Special Issue of Selected Papers from the 24th International Symposium on Graph Drawing and Network Visualization (GD 2016)

Guest Editors’ Foreword

Yifan Hu 1 Martin Nöllenburg 2

1Yahoo Research, 229 W 43rd St
New York, New York 10036, USA
2Technische Universität Wien
Institut für Computergraphik und Algorithmen 186/1
Favoritenstraße 9–11
1040 Wien, Austria

E-mail addresses: yifanhu@yahoo.com (Yifan Hu) noellenburg@ac.tuwien.ac.at (Martin Nöllenburg)
This special issue of the Journal of Graph Algorithms and Applications is devoted to the 24th International Symposium on Graph Drawing, which was held in Athens, Greece, September 19-21, 2016, hosted by the Institute of Communications and Computer Systems, an affiliate of the National Technical University of Athens. The authors of the highest rated papers, among all submission to both tracks of the symposium, were invited to submit a revised and extended version. Six papers were submitted, which all went through a thorough refereeing and revision process. The papers of this special issue cover a broad range of topics of interest to the Graph Drawing and Network Visualization community, and reflect the current state of the art both in theory and in practice.

- Ortmann, Klimenta, and Brandes proposed a method to overcome the quadratic computational and space complexity of the stress model by aggregation of terms in the objective function. It demonstrated that the method yields better approximations of the minimum-stress layouts in less time than related methods.

- Riegg, Ehlers, Spöinemann, and von Hanxleden proposed an integer programming model and a heuristic for the Generalized Layering Problem, which combines the problems of cycle removal and layer assignment together. They showed that doing so gives better performance in terms of compactness of the layout.

- Nachmanson, Nocaj, Bereg, Zhang, and Holroyd studied the problem of node overlap removal. They proposed an algorithm that iteratively builds a minimum spanning tree on a Delaunay triangulation of the node centers and removes the node overlaps by “growing” the tree. The algorithm is simple to implement and produces good quality final layouts.

- Van Dijk, Fink, Fischer, Lipp, Markfelder, Ravsky, Suri, and Wolff took a new perspective on crossing minimization in storyline visualizations by considering block crossings of line bundles rather than individual line crossings. The paper covers a wide range of results from complexity considerations, fixed-parameter tractable algorithms, approximation algorithms all the way to greedy heuristics with an experimental evaluation.

- Biedl and Pennarun studied non-aligned grid drawings of planar graphs, where no two vertices may be placed in the same row or column. On the one hand they improve the bound on the number of bends required for a drawing on the $n \times n$-grid and on the other hand they prove several upper bounds on the required grid size for straight-line non-aligned grid drawings.

- Colin de Verdière, Kaluža, Paták, Patáková, and Tancer presented a new proof for the strong Hanani-Tutte theorem on the projective plane. The main advantage of the new proof is that it is constructive, which makes their techniques potentially very useful for studying whether the strong Hanani-Tutte theorem is valid on other surfaces.
We would like to thank the authors for the extra time spent in revising and expanding their papers, the referees for their careful reviews that led to improvements and even new results, and the editors of the Journal of Graph Algorithms and Applications for making this special issue possible.