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**Special Issue of Selected Papers from the
26th International Symposium on
Graph Drawing and Network Visualization
(GD 2018)**

Guest Editors' Foreword

Therese Biedl¹ Andreas Kerren²

¹Cheriton School of Computer Science, University of Waterloo, Canada

²Department of Computer Science and Media Technology,
Linnaeus University, Växjö, Sweden

This special issue of the Journal of Graph Algorithms and Applications is dedicated to some of the best papers from the 26th International Symposium on Graph Drawing and Network Visualization, which was held in Barcelona, Spain, September 26-28, 2018. The symposium was hosted by the Universitat Politècnica de Catalunya with Vera Sacristán and Rodrigo Silveira as co-chairs of the organizing committee. The authors of five of the best papers presented at the symposium were invited to submit a revised and extended version of their work to this special issue. The submitted papers went through the standard reviewing process of the journal and were accepted after further revisions. They span a broad range of topics of interest for the Graph Drawing and Network Visualization community, covering both applied and theoretical aspects of the research field.

- Klammler, Mchedlidze, and Pak study the problem of which one of two given graph layouts is more pleasant aesthetically. The authors propose a machine learning-based discriminator model for the selection between the input layouts. The model is based on feature vectors containing diverse values ranging from graph drawing quality metrics to information-theoretical quantities. The results show that the proposed model selects the more aesthetical pleasing layouts in over 97% of the cases and outperforms existing stress-based and linear combination-based models already described in the literature.
- Castermans, Van Garderen, Meulemans, Nöllenburg, and Yuan propose techniques for finding short plane supports for spatial hypergraphs, i.e., each node of the hypergraph has a fixed position/point in the plane. Here, a “support” of a hypergraph is a graph G with the property that every hyperedge induces a connected subgraph in G . In a first contribution, it has been shown that finding plane straight-line drawings with minimum total edge length on the input point set is NP-hard. The authors then present two heuristics, LocalSearch and MSTIteration, and evaluate them with respect to each other and to exact solutions computed by an integer linear program. Experiments have shown that the heuristic LocalSearch often delivers the optimal solution and computes a support that is less than 20% longer compared to the optimal solution in most cases.
- Jünger, Mutzel, and Spisla consider the coordinate assignment phase of the Sugiyama framework for hierarchical drawings of directed graphs. As the prescribed width of the drawing has not been considered so far in the existing literature, the authors focus on this aspect and show a minimum cost flow formulation for horizontal coordinate assignment with prescribed width. The approach minimizes the total edge length with respect to a number of criteria, such as maximum width or lower and upper bounds on the distance of neighboring nodes in a layer. Experimental results demonstrate that the approach can compete with already existing state-of-the-art algorithms.

- Ortali and Tollis also consider hierarchical drawings of directed graphs, but intentionally do not follow the Sugiyama framework and instead propose a different framework. Their main idea is to partition the vertices into a set of paths (or more generally, a set of channels) and to draw each path/channel along a vertical line. For ease of reading they remove some edges while keeping the same reachability. This allows them to prove theoretical bounds (such as using at most one bend per edge) that suggest that the technique should perform well in comparison with the Sugiyama framework.
- Finally, Arseneva, Bose, Cano, D'Angelo, Dujmovic, Frati, Langerman, and Tappini study morphing of 3D graph drawings under the objective of using few moves and allowing drawings. They show that any two drawings of trees can be morphed with $O(n)$ steps, and this is asymptotically optimal. If the initial and final drawings both lie in the plane, then $O(\log n)$ steps are sufficient. Higher-dimensional morphs are briefly studied as well.

We thank the authors for contributing their high-quality papers, the referees for their valuable work, and the staff of the Journal of Graph Algorithms and Applications for making this special issue possible.