**Special session on Multi-Objective Evolutionary Optimization and Its Applications**

**Aim and scope**:

Multi-objective optimization problems (MOPs) widely exist in the real world, for which a set of Pareto optimal solutions should be found to make diverse trade-offs between multiple conflicting objectives. Owing to the population-based search paradigm of evolutionary algorithms and swarm intelligence algorithms, they have exhibited outstanding performance in finding diverse solutions for a massive number of MOPs. So far, an increasing number of MOPs from scientific and engineering areas introduce various difficulties such as many objectives, computationally expensive objectives, irregular Pareto fronts, constraints, multimodal landscapes, large-scale search spaces, and so on, posing stiff challenges to existing evolutionary algorithms to efficiently obtain satisfactory solutions. Therefore, the aim of this session is to bring together researchers in the data-driven optimization community who are dedicated to multi-objective optimization. This will be an ideal platform for researchers and practitioners to interact and present ideas for handling different MOPs via novel approaches.

**List of main topics:**

The topics include (but not limited to):

* New evolutionary algorithms and swarm intelligence algorithms for solving MOPs.
* Hybrid/automated algorithms for solving MOPs.
* New algorithms for solving MOPs with special difficulties, e.g., those with many objectives, computationally expensive objectives, irregular Pareto fronts, constraints, multimodal landscapes, large-scale search spaces, and so on.
* New algorithms for solving combinatorial MOPs.
* Solving MOPs in real-world applications via new or existing algorithms.
* Performance assessment and analysis of the algorithms for solving MOPs.

**Organizers:**

1. **Ye Tian**: received the B.Sc., M.Sc., and Ph.D. degrees from Anhui University, Hefei, China, in 2012, 2015, and 2018, respectively. He is currently an Associate Professor with the Institutes of Physical Science and Information Technology, Anhui University, Hefei, China. His current research interests include evolutionary computation and its applications. He is the recipient of the 2018 and 2021 IEEE Transactions on Evolutionary Computation Outstanding Paper Award, the 2020 IEEE Computational Intelligence Magazine Outstanding Paper Award, and the 2022 IEEE Computational Intelligence Society Outstanding Ph.D. Dissertation Award.

2. **Ran Cheng**: received the B.Sc. degree from the Northeastern University, Shenyang, China, in 2010, and the Ph.D. degree from the University of Surrey, Guildford, U.K., in 2016. He is currently an Associate Professor with the Department of Computer Science and Engineering, Southern University of Science and Technology, Shenzhen, China. Dr. Cheng was a recipient of the 2018 and 2021 IEEE Transactions on Evolutionary Computation Outstanding Paper Award, the 2019 IEEE Computational Intelligence Society Outstanding Ph.D. Dissertation Award, and the 2020 IEEE Computational Intelligence Magazine Outstanding Paper Award.

3. **Xingyi Zhang:** received the B.Sc. degree from Fuyang Normal College, Fuyang, China, in 2003, and the M.Sc. and Ph.D. degrees from Huazhong University of Science and Technology, Wuhan, China, in 2006 and 2009, respectively. He is currently a Professor with the School of Artificial Intelligence, Anhui University, Hefei, China. His current research interests include unconventional models and algorithms of computation, multi-objective optimization, and membrane computing. He is the recipient of the 2018 and 2021 IEEE Transactions on Evolutionary Computation Outstanding Paper Award and the 2020 IEEE Computational Intelligence Magazine Outstanding Paper Award.