39th International Symposium on Computational Geometry

SoCG 2023, June 12–15, 2023, Dallas, Texas, USA

Edited by

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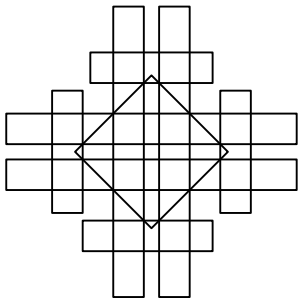
Joachim Gudmundsson



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Preface

The 39th International Symposium on Computational Geometry (SoCG 2023) was held at the University of Texas at Dallas, June 12–15, 2023, as part of the Computational Geometry Week (CG Week 2023). The conference received 175 submissions, and after a thorough review process, in which each paper was evaluated by three or more independent reviewers, the program committee accepted 61 papers for presentation. These proceedings contain extended abstracts of the accepted papers, limited to 500 lines (excluding references). If any supporting material does not fit in the line limit, the full paper is available at a public repository and referenced in the corresponding extended abstract.

The Best Paper Award of SoCG 2023 went to the paper "Sparse higher order Čech filtrations" by Bianca Boeira Dornelas, Michael Kerber and Mickaël Buchet; this paper has been invited to submit an extended version to the Journal of the ACM. The Best Student Presentation Award was determined and announced at the symposium, based on ballots cast by the attendees. A selection of papers was invited to submit an extended version to forthcoming special issues of Discrete & Computational Geometry and the Journal of Computational Geometry dedicated to the symposium.

The SoCG Test of Time Awards of this year go to "The complexity of many faces in arrangements of lines and of segments" by Herbert Edelsbrunner, Leonidas J. Guibas, and Micha Sharir which was published in SoCG 1988, and to the Computational Geometry Algorithms Library (CGAL) project.

The scientific program of CG Week 2023 was enriched by two distinguished invited speakers. An invited talk, entitled "Redistricting as a computational geometry problem", given by Moon Duchin from Tufts University. A second invited talk, entitled "Multi-Agent Path Finding and Its Applications", was delivered by Sven Koenig from the University of Southern California. We thank the plenary speakers for kindly accepting our invitation.

In addition to the technical papers, there were five submissions to the multimedia exposition. Submissions were reviewed and four of them were accepted for presentation. The extended abstracts that describe these submissions are included in this proceedings volume. The multimedia content can be found at `https://www.computational-geometry.org`.

The 5th Computational Geometry Challenge was part of CG Week 2023. The challenge problem was to cover a polygon with a small number of convex polygons. This year there were 22 teams participating in the challenge, and these proceedings contain contributions by the two top-placed teams describing their winning approaches.

We thank the authors of all submitted works. We are most grateful to the members of the SoCG Program Committee, the Media Exposition Committee, and the CG Challenge Committee for their dedication, expertise, and hard work that ensured the high quality of the works in these proceedings. We are grateful for the assistance provided by the hundreds of reviewers; without their help, it would have been nearly impossible to run the selection process. Finally, we thank Irina Kostitsyna, who kindly accepted to be the Proceedings Chair and did meticulous work.

Many other people contributed to the success of SoCG 2023 and the entire CG Week. We are very grateful to the local organization committee for their work in organizing the event, and to facilitate remote participation. Finally, we thank all the members of the Test of Time Award, Workshop, and Young Researchers Forum Committees, the CG Challenge Advisory Board, and the Computational Geometry Steering Committee.

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Vida Dujmović
Vincent Cohen-Addad
Vincent Despré
Wai Ming Tai
Willem Sonke
William Lochet
Wolfgang Mulzer
Woojin Kim
Xavier Goaoc
Xuan Wu
Yasuaki Kobayashi
Yossi Bleile
Yusu Wang
Yusuke Kobayashi
Yuval Peled
Zhengchao Wan
Ziga Virk

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