

# 32nd International Symposium on Graph Drawing and Network Visualization

GD 2024, September 18–20, 2024, Vienna, Austria

Edited by

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## ■ Preface

This volume contains the papers presented at GD 2024, the 32nd International Symposium on Graph Drawing and Network Visualization, held during September 18–20, 2024 in Vienna, Austria. Graph Drawing is concerned with the geometric representation of graphs and constitutes the algorithmic core of Network Visualization. Graph Drawing and Network Visualization are motivated by applications where it is crucial to visually analyze and interact with relational datasets. Examples of such application areas include data science, social sciences, web computing, information systems, biology, geography, business intelligence, information security and software engineering.

The symposium on Graph Drawing and Network Visualization has been the main annual event in this area for more than 30 years. Its focus is on combinatorial and algorithmic aspects of graph drawing as well as the design of network visualization systems and interfaces. Information about the conference series and past symposia is maintained at <http://www.graphdrawing.org>.

A total of 125 participants from 20 different countries attended the conference. Regular papers could be submitted to one of two distinct tracks: Track 1 for papers on fundamental theoretical graph drawing advances, such as on combinatorial and algorithmic aspects, and Track 2 for papers on practical aspects of graph drawing, such as experimental, applied, and network visualization aspects. Short papers were given a separate category, which welcomed both theoretical and applied contributions. An additional track was devoted to poster submissions, and short abstracts were invited for describing software participating in the software exhibition.

All the tracks were handled by a single Program Committee. As in previous editions of GD, the papers in the different tracks did not compete directly with each other, but all program committee members were invited to review papers from either track in a “light-weight double-blind” process.

In response to the call for papers, the Program Committee received a total of 108 submissions, consisting of 94 papers (77 in Track 1, 17 in Track 2, and 21 in the short paper category) and 14 posters. Close to 300 reviews were provided, almost half having been contributed by external sub-reviewers. After extensive electronic discussions by the Program Committee via EasyChair, interspersed with virtual meetings of the Program Chairs producing incremental accept/reject proposals, 31 long papers, 7 short papers, and 13 posters were selected for inclusion in the scientific program of GD 2024. This resulted in an overall paper acceptance rate (not considering posters) of 40% (41% in Track 1, 35% in Track 2, and 33% in the short paper category). As is common in GD, some hard choices had to be made in particular during the final acceptance/rejection round, where several papers that clearly had merit still did not make the cut. However, the number of submitted high-quality papers speaks for the community.

For the first time in GD history, the proceedings are published by LIPIcs, creating an additional challenge for authors and editors as the established schedule and workflow for the creation of the proceedings had to be changed. The generous support by the Dagstuhl LIPIcs team helped to ease efforts in this transition.

There were two invited talks at GD 2024. Otfried Cheong from SCALGO (Denmark) gave answers to the question “How Can Biclique Covers Help in Matching Problems” and Monika Henzinger from the Institute of Science and Technology Austria discussed the question “How Can Algorithms Help in Protecting our Privacy”. Abstracts of both invited talks are included in these proceedings.



The conference gave out best paper awards in Track 1 and Track 2, as well as a best presentation award and a best poster award. The award for the best paper in Track 1 was given to “The Density Formula: One Lemma to Bound Them All” by Michael Kaufmann, Boris Klemz, Kristin Knorr, Meghana M. Reddy, Felix Schröder and Torsten Ueckerdt (Paper 7 in this volume), and the award for the best paper in Track 2 was given to “GraphTrials: Visual Proofs of Graph Properties” by Henry Förster, Felix Klesen, Tim Dwyer, Peter Eades, Seok-Hee Hong, Stephen Kobourov, Giuseppe Liotta, Kazuo Misue, Fabrizio Montecchiani, Alexander Pastukhov and Falk Schreiber (Paper 16). Based on a majority vote of the conference participants, the best presentation award was given to Soeren Terziadis for the presentation of “Boundary Labeling in a Circular Orbit” (Paper 22) and the best poster award was given to Simon D. Fink, Matthias Pfretzschner, Ignaz Rutter, and Peter Stumpf for the poster titled “Level Planarity Is More Difficult Than We Thought” (Paper 50).

A PhD School was held on the two days prior to the conference. Four half-day sessions led by Philipp Kindermann, Tamara Mchedlidze, Thekla Hamm, and Manfred Scheucher covered both theoretical and practical topics in graph drawing and network visualization.

As is traditional, the 31st Annual Graph Drawing Contest was held during the conference. The contest was divided into two parts, creative topics and the live challenge. The creative topics task featured a single graph that represents the history of medal wins by countries at the Olympic games. The live challenge focused on minimizing the number of crossings on point set embeddings. There were two categories: manual and automatic. We thank the Contest Committee, chaired by Fabian Klute, for preparing interesting and challenging contest problems. A report on the contest is included in these proceedings.

Many people and organizations contributed to the success of GD 2024. We would like to thank all members of the Program Committee and the external reviewers for carefully reviewing and discussing the submitted papers and posters; this was crucial for putting together a strong and interesting program. We would also like to thank all authors who chose GD 2024 as the publication venue for their research and the participants that showcased their software.

We are grateful for the support of our “Gold” sponsors Tom Sawyer Software and yWorks, our “Bronze” sponsor Neo4J, and our “Contributors” vrvis and TU Wien. Their generous support helped to ensure the continued success of this conference. Furthermore, we would like to thank the LIPIcs team for their support during the creation of these proceedings.

Our special thanks go to all the members of the organizing committee based at TU Wien and St. Pölten University of Applied Sciences, Austria, in particular to the co-chairs Martin Nöllenburg and Robert Ganian.

The 33rd International Symposium on Graph Drawing and Network Visualization (GD 2025) will take place during September 24–26, 2025, in Norrköping, Sweden, and will be hosted by Linköping University. Andreas Kerren and Kostiantyn Kucher will co-chair the Organizing Committee, and Vida Dujmović and Fabrizio Montecchiani will co-chair the Program Committee.

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