**Call for Papers**

**IEEE CEC 2024 Special Session on “Large-scale multi-objective optimization”**

**Aim**

With the proliferation of heterogeneous data across various scientific and engineering areas, the corresponding optimization tasks present challenges in terms of both efficiency and effectiveness. Notably, these optimization tasks are commonly characterized by multiple conflicting objectives and hundreds or more of decision variables, impeding algorithms from obtaining well-converged and diversified solutions. Despite the remarkable performance of evolutionary algorithms in multi-objective optimization, they suffer from the curse of dimensionality when tackling large-scale multi-objective optimization problems (LSMOPs). The complicated landscapes and variable linkages prevalent in real-world scenarios further retard the convergence of populations. Thus, there is a pressing need for more practical and versatile algorithms capable of effectively solving LSMOPs, thereby promoting the advancement of computational intelligence and facilitating the progress in emerging areas.

**Scope**

The topics of this special session include, but are not limited to, the follows:

* Novel algorithms for solving LSMOPs, e.g., evolutionary algorithms, swarm intelligence algorithms, mathematical programming methods, reinforcement learning methods, and others.
* Tailored algorithms for solving specific types of LSMOPs, e.g., sparse problems, constrained problems, expensive problems, dynamic problems, multimodal problems, robust problems, and others.
* Effective algorithms for solving combinatorial LSMOPs, e.g., subset selection problems, vehicle routing problems, recommendation problems, hybrid encoding problems, and others.
* Applications of existing algorithms to LSMOPs in emerging areas, e.g., machine learning, data mining, manufacturing, scheduling, electrics, economics, bioinformatics, medicine, and others.

Performance assessment, theoretical analysis, and benchmarking of algorithms for solving LSMOPs.

**Submissions**

Papers should be submitted following the instructions at the [IEEE WCCI 2024 website](https://2024.ieeewcci.org/). Please select the IEEE Congress on Evolutionary Computation (CEC) and the Special Session on “Large-scale multi-objective optimization”. Accepted papers will be included and published in the conference proceedings.

Deadline: 15th January 2024

Notification: 15th March 2024

Congress: 30th June 2024 - 5th July 2024, Yokohama, Japan

**Organizers**

**Ye Tian**, Institutes of Physical Science and Information Technology, Anhui University, Hefei 230601, China. **(**field910921@gmail.com)

**Cheng He**, School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan 430074, China. (chenghe\_seee@hust.edu.cn)

**Ran Cheng**, Department of Computer Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China. (ranchengcn@gmail.com)

**Xingyi Zhang**, School of Artificial Intelligence, Anhui University, Hefei 230601, China. (xyzhanghust@gmail.com)

**Kay Chen Tan**, Department of Computing, The Hong Kong Polytechnic University, Kowloon, Hong Kong SAR. (kctan@polyu.edu.hk)

**Yaochu Jin**, School of Engineering, Westlake University, Hangzhou 310030, China. (jinyaochu@westlake.edu.cn)

[A survey paper on large-scale multi-objective optimization.](https://www.researchgate.net/publication/352444598)

[Download PlatEMO to obtain the source codes of existing algorithms and benchmark problems.](https://github.com/BIMK/PlatEMO)