Table of Contents

Papers

Crossings and Permutations
    Therese Biedl, Franz J. Brandenburg, Xiaotie Deng ....................... 1

Morphing Planar Graphs While Preserving Edge Directions
    Therese Biedl, Anna Lubiw, Michael J. Spriggs ......................... 13

Dynamic Spectral Layout of Small Worlds
    Ulrik Brandes, Daniel Fleischer, Thomas Puppe ......................... 25

Exact Crossing Minimization
    Christoph Buchheim, Dietmar Ebner, Michael Jünger,
    Gunnar W. Klau, Petra Mutzel, René Weiskircher ...................... 37

On Embedding a Cycle in a Plane Graph
    Pier Francesco Cortese, Giuseppe Di Battista, Maurizio Patrignani,
    Maurizio Pizzonia ................................................. 49

On Rectilinear Duals for Vertex-Weighted Plane Graphs
    Mark de Berg, Elena Mumford, Bettina Speckmann ...................... 61

Bar k-Visibility Graphs: Bounds on the Number of Edges, Chromatic
Number, and Thickness
    Alice M. Dean, William Evans, Ellen Gethner, Joshua D. Laison,
    Mohammad Ali Safari, William T. Trotter .......................... 73

Drawing $K_n$ in Three Dimensions with One Bend Per Edge
    Olivier Devillers, Hazel Everett, Sylvain Lazard, Maria Pentcheva,
    Stephen K. Wismath .............................................. 83

Small Area Drawings of Outerplanar Graphs
    Giuseppe Di Battista, Fabrizio Frati ................................ 89

Volume Requirements of 3D Upward Drawings
    Emilio Di Giacomo, Giuseppe Liotta, Henk Meijer,
    Stephen K. Wismath .............................................. 101

How to Embed a Path onto Two Sets of Points
    Emilio Di Giacomo, Giuseppe Liotta, Francesco Trotta ................. 111
XIV Table of Contents

Upward Spirality and Upward Planarity Testing
Walter Didimo, Francesco Giordano, Giuseppe Liotta

Graph Treewidth and Geometric Thickness Parameters
Vida Dujmovi ć, David R. Wood

Stress Majorization with Orthogonal Ordering Constraints
Tim Dwyer, Yehuda Koren, Kim Marriott

Fast Node Overlap Removal
Tim Dwyer, Kim Marriott, Peter J. Stuckey

Delta-Confluent Drawings
David Eppstein, Michael T. Goodrich, Jeremy Yu Meng

Transversal Structures on Triangulations, with Application to
Straight-Line Drawing
Eric Fusy

A Hybrid Model for Drawing Dynamic and Evolving Graphs
Marco Gaertler, Dorothea Wagner

Two Trees Which Are Self-intersecting When Drawn Simultaneously
Markus Geyer, Michael Kaufmann, Imrich Vr t o

C-Planarity of Extrovert Clustered Graphs
Michael T. Goodrich, George S. Lueker, Jonathan Z. Sun

Non-planar Core Reduction of Graphs
Carsten Gutwenger, Markus Chimani

An Experimental Comparison of Fast Algorithms for Drawing General
Large Graphs
Stefan Hachul, Michael Jünger

Hierarchical Layouts of Directed Graphs in Three Dimensions
Seok-Hee Hong, Nikola S. Nikolov

Layout Effects on Sociogram Perception
Weidong Huang, Seok-Hee Hong, Peter Eades

On Edges Crossing Few Other Edges in Simple Topological Complete
Graphs
Jan Kyncl, Pavel Valtr
On Balloon Drawings of Rooted Trees
Chun-Cheng Lin, Hsu-Chun Yen ........................................ 285

Convex Drawings of Plane Graphs of Minimum Outer Apices
Kazuyuki Miura, Machiko Azuma, Takao Nishizeki .............. 297

Energy-Based Clustering of Graphs with Nonuniform Degrees
Andreas Noack ............................................................. 309

A Mixed-Integer Program for Drawing High-Quality Metro Maps
Martin Nöllenburg, Alexander Wolff ............................... 321

Crossing Number of Toroidal Graphs
János Pach, Géza Tóth ................................................. 334

Drawing Graphs Using Modular Decomposition
Charis Papadopoulos, Constantinos Voglis ...................... 343

Applications of Parameterized st-Orientations in Graph Drawing Algorithms
Charalampos Papamanthou, Ioannis G. Tollis .................... 355

Complexity Results for Three-Dimensional Orthogonal Graph Drawing
Maurizio Patrignani ..................................................... 368

On Extending a Partial Straight-Line Drawing
Maurizio Patrignani ..................................................... 380

Odd Crossing Number Is Not Crossing Number
Michael J. Pelsmajer, Marcus Schaefer, Daniel Štefankovič .... 386

Minimum Depth Graph Embeddings and Quality of the Drawings: An Experimental Analysis
Maurizio Pizzonia ....................................................... 397

No-bend Orthogonal Drawings of Series-Parallel Graphs
Md. Saidur Rahman, Noritsugu Egi, Takao Nishizeki .......... 409

Parallel-Redrawing Mechanisms, Pseudo-Triangulations and Kinetic Planar Graphs
Ileana Streinu ........................................................... 421

Proper and Planar Drawings of Graphs on Three Layers
Matthew Suderman ...................................................... 434
Incremental Connector Routing
Michael Wybrow, Kim Marriott, Peter J. Stuckey .......................... 446

An Application of Well-Orderly Trees in Graph Drawing
Huaming Zhang, Xin He .................................................. 458

Software Demonstrations

GEOMI: GEOmetry for Maximum Insight
Adel Ahmed, Tim Dwyer, Michael Forster, Xiaoyan Fu, Joshua Ho,
Seok-Hee Hong, Dirk Koschützki, Colin Murray, Nikola S. Nikolov,
Ronnie Taib, Alexandre Tarassov, Kai Xu ............................... 468

WhatsOnWeb: Using Graph Drawing to Search the Web
Emilio Di Giacomo, Walter Didimo, Luca Grilli,
Giuseppe Liotta .......................................................... 480

Drawing Clustered Graphs in Three Dimensions
Joshua Ho, Seok-Hee Hong ............................................. 492

Posters

BLer: A Boundary Labeller for Technical Drawings
Michael A. Bekos, Antonios Symvonis ................................... 503

D-Dupe: An Interactive Tool for Entity Resolution in Social Networks
Mustafa Bilgic, Louis Licamele, Lise Getoor, Ben Shneiderman ....... 505

A New Method for Efficiently Generating Planar Graph Visibility
Representations
John M. Boyer .......................................................... 508

SDE: Graph Drawing Using Spectral Distance Embedding
Ali Civril, Malik Magdon-Ismail, Eli Bocek-Rivele ..................... 512

MultiPlane: A New Framework for Drawing Graphs in Three Dimensions
Seok-Hee Hong .......................................................... 514

Visualizing Graphs as Trees: Plant a Seed and Watch It Grow
Bongshin Lee, Cynthia Sims Parr, Catherine Plaisant,
Benjamin B. Bederson .................................................. 516

On Straightening Low-Diameter Unit Trees
Sheung-Hung Poon ...................................................... 519
Table of Contents XVII

Mixed Upward Planarization - Fast and Robust
  Martin Siebenhaller, Michael Kaufmann .......................... 522

Workshop on Network Analysis and Visualisation

Network Analysis and Visualisation
  Seok-Hee Hong .................................................. 524

Graph Drawing Contest

Graph-Drawing Contest Report
  Christian A. Duncan, Stephen G. Kobourov, Dorothea Wagner .... 528

Invited Talks

Minimum Cycle Bases and Surface Reconstruction
  Kurt Mehlhorn .................................................. 532

Hierarchy Visualization: From Research to Practice
  George G. Robertson .......................................... 533

Author Index ...................................................... 535