

Guest Editors' Foreword to the Special Issue on CG:SHOP 2024

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Abstract

This is the guest editors' foreword for the special issue on the Sixth CG Challenge, CG:SHOP 2024.

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Foreword

This is the special issue on the Sixth CG Challenge, which was run as an event of CGWeek 2024, held in Athens, June 10–14, 2024.

For this challenge, the task was Maximum Polygon Packing: Given a convex region P in the plane, and a collection of simple polygons, each with a respective value, the task was to find a subset of the polygons and a feasible packing (without rotation) within P , such that the total packed value is maximized.

To this end, a collection of 180 benchmark instances was released on September 29, 2023. Teams had time until January 22, 2024 to submit their solutions. Overall, nine teams participated and agreed to be evaluated and ranked. The best approaches were presented at CGWeek 2024 in Athens, and awards were presented both in the Open and Junior category. The top four teams were invited to the SoCG proceedings.

This special issue collects articles on the technical and scientific context of the challenge, as well as detailed descriptions of two successful approaches.

- In a problem survey, the guest editors provide an overview of problem history and background, as well as details and outcomes of the contest.
- In a first contributed article, Guilherme Dias da Fonseca and Yan Gerard describe their winning approach, which combines two different strategies for generating initial solutions with local search techniques for improvement.
- In a second contributed article, Alkan Atak, Kevin Buchin, Mart Hagedoorn, Jona Heinrichs, Karsten Hogreve, Guangping Li, and Patrick Pawelczyk provide insights into their combination of Best-Fit, Genetic Algorithms and ILPs.

We thank everyone involved in the Challenge, in particular our fellow organizers Phillip Keldenich and Dominik Krupke, as well as the members of the Advisory Committee: Bill Cook, Andreas Fabri, Dan Halperin, Michael Kerber, Philipp Kindermann, Joe Mitchell, and Kevin Verbeek.

Happy reading!

The guest editors of the special issue,
Sándor Fekete and Stefan Schirra



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