Evolutionary Optimization and Its Applications in Autonomous Driving and Systems

Optimization problems widely exist in autonomous driving and systems, such as vehicle scheduling, path planning, etc. Evolutionary algorithms (EAs) have been widely used to solve optimization problems across various real-world applications for their advantages that they can provide multiple solutions in a single run for flexible selection and they make no special assumptions about the problem properties such as differentiability and continuity. With the rapid development of autonomous driving and systems, there is a trend to use EAs to solve optimization problems in this field that are difficult to solve by traditional mathematical optimization methods. This workshop aims to investigate the development of the application of EAs in the field of autonomous driving and systems.

Workshop Topics:

- Research areas of this workshop include, but are not limited to, the following topics:
- Vehicle scheduling;
- Path planning;
- Energy management optimization;
- Intelligent transportation systems;
- Novel evolutionary algorithms;
- Novel swarm intelligence algorithms;
- Hybridization and memetic algorithms;
- Model-based evolutionary algorithms;
- Evolutionary algorithms for multi-objective optimization problems;
- Evolutionary algorithms for expensive optimization problems;
- Evolutionary algorithms for combinatorial optimization problems;
- Evolutionary algorithms for constrained optimization problems;
- Real-world applications.

Workshop organizers

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Jinyuan Zhang is a Research Associate with the Department of Computer Science and Engineering at Southern University of Science and Technology, Shenzhen, China.

She received the B.Eng. degree in computer science and technology from Lanzhou University, Lanzhou, China, in 2013 and the Ph.D. degree in computer science and technology from East China Normal University, Shanghai, China, in 2018. Her research interests include evolutionary optimization, machine learning, and their applications. She has published over 20 papers in these related research fields. She is the principal investigator of a project supported by the National Natural Science Foundation of China Youth Science Fund and a project supported by the Guangdong Basic and Applied Basic Research Foundation. She is recognized as an overseas high-caliber personnel in Shenzhen and is a member of the IEEE Computational Intelligence Society's Conference Activities and Communications Subcommittee.

Wenjing Hong (hongwj@szu.edu.cn)
Wenjing Hong is a Assistant Professor with the National Engineering Laboratory for Big Data System Computing Technology, Shenzhen University, China. She obtained her bachelor's and doctoral degrees from the School of Computer Science and Technology at the University of Science and Technology of China (USTC). After graduation, she worked as a postdoctoral researcher at USTC and later served as a Research Assistant Professor at the Southern University of Science and Technology. Her main research interests include Computational Intelligence, Multi-Objective Optimization Algorithms and Their Applications, such as large-scale multi-objective evolutionary algorithm design, hardware-aware neural network compression, influence maximization on social networks, and biocomputing. She has published over 20 papers in related fields, including in journals such as IEEE TEVC and IEEE TCYB. She has led multiple projects, including the National Natural Science Foundation of China Youth Science Fund, Tencent RhinoBird Special Research Project, China Postdoctoral Science Foundation General Fund, and projects from the Guangdong-Hong Kong-Macao Greater Bay Area Brain Science and Brain-like Research Center. She is recognized as high-level professional talent in Shenzhen and serves as a member of the IEEE Computational Intelligence Society's Neural Networks Technical Committee, as well as a reviewer for multiple journals and conferences such as IEEE TEVC, NeurIPS, ICML, and AAAI.

Important Dates:

- Workshop Paper Submission Deadline: September 15, 2024
- Notification of Acceptance: October 15, 2024

Papers are to be submitted as PDF via the site: https://edas.info/N32633.
Please select the corresponding workshop when submitting your paper.