



IEEE CIS Seminar

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School of Engineering & Information Technology

Time: 3:30pm – 4:30pm AEST, 24 August 2022

Venue: Online via Zoom, RSVP at <http://tinyurl.com/act-cis-24aug22> for link.

Hypervolume Approximation for Many-objective Optimization

Abstract: Hypervolume is one of the most popular performance indicators in evolutionary multi-objective optimization (EMO). It possesses rich theoretical properties and has been extensively used for performance evaluation and algorithm design. However, its main drawback is that it becomes computationally intractable in high-dimensional spaces, which limited its application in many-objective optimization. In order to overcome this difficulty, approximation methods can be used instead of exact methods for hypervolume calculation. In this talk, I will first review studies on hypervolume approximation in the literature. Then I will present our recent work on hypervolume approximation and its applications including EMO algorithm design and subset selection. Lastly, I will give some directions for future research.



About the speaker: Dr. Ke Shang received his BS and PhD degrees from Xi'an Jiaotong University, China, in 2009 and 2016, respectively. He was a Visiting Scholar in Tokushima University, Japan, from 2012 to 2014. He is currently a Research Assistant Professor in Southern University of Science and Technology, China. His research interests include multiobjective optimization and artificial intelligence. He received Best Paper Awards from GECCO

2018 and 2021, First Runner-up Conference Paper Award from CEC 2019, and Best Paper Nomination from PPSN 2020. He is the organizer of “Workshop on Subset Selection in Evolutionary Multi-objective Optimization” at WCCI 2022, and two tutorials at WCCI 2022 and GECCO 2022. He is a member of IEEE. For more information, please visit <https://cse.sustech.edu.cn/faculty/~shangk/>.
