The 34th International Symposium on Computational Geometry (SoCG 2018)

Budapest, Hungary, June 11–14, 2018

Call for Papers

The 34th International Symposium on Computational Geometry will be held in Budapest, Hungary, June 11–14, 2018, as part of the Computational Geometry Week. We invite submissions of high quality that describe original research on computational problems in a geometric setting. **Topics** of interest include, but are not limited to:

- design, analysis, and implementation of geometric algorithms and data structures;
- lower bounds on the computational complexity of geometric problems;
- mathematical, numerical, and algebraic issues arising in the formulation, analysis, implementation, and experimental evaluation of geometric algorithms and heuristics;
- discrete and combinatorial geometry;
- computational topology, topological data analysis, and topological combinatorics;
- applications of computational geometry in any field.

To ensure that a submission is evaluated on its own merits, authors need to identify the main strengths of their submission, as captured by four possible **paper types**. Please consult the last section of this document for a detailed description of the paper types and associated evaluation criteria. There are no quotas for the paper types and submissions can be labeled with more than one paper type at the time of submission.

EasyChair Link: https://easychair.org/conferences/?conf=cgweek2018

Important Dates

December 4, 2017: Abstracts due (23:59 PST)
December 11, 2017: Papers due (23:59 PST)
February 14, 2018: Notification of acceptance/rejection
March 19, 2018: Final versions of accepted papers due
June 11–14, 2018: Symposium

Submission Guidelines

Submissions must be formatted in accordance with the LIPIcs proceedings guidelines and not exceed **12 pages** excluding references and a clearly marked appendix (further described below). LIPIcs typesetting instructions can be found at http://www.dagstuhl.de/en/publications/lipics.

Papers should be submitted in the form of an extended abstract, which begins with the title of the paper, each author's name and affiliation, as well as a short abstract. This should be followed by the main body of the paper that begins with a precise statement of the problem considered, a succinct summary of the results obtained (emphasizing the significance, novelty, and potential impact of the research), and a clear comparison with related work. The remainder of the extended abstract should provide sufficient details to allow the program committee to evaluate the validity, quality, and relevance of the contribution. Clarity of presentation is very important; the entire extended abstract should be written carefully, taking into consideration that it will be read and evaluated by both experts and non-experts, often under tight time constraints. All details needed to verify the results must be provided.

Supporting materials, including proofs of theoretical claims and experimental details, that do not fit in the 12-page limit should be given in an appendix. If more appropriate, the full version may be given as the appendix. In both cases, however, the authors should include in the main part specific pointers to the relevant locations in the appendix. The appendix will be read by the program committee members at their discretion and will not be published as part of the proceedings. Thus the paper without the appendix should be able to stand on its own.

Submissions deviating from the above guidelines risk being rejected without further consideration.

Results previously published or accepted for publication in the proceedings of another conference cannot be submitted. Simultaneous submissions of the results to another conference with published proceedings are not allowed. Exempted are workshops and conferences without formal proceedings, but possibly with handouts containing short abstracts. Results that have already been accepted (with or without revision) for publication in a journal at the time of their submission to the symposium are not allowed. A paper submitted to a journal but not yet accepted for publication can be submitted to the symposium. In such cases, the authors must mention this on the front page of the submission and clearly identify the status of the journal submission as of December 4, 2017.

Format of Accepted Papers

Final proceedings versions of accepted papers must be formatted in accordance with the LIPIcs proceedings guidelines and not exceed **12 pages** excluding references. These final versions must be submitted by **March 19, 2018**. If any supporting material (including complete proofs of theoretical claims and experimental details) does not fit in the 12-page limit, then the full version of the paper containing this information **must be made available at a public repository,** such as arXiv, and referenced in the conference version by March 19, 2018.

An author of each accepted paper will be expected to attend the symposium and present the paper (approximately 20 minutes). Authors of a selection of papers from the symposium will be invited to submit extended versions of their papers to special issues of *Discrete & Computational Geometry* and *Journal of Computational Geometry*. An award will be given to the **best paper**, and its authors will be invited to submit an extended version to the *Journal of the ACM*. A **best student presentation award** will be given based on the quality of the presentation of a paper by a student at the symposium.

Program Committee

Luis Barba, ETH Zürich, Switzerland
Pavle V.M. Blagojević, Freie Universität Berlin, Germany
              and Mathematical Institute of SASA, Serbia
Karl Bringmann, Max-Planck-Institut für Informatik, Germany
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Dömötör Pálvölgyi, Eötvös Loránd University, Hungary
Benjamin Raichel, University of Texas at Dallas, USA
Orit E. Raz, University of British Columbia, Canada
Bettina Speckmann (co-chair), TU Eindhoven, the Netherlands
Andrew Suk, University of California, San Diego, USA
Csaba D. Tóth (co-chair), California State University Northridge, USA
Shira Zerbib, University of Michigan and MSRI, USA

Paper types

When writing or evaluating a SoCG paper, it is important to keep in mind that there are different types of contributions, each with their own strengths. To ensure that each submission is evaluated on its own merits, authors need to identify the main strengths of their submissions, as captured by four possible **paper types**. These paper types are described in detail below, together with their associated evaluation criteria. These criteria will serve as the basis for all reviews, both by PC members and by external subreviewers, and for the subsequent discussion in the PC. There are no quotas for the paper types and submissions can be labeled with more than one paper type at the time of submission.

Mathematical Foundations. A typical paper will contain theorems and proofs describing new results in discrete or combinatorial geometry, or in topological combinatorics. The paper will primarily be evaluated on its technical depth, the importance of the results, the elegance of the solution, the connection of the problem studied to computational geometry and topology, and the potential future impact on algorithm development.

Algorithmic Complexity. A typical paper will contain algorithms, data structures, theorems, proofs, or lower bound constructions describing new results on computational geometry problems. The paper will primarily be evaluated on the (mathematical or computational) relevance and importance of the problem studied, its technical depth, the elegance of the solution, and the potential future impact of the results or the proposed new methods and techniques.

Experimental & Implementation. A typical paper will make a clear contribution to the implementation and evaluation of geometric algorithms, such as exact, approximate, or algebraic computation, algorithms engineering, or the experimental evaluation of competing algorithmic approaches. The paper will primarily be evaluated on the completeness and the expected impact of the proposed implementation, the soundness of the experiments, the quality and quantity of testing, and on the general amount of knowledge gained.

Applications. A typical paper will describe the modeling and algorithmic choices made when developing or adapting computational geometry techniques for an application area. The paper will be primarily evaluated on the soundness of the modeling decisions, the ingenuity of the solution, the effectiveness of the proposed method, and the expected impact in the application area. One might also consider the lesson learned regarding the applicability or suitability of computational geometry tools to the specific area.