TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

# Guest Editor's Foreword (Special Issue with Selected Papers from the 19th International Symposium on Graph Drawing, GD 2011)

*Citation for published version (APA):*
Kreveld, van, M. J., & Speckmann, B. (2012). Guest Editor's Foreword (Special Issue with Selected Papers from the 19th International Symposium on Graph Drawing, GD 2011). *Journal of Graph Algorithms and Applications*, *16*(3), 631-633. https://doi.org/10.7155/jgaa.00277

*DOI:*
10.7155/jgaa.00277

*Document status and date:*
Published: 01/01/2012

*Document Version:*
Publisher's PDF, also known as Version of Record (includes final page, issue and volume numbers)

*Please check the document version of this publication:*

• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
• The final author version and the galley proof are versions of the publication after peer review.
• The final published version features the final layout of the paper including the volume, issue and page numbers.

Link to publication

*General rights*
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
• You may not further distribute the material or use it for any profit-making activity or commercial gain
• You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

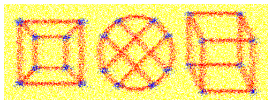
www.tue.nl/taverne

*Take down policy*
If you believe that this document breaches copyright please contact us at:

openaccess@tue.nl

providing details and we will investigate your claim.

Download date: 17. Nov. 2023


Journal of Graph Algorithms and Applications
http://jgaa.info/ vol. 16, no. 3, pp. 631–633 (2012)
DOI: 10.7155/jgaa.00277

# Special Issue with Selected Papers from the 19th International Symposium on Graph Drawing, GD 2011: Guest Editors' Foreword

*Marc van Kreveld*[1] *Bettina Speckmann*[2]

[1]Department of Information and Computing Sciences,
Utrecht University, the Netherlands
[2]Department of Computer Science,
Eindhoven University of Technology, the Netherlands

*E-mail addresses:* m.j.vankreveld@uu.nl (Marc van Kreveld) speckman@win.tue.nl (Bettina Speckmann)

This issue of the Journal of Graph Algorithms and Applications is devoted to the nineteenth International Symposium on Graph Drawing, held September 19–21, 2011, in Eindhoven, the Netherlands. Six of the best papers of the symposium were invited to this special issue; they were selected by the program committee. We are happy that the authors of all six papers accepted our invitation, produced a revised and full version, and submitted it for reviewing. All papers were subjected to the standard level of reviewing of the journal, and after further revisions, sometimes extensive and significant, all six papers were accepted. We wish to start by thanking all reviewers of the papers for their excellent work; they are co-responsible for the quality of this issue.

Cornelsen and Karrenbauer address the problem of bend minimization in orthogonal drawings of plane graphs. It has been known since 1996 that this problem can be solved in $O(n^{7/4} \log n)$ time, the new bound proved in this paper is $O(n^{3/2})$. The new bound is based on solving a min-cost flow problem more efficiently on plane graphs, using contraction and expansion.

Bannister, Eppstein and Simons also address orthogonal graph drawing, albeit of non-planar graphs. They assume an orthogonal drawing is given, and prove that several optimizations on the drawing cannot be approximated efficiently. In particular, minimizing the number of rows, the area, or the total edge length is hard to approximate within a polynomial factor in polynomial time, unless P=NP. They use approximation-preserving reductions from graph coloring. As a positive result, they present a fixed-parameter tractable algorithm for cases where compaction gives a small number of rows.

Di Battista, Squarcella and Nagele introduce a new visualization paradigm for root name servers. They consider the K-root name server of the RIPE Network Coordination Centre, and choose as a metaphor the geographic map to visualize migration flows of clients via animations. They propose two versions: the country map and the octopus map. Algorithms are given for both types, and they are compared on their features.

Alam, Biedl, Felsner, Kaufmann and Kobourov study representations of planar graphs by planar subdivisions, where nodes of the graph are polygons and arcs of the graph are contacts between polygons. Objectives of such representations are low complexity of the polygons and little unused area. In the case of proportional contact representations, the area of each polygon is specified. For certain types of graphs, like 2-segment graphs and outerplanar graphs, the authors analyze when triangles or quadrilaterals are necessary and sufficient in the cases of point contacts and side contacts.

Chimani and Gutwenger discuss algorithms for minimizing crossing numbers in practice. Such algorithms insert edges incrementally, representing intersections with dummy vertices. They perform an extensive study, providing the first implementation of an approximation algorithm and a new post-processing method. Both methods outperform previous heuristics in terms of the resulting crossing number.

Fulek, Pelsmajer, Schaefer and Stefankovic study combinatorial problems related to crossing numbers. Two edges in a drawing of a graph are an odd

pair if they cross an odd number of times. Two edges are independent if they do not share endpoints. It was an open problem whether a graph exists for which the smallest possible number of independent odd pairs is strictly smaller than the smallest number of odd pairs. This paper answers the question in the affirmative. Furthermore, the paper separates other crossing number concepts related to monotone crossing numbers and algebraic crossing numbers.

The selected results on graph drawing included in this special issue are a selection from many other interesting results that appeared at the symposium, and which appear in the conference proceedings. They show that graph drawing is an advancing, exciting field of research of considerable breadth.

We repeat our thanks to the anonymous reviewers, but also wish to thank the managing editor Giuseppe Liotta and the publication editor Emilio Di Giacomo for their role in making this special issue possible.