevant areas to improve performance and optimization efficiency. ETO, being one of the developing study topics in computational intelligence, has several problems and has several unanswered research issues which need concrete solutions. Hence, this special issue focus on Knowledge Extraction and Transfer in Evolutionary Optimization.

**We cordially invite prospective authors to submit original papers on the following topics (list is not exhaustive):**

* Evolutionary Optimization techniques for knowledge extraction and transfer in large‑scale optimization problems
* A data-driven evolutionary optimization framework for knowledge transfer
* Multi-form optimization for knowledge transfer in Evolutionary transfer optimization
* Distributed evolutionary optimization for knowledge transfer in Evolutionary transfer optimization
* Enhanced divide and conquer techniques for Knowledge Extraction and Transfer in Evolutionary Optimization
* Advanced real-world implications in Knowledge Extraction and Transfer in Evolutionary Optimization
* Multi-task optimization for implicit and explicit knowledge transfer
* Evolutionary Optimization techniques knowledge acquisition and distribution across multiple applications
* Convergence of traditional algorithms with Evolutionary transfer optimization for knowledge extraction
* Uses case, theories and surveys on Knowledge Extraction and Transfer in Evolutionary Optimization.

# Deadlines:

First Submission Deadline: 30 June 2022

Notification of First Round Decision: 15 October 2022

Revised Paper Submission Deadline: 20 December 2022

Notification of Final Decision: 26 February 2023

Final Paper Submission Deadline: 28 April 2023

# Submission and Evaluation Procedure:

The Journal of Universal Computer Science is a high-quality electronic publication that deals with all aspects of computer science. J.UCS has been appearing monthly since 1995 and is thus one of the oldest electronic journals with uninterrupted publication since its foundation. A number of special issues as well as the printed archive editions of the volumes are also available in print and can be ordered directly from J.UCS office.

Manuscripts must be submitted in PDF format, written in English and should not exceed 20 pages. Papers only prepared according to the JUCS’s guidelines for authors and submitted online (see procedure described below) will be included in the review process. Illustrations and tables must be provided as integrated parts of the manuscript.

Only novel research articles that are not presently under review at another event or publication are accepted for review. Each manuscript will be evaluated (blindly) by at least three reviewers. Submitted papers have to be formatted according to JUCS authoring criteria and submitted online. Illustrations and tables must be included in the document.

The authors are instructed to submit their research work to the following email address:

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