

475 Views | 22 CrossRef citations to date | 0 Altmetric

Original Articles

# Interactive multi-objective particle swarm optimization with heatmap-visualization-based user interface

Jan Hettenhausen , Andrew Lewis & Sanaz Mostaghim

Pages 119-139 | Received 21 Oct 2008, Published online: 29 Oct 2009

 Cite this article  <https://doi.org/10.1080/03052150903042632>

Sample our  
Mathematics & Statistics  
Journals  
>> [Sign in here](#) to start your access  
to the latest two volumes for 14 days

 Full Article  Figures & data  References  Citations  Metrics

 Reprints & Permissions

Read this article

## Abstract

This article presents a new interactive multi-objective particle swarm optimization (MOPSO) based on a heatmap-visualization-based user interface. The proposed method combines the strengths of the particle swarm optimization (PSO) and the multi-objective evolutionary algorithm (MOEA) to decrease the number of iterations required to find the Pareto front. The results were compared with the MOEA and the PSO. The proposed method was able to find the Pareto front more efficiently than the other two methods. The proposed method was able to find the Pareto front more efficiently than the other two methods.

### We Care About Your Privacy

We and our 842 partners store and/or access information on a device, such as unique IDs in cookies to process personal data. You may accept or manage your choices by clicking below, including your right to object where legitimate interest is used, or at any time in the privacy policy page. These choices will be signaled to our partners and will not affect browsing data. [Privacy Policy](#)

We and our partners process data to provide:

Use precise geolocation data. Actively scan device characteristics for identification. Store and/or access information on a device. Personalised advertising and content, advertising and content measurement, audience research and services development.

List of Partners (vendors)

I Accept

Essential Only

Show Purpose

convergence towards the true Pareto-front and the number and spread of focused solutions.

Keywords:

interactive multi-objective particle swarm optimization

heatmap visualization

multi-objective optimization

interactive optimization

## Acknowledgements

The authors would like to thank Andy Pryke for his encouragement and assistance with the heatmap visualization method.

### Related Research Data

Artificial Intelligence to Enhance Aerodynamic Shape Optimisation of the Aegis UAV


Source: MDPI

Protein structure prediction using distributed parallel particle swarm optimization

Source: Springer Science and Business Media LLC

The Interactive Design Approach for Aerodynamic Shape Design Optimisation of the Aegis UAV

Source: MDPI

Linking provided by 



Related



## Information for

Authors

R&D professionals

Editors

Librarians

Societies

## Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

## Open access

Overview

Open journals

Open Select

Dove Medical Press

F1000Research

## Help and information

Help and contact

Newsroom

All journals

Books

## Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2024 Informa UK Limited [Privacy policy](#) [Cookies](#) [Terms & conditions](#)



Taylor & Francis Group  
an informa business

Accessibility



Registered  
5 Howick Place

