

Minimum Manhattan Distance Approach to Multiple Criteria Decision Making in Multiobjective Optimization Problems

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DATE 26 January 2018 (Friday)

TIME 2:30 pm - 3:30 pm

VENUE CS Seminar Room, Y6405
6th Floor, Yellow Zone
Yeung Kin Man Academic Building
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ABSTRACT

In this talk, we consider multiple criteria decision making in multiobjective optimization problems (MOPs). A minimum Manhattan distance (MMD) approach is discussed. The approach selects the final solution corresponding with a vector that has the MMD from a normalized ideal vector. The approach is equivalent to the knee selection described by a divide and conquer approach, in accordance with our intuition that it is easier to reach a final solution through pairwise comparisons; the approach is also equivalent to a weighted-sum approach, possessing rich geometric interpretations that are considered essential in the field of evolutionary computation. Since existing multiobjective evolutionary algorithms aim for a posteriori decision making, i.e., determining the final solution after a set of Pareto optimal solutions is available, the proposed MMD approach can be combined with them to form a powerful solution method of solving MOPs.

BIOGRAPHY

Wei-Yu Chiu received his B.S. degree in Electrical Engineering and the Ph.D. degree in Communications Engineering from National Tsing Hua University (NTHU), Hsinchu, Taiwan in 2006 and 2010, respectively. From 2011 to 2012, he was a Postdoctoral Research Fellow with the Department of Electrical Engineering, Princeton University, Princeton, NJ, USA. He was a Visiting Scholar at Oklahoma State University in 2015 and at Southern University of Science and Technology in 2018. From 2013 to 2017, he was an Assistant Professor of Electrical Engineering in Yuan Ze University (YZU), Taiwan. He is currently an Assistant Professor of Electrical Engineering in NTHU, Taiwan. His research interests include multiobjective optimization, smart grid, and computational intelligence. Dr Chiu received the Young Scholar Research Award bestowed by YZU in 2014, the Exploration Research Award bestowed by Pan Wen Yuan Foundation in 2015, the Outstanding Young Automatic Control Engineering Award bestowed by Chinese Automatic Control Society in 2016, and the Outstanding Young Scholar Academic Award bestowed by Taiwan Association of Systems Science and Engineering in 2017. Since 2015, he has been serving as an Organizer/Chair of the International Workshop on Integrating Communications, Control, and Computing Technologies for Smart Grid (ICT4SG). He is the Lead Guest Editor of several feature topics in IEEE Communications Magazine.

All are welcome!



In case of questions, please contact Prof KWONG Tak Wu Sam at Tel: 3442 2907, E-mail: cssamk@cityu.edu.hk, or visit the CS Departmental Seminar Web at <http://www.cs.cityu.edu.hk/news/seminars/seminars.html>.

