

Guest Editors' Foreword to the Special Issue on CG:SHOP 2023

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Abstract

This is the guest editors' foreword for the special issue on the Fifth CG Challenge, CG:SHOP 2023.

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Foreword

This is the special issue on the Fifth CG Challenge, which was run as an event of CGWeek 2023, held in Dallas June 12–15, 2023.

For this challenge, the task was to solve a classical problem of Computational Geometry that also gave rise to the SoCG logo: Cover a given polygonal region (with or without holes) by a minimum-cardinality set of inscribed convex polygons. To this end, a collection of 206 benchmark instances was released on October 28, 2022. Teams had time until January 27, 2023 to submit their solutions. A total of 22 teams signed up for the competition, and 18 teams submitted at least one valid solution. The best approaches were presented at CGWeek 2023 in Dallas, and awards were presented both in the Open and Junior category. The top two 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 the two most 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 technical survey, Phillip Keldenich, Rouven Kniep and Dominik Krupke provide deeper insights into how such competitions are hosted.
- In a first contributed article, Mikkel Abrahamsen, William Bille Meyling, and André Nusser report how to construct concise convex covers via clique covers.
- In a second contributed article, Guilherme D. da Fonseca describes his approach that is based on set cover.

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