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IEEE Transactions on Evolutionary Computation
Special Issue on *Evolutionary Dynamic Optimization*

I   Aim and Scope

Dynamic optimization problems (DOPs) refer to a class of optimization problems whose objective(s) and/or constraints change over time. DOPs exist in various real-world applications, such as dynamic economic dispatch problems, contaminant source identification problems in water distribution networks, and odor source location problems. Such problems in dynamic environments require optimization algorithms which can quickly adapt to environment changes.

Evolutionary dynamic optimization (EDO) adopts evolutionary algorithms or swam intelligence to address DOPs. Traditional evolutionary optimization algorithms cannot effectively respond to the changes in DOPs. When the environment changes, the population usually converges to one or multiple optimal solutions, resulting in being unable to search for the optima in the new environment. The restart method is an intuitive approach, but finding the optimal solution becomes challenging under limited computational resources in each environment.

Dynamic optimization problems have been studied for decades. Most of the work involves designing novel dynamic optimization algorithms for solving benchmarks. However, compared to manually designed dynamic changes in benchmark problems, the dynamic characteristics expressed in real-world applications are often more complicated and interactive with other features (e.g., constrained, multimodal, large-scale and multiobjective features). Existing dynamic optimization algorithms could not efficiently solve various complex real-world dynamic problems.

The aims of this special issue are: (1) to present the cutting-edge research in the field of evolutionary dynamic optimization; (2) to provide a platform for researchers and practitioners to present their views on future research trends in evolutionary dynamic optimization. (3) to show the research progress concerning dynamic real-world optimization applications.

II   Themes

The topics of this special issue are focused on evolutionary dynamic optimization, including novel evolutionary dynamic optimization algorithms and their applications. Topics of interest include, but are not limited to:

- *Novel evolutionary algorithms and swarm intelligence for solving DOPs*
- *Hybrid design in evolutionary dynamic optimization*
- *Memory and history based strategies in dynamic environments*
- *Multi-population strategies in dynamic environments*
- *Dynamic response strategies*
- *Detection of the environmental changes*
- *Techniques for handling constrained, multimodal, large-scale and multiobjective features in dynamic environments*
- *Analysis of changes in dynamic real-world applications*
- *Theoretical analysis of evolutionary dynamic optimization algorithms*
- *Design of dynamic optimization algorithms to solve real-world dynamic applications*

III   Submissions

This special issue accepts all types of manuscripts, including letters, short, technical and survey papers. The submitted manuscripts must be original and should not have been published previously or currently submitted to other conferences or journals. The extended versions of conference papers would need to abide by the journal requirements. The information can be referred to `https://cis.ieee.org/publications/t-evolutionary-computation/ieee-tevc`. The submission can be done through `https://ieee.atyponrex.com/dashboard?journalCode=TEVC-IEEE`. Please follow the submission instructions given on this site, select the article type as "EDOP", and clearly add "Evolutionary Dynamic Optimization Special Issue" to the comments to the Editor-in-Chief.

IV   Important Dates

Submission Opens: June 1, 2024
Submission Deadline: September 1, 2024
Revised Paper Submission: January 1, 2025
Submission of Final Papers: April 1, 2025
Tentative Publication Date: June-July, 2025

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