

# Fabrizio Frati

## Curriculum Vitae

### Personal Data

*Date and Place of Birth:* 17/04/1980, Rome, Italy

*Citizenship:* Italian

*Place of Residence:* Via conca d'oro, 212, 00141, Rome, Italy

*Affiliation:*

Dipartimento di Ingegneria Civile, Informatica e delle Tecnologie Aeronautiche, Roma Tre University

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### Degrees and Habilitations

*Abilitazione Scientifica Nazionale Professore di Prima Fascia settore 09/H1.*

Validità Abilitazione: dal 26/07/2018 al 26/07/2029

*Abilitazione Scientifica Nazionale Professore di Seconda Fascia settore 09/H1.*

Validità Abilitazione: dal 03/12/2013 al 03/12/2017

*Abilitazione Scientifica Nazionale Professore di Seconda Fascia settore 01/B1.*

Validità Abilitazione: dal 29/01/2014 al 29/01/2018

*Ph.D. in Computer Science.* Advisor: Prof. Giuseppe Di Battista, Roma Tre University, April 2009.

Title: "Small Screens and Large Graphs: Area-Efficient Drawings of Planar Combinatorial Structures".

*Abilitazione per l'esercizio della professione di Ingegnere.*

Superamento dell'Esame di Stato nel 2006.

*M.D. in Computer Science.* Advisor: Prof. Giuseppe Di Battista, Roma Tre University, May 2005.

Title: "Visualizzazione di grafi outerplanar". Grade: 110/110 *cum laude*

## Employment

*Full Professor* at Roma Tre University  
From November 2023 – current.

*Associate Professor* at Roma Tre University  
From January 2015 – October 2023.

*DECRA fellow* at The University of Sydney  
From January 2014 to December 2016 (Interrupted in January 2015).

*Postdoctoral Researcher* at The University of Sydney  
From September 2011 to December 2013. Supervisor: *Peter Eades*

*Postdoctoral Researcher* at EPFL Lausanne  
From September 2010 to July 2011. Supervisor: *János Pach*

*Postdoctoral Researcher* at Roma Tre University  
From June 2009 to May 2011. Supervisor: *Giuseppe Di Battista*

*Research Collaborator* at Roma Tre University  
From November 2008 to May 2009. Supervisor: *Giuseppe Di Battista*

*Ph.D. Student with Fellowship* at Roma Tre University  
From November 2005 to October 2008. Advisor: *Giuseppe Di Battista*

*Research Collaborator* at Roma Tre University  
September 2005. Supervisor: *Giuseppe Di Battista*

## Grants and Projects

### Principal Investigator

Grant Scheme: *PRIN 2015 - Programmi di Ricerca scientifica di rilevante Interesse Nazionale (COFIN)*

Funded amount: *144.695 €*

Principal Investigator: *Fabrizio Frati*

Project Title: *MORphing graph Drawings Efficiently (MODE)*

Grant ID: *20157EFM5C*

Duration: *36 months*, starting in January 2017

Role: *Principal investigator and grant holder*

The MIUR considered a total of 4431 proposals, out of which 300 were accepted (6.7%).

Grant Scheme: *ARC Discovery Early Career Researcher Award*

Funded amount: *AUD\$ 297,003*

Principal Investigator: *Fabrizio Frati*

Project Title: *Morphing Graph Drawings*

Grant ID: *DE140100708*

Duration: *36 months*, starting in January 2014

Role: *Principal investigator and grant holder*

The ARC considered a total of 1468 DECRA proposals, out of which 200 were accepted (13.6%).

Grant Scheme: *MIUR-DAAD Joint Mobility Program*

Funded amount: 9,960 €

Principal Investigator: *Fabrizio Frati (Patrizio Angelini is the PI for the German team)*

Project Title: *Algorithms and Models for Hybrid Representations of Locally-Dense Large Networks*

Grant ID: 34120

Duration: 24 months, starting in March 2018

Role: *Principal investigator and grant holder*

### **Local Coordinator**

Grant Scheme: *PRIN 2022 - Programmi di Ricerca scientifica di rilevante Interesse Nazionale (COFIN)*

Funded amount: 267,526€ (locally: 59,984€)

Principal Investigator: *Fabrizio Montecchiani*

Project Title: *NextGRAAL: Next-generation algorithms for constrained GRAPH visuALization*

Duration: 24 months, starting in October 2023

Role: *Local Coordinator*

Grant Scheme: *MSCA-RISE 2016 - Research and Innovation Staff Exchange (Horizon 2020)*

Funded amount: 324,000€ (locally: 13,500€)

Principal Investigator: *Clemens Huemer*

Project Title: *CONNECT – Combinatorics of Networks and Computation*

Duration: 48 months, starting in January 2017

Role: *Local Coordinator*

### **Participant**

Grant Scheme: *PRIN 2022 - Programmi di Ricerca scientifica di rilevante Interesse Nazionale (COFIN)*

Principal Investigator: *F. Vandin*

Project Title: *Expand – scalable algorithms for EXPLoratory Analyses of heterogeneous and dynamic Networked Data*

Duration: 36 months, starting in September 2023

Role: *Participant*

Grant Scheme: *PRIN 2017 - Programmi di Ricerca scientifica di rilevante Interesse Nazionale (COFIN)*

Principal Investigator: *G. Italiano*

Project Title: *AHeAD – efficient Algorithms for HARnessing networked Data*

Duration: 36 months, starting in September 2019

Role: *Participant*

Grant Scheme: *ARC Discovery Project*

Principal Investigators: *P. Eades*

Project Title: *Algorithms for Geometric Turan-type Problems and Network Visualization*

Duration: 28 months, starting in September 2011

Role: *Research associate, employed within the project.*

Grant Scheme: *ESF EuroGiga*

Principal Investigators: *J. Kratochvíl*

Project Title: *Graph Drawings and Representations*

Duration: 36 months, starting in January 2011

Role: *Participant.*

Grant Scheme: *PRIN 2008 - Programmi di Ricerca scientifica di rilevante Interesse Nazionale (COFIN)*

Principal Investigators: *A. A. Pietracaprina*  
Project Title: *AlgoDEEP – Algorithmic challenges for Data-intensive processing on Emerging computing Platforms*  
Duration: *24 months*, starting in March 2010  
Role: *Participant*

Grant Scheme: *PRIN 2006 - Programmi di Ricerca scientifica di rilevante Interesse Nazionale (COFIN)*  
Principal Investigators: *G. Ausiello*  
Project Title: *MAINSTREAM – Algorithms for Massive Information Structures and Data Streams*  
Duration: *24 months*, starting in February 2007  
Role: *Participant.*

Grant Scheme: *PRIN 2004 - Programmi di Ricerca scientifica di rilevante Interesse Nazionale (COFIN)*  
Principal Investigators: *G. Italiano*  
Project Title: *ALGO-NEXT – Algorithms for the Next Generation Internet and Web: Methodologies, Design and Applications*  
Duration: *24 months*, starting in December 2004  
Role: *Participant.*

## **University Committees and Service**

Ph.D. Coordinator for the Roma Tre University Ph.D. course “Computer Science and Automation”  
From November 2020 – current.

Committee member for a fixed-term researcher position (RTD-A) at the University of Padua, D.R. n. 2406 and 4036, year 2022, of the University of Padua.

Committee member for Ph.D. defense of Giacomo Ortali “Efficient Algorithms for Computing Orthogonal and Upward Drawings of Graphs” at the University of Perugia, July 2022.

Committee member for the admission in the Ph.D. course “Computer Science and Automation” of Roma Tre University, September 2020, XXXVI cycle.

Committee member and thesis reviewer for Ph.D. defense of Fabian Klute “Avoiding Crossings in Non-Planar Graph Layouts” at TU Wien, February 2020.

Committee member for a fixed-term researcher position (RTD-B) at the University of Perugia, D.R. n. 710 and 1272, year 2018, of the University of Perugia.

## **Teaching Activities**

*Teaching*

- 2009-2010     Algorithmic Techniques for Graphs and Networks, Roma Tre University  
(Master Degree in “Ingegneria Informatica”, 3 CFU)
- 2014-current   Foundations of Computer Science, Roma Tre University  
(Bachelor Degree in “Ingegneria Civile”, 6 CFU)
- 2016-current   Foundations of Computer Science, Roma Tre University  
(Bachelor Degree in “Ingegneria Informatica”, 12 CFU)
- 2020-current   Algorithms for Big Data, Roma Tre University  
(Master Degree in “Ingegneria Informatica”, 6 CFU)  
together with G. Da Lozzo, G. Di Battista, M. Patrignani, M. Pizzonia

*Teaching Assistance*

- 2006-2009     Theoretical Computer Science I, Roma Tre University
- 2006-2009     Theoretical Computer Science II, Roma Tre University
- 2010-2011     Linear Algebra I, EPFL Lausanne
- 2010-2011     Linear Algebra II, EPFL Lausanne
- 2010-2011     Analysis, EPFL Lausanne
- 2011-2012     Computational Geometry, The University of Sydney
- 2011-2014     Information Visualization, The University of Sydney

*Ph. D. Students Supervised*

- 2018-2022     Manuel Borrazzo: Distance-Constrained and Dynamic Planar Graph Embeddings
- 2020-current   Fabrizio Grosso

*Master Students Supervised or Co-Supervised*

- 2007     Guido Drovandi: How to Draw a Clustered Tree
- 2010     Stefano Sarauelli: Book Embedding of Upward Planar Directed Graphs
- 2010     Enrico Colasante: Monotone Graph Drawing
- 2010     Vincenzo Roselli: Morphing Planar Graph Drawings
- 2017     Barbara Covella: Straight-Line Orthogonal Drawings of Ternary Trees
- 2018     Manuel Borrazzo: Morphing of Non-Planar Graph Drawings
- 2020     Marco Tais: Visualization of the Structure of Networks of Large Size
- 2020     Fabrizio Grosso: Algorithms for the Visualization of Graphs on a Stream
- 2022     Simone Garzarella: Euristiche per il Morphing di Grafi in Area Limitata

**Research Activities**

*Research Group*

I am currently a member of the “Graph Algorithms and Network Visualization” research group at the Department of Civil Engineering, Computer Science and Aeronautical Technologies at Roma Tre University. I was previously a member of the “Combinatorial Geometry” group at the École Polytechnique Fédérale de Lausanne and a member of the “Sydney Algorithms and Computing Theory” group at the University of Sydney.

*Research Interests*

My primary area of research is **Graph Drawing**, which studies algorithms and bounds to construct geometric and topological representations of graphs. Graph Drawing has applications in several fields of computer science and beyond, including *Information Visualization*, *Social Network Analysis*, *Cartography*, and *Bioinformatics*. A typical algorithmic Graph Drawing question asks for the complexity of deciding whether a graph from a certain graph class (e.g., a planar graph or a bounded-degree graph) admits a representation satisfying certain constraints (e.g., every edge is a straight-line segment and no two edges cross). A typical combinatorial Graph Drawing question asks to

determine worst-case asymptotic bounds for some measure (e.g., the number of edge crossings or the area occupied by the representation) among all possible representations of a graph from a certain graph class.

My secondary areas of research are **Combinatorial Geometry** and **Graph Theory**. Combinatorial Geometry problems study combinatorial properties of discrete sets of geometric objects (e.g., the maximum number of distinct planar geometric graphs spanning any given point set with  $n$  points). Graph Theory problems concern the study of abstract graphs, both from an algorithmic and from a combinatorial point of view; designing a linear-time algorithm to four-color any planar graph or proving that every planar 3-connected 3-regular bipartite graph is Hamiltonian are examples of algorithmic and combinatorial Graph Theory problems, respectively. Graph Theory finds applications in several areas of Science, including *Physics*, *Biology*, and *Chemistry*.

### *Invited Talks*

- University of Arizona, U.S.A. “Drawing Planar Graphs in Small Area”, January 2008.
- Universität Tübingen, Germany. “Drawing Planar Graphs in Small Area”, February 2008.
- University of Rome La Sapienza, Italy. “Testing Planarity of Partially Embedded Graphs”, January 2010.
- The University of Calgary, Canada. “On the Number of Upward Planar Orientations of Maximal Planar Graphs”, September 2012.
- Universität Würzburg, Germany. “Graph Embeddings with Low Distortion” invited talk for the PhD school “Recent Trends in Graph Drawing – Curves, Crossings, and Constraints”, held in conjunction with the 22nd International Symposium on Graph Drawing (GD ’14), September 2014.
- Intensive Research Program in Discrete, Combinatorial and Computational Geometry. “Morphing geometric representations of graphs”, Barcelona, May 2018.
- Carleton University, Canada. “How to Morph a Tree on a Small Grid”, July 2019.
- Computation and Reconfiguration in Low-Dimensional Topological Spaces, Dagstuhl seminar 22062. “Morphing graph drawings”, online, 2022.
- Jagiellonian University, Poland. “Currents Trends and Hot Problems in Graph Drawing”, TCS seminar series, online, 2023.
- University of California at San Diego, U.S.A. “Old and new challenges in 3D Graph Drawing”, invited talk at the Workshop on Graph Drawing and Intersection Graphs, January 2024.

### *Conference Talks*

- 13th International Symposium on Graph Drawing (GD ’05): “Small Area Drawings of Outerplanar Graphs”. Limerick, Ireland.
- 14th International Symposium on Graph Drawing (GD ’06): “Three Dimensional Drawings of Bounded Degree Trees”. Karlsruhe, Germany.
- 14th International Symposium on Graph Drawing (GD ’06): “Embedding Graphs Simultaneously with Fixed Edges”. Karlsruhe, Germany.
- 3rd Workshop on Combinatorial and Algorithmic Aspects of the Networks (CAAN ’06): “On the Topologies of Local Minimum Spanning Trees”. Chester, United Kingdom.
- 33rd International Workshop on Graph-Theoretic Concepts in Computer Science (WG ’07): “On Minimum Area Planar Upward Drawings of Directed Trees and Other Families of Directed Acyclic Graphs”. Dornburg, Germany.

- 10th Workshop on Algorithms and Data Structures (WADS '07): “How to Draw a Clustered Tree”. Halifax, Canada.
- 19th Canadian Conference on Computational Geometry (CCCG '07): “Straight-line Drawings of Outerplanar Graphs in  $O(dn \log n)$  Area”. Ottawa, Canada.
- 15th International Symposium on Graph Drawing (GD '07): “Straight-line Orthogonal Drawings of Binary and Ternary Trees”. Sydney, Australia.
- 15th International Symposium on Graph Drawing (GD '07): “Efficient C-Planarity Testing for Embedded Flat Clustered Graphs with Small Faces”. Sydney, Australia.
- 16th International Symposium on Graph Drawing (GD '08): “Non-Convex Representations of Graphs”. Heraklion, Greece.
- 34th International Workshop on Graph-Theoretic Concepts in Computer Science (WG '08): “A Lower Bound on the Area Requirements of Series-Parallel Graphs”. Durham, United Kingdom.
- 21st Canadian Conference on Computational Geometry (CCCG '09): “Planar Packing of Diameter-Four Trees”. Vancouver, Canada.
- 21st Canadian Conference on Computational Geometry (CCCG '09): “Directed Graphs with an Upward Straight-line Embedding into Every Point Set”. Vancouver, Canada.
- 17th International Symposium on Graph Drawing (GD '09): “Succinct Greedy Drawings Do Not Always Exist”. Chicago, U.S.A.
- 18th International Symposium on Graph Drawing (GD '10): “Improved Lower Bounds on the Area Requirements of Series-Parallel Graphs”. Konstanz, Germany.
- 51st Symposium on Foundations of Computer Science (FOCS '10): “On the Queue Number of Planar Graphs”. Las Vegas, U.S.A.
- 14th Spanish Meeting on Computational Geometry (EGC '11): “RAC and LAC Drawings of Planar Graphs in Subquadratic Area”. Alcalá, Spain.
- 22nd International Symposium on Algorithms and Computation (ISAAC '11): “Simultaneous Embedding of Embedded Graphs”. Yokohama, Japan.
- 18th Annual International Computing and Combinatorics Conference (COCOON '12): “Multilevel Drawings of Clustered Graphs”. Sydney, Australia.
- 20th International Symposium on Graph Drawing (GD '12): “Representing Graphs by Touching Cuboids”. Redmond, U.S.A.
- 23rd International Symposium on Algorithms and Computation (ISAAC '12): “On the Number of Upward Planar Orientations of Maximal Planar Graphs”. Taipei, Taiwan.
- 36th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing (ACCMCC '12): “A Planar Graph Decomposition with Applications to Graph Layout”. Sydney, Australia.
- 21st International Symposium on Graph Drawing (GD '13): “On the Upward Planarity of Mixed Plane Graphs”. Bordeaux, France.
- 22nd International Symposium on Graph Drawing (GD '14): “Increasing-Chord Graphs on Point Sets”. Würzburg, Germany.
- 22nd International Symposium on Graph Drawing (GD '14): “Drawing Partially Embedded and Simultaneously Planar Graphs”. Würzburg, Germany.
- 24th International Symposium on Graph Drawing and Network Visualization (GD '16): “Stack and Queue Layouts via Layered Separators”. Athens, Greece.

- 24th International Symposium on Graph Drawing and Network Visualization (GD '16): “Drawing Planar Graphs with Many Collinear Vertices”. Athens, Greece.
- 28th ACM-SIAM Symposium on Discrete Algorithms (SODA '17): “LR-Drawings of Ordered Rooted Binary Trees and Near-Linear Area Drawings of Outerplanar Graphs”. Barcelona, Spain.
- 16th International Symposium on Algorithms and Data Structures (WADS '19): “How to Morph a Tree on a Small Grid”. Edmonton, Canada.
- 16th International Symposium on Algorithms and Data Structures (WADS '19): “Extending Upward Planar Graph Drawings”. Edmonton, Canada.
- 46th International Workshop on Graph-Theoretic Concepts in Computer Science (WG '20): “Universal Geometric Graphs”. Leeds, U.K. (online).
- 28th International Symposium on Graph Drawing and Network Visualization (GD '20): “Planar Rectilinear Drawings of Outerplanar Graphs in Linear Time”. Vancouver, Canada (online).
- 29th International Symposium on Graph Drawing and Network Visualization (GD '21): “From Tutte to Floater and Gotsman: On the Resolution of Planar Straight-line Drawings and Morphs”. Tübingen, Germany.
- 30th International Symposium on Graph Drawing and Network Visualization (GD '22): “Testing Upward Planarity of Partial 2-Trees”. Tokyo, Japan (online).

#### *Invited Academic Visits*

- 2006 June - 2006 August, Universität Tübingen, Germany. Invited by Prof. Michael Kaufmann.
- 2007 November - 2008 May, New York University, U.S.A. Invited by Prof. János Pach.
- 2008 January, University of Arizona, U.S.A. Invited by Prof. Stephen Kobourov.
- 2009 June, Charles University, Czech Republic. Invited by Prof. Jan Kratochvíl.
- 2009 September, University of California at Irvine, U.S.A. Invited by Prof. David Eppstein and Prof. Michael Goodrich.
- 2012 January, The University of Melbourne, Australia. Invited by Prof. David R. Wood.
- 2012 September, The University of Calgary, Canada. Invited by Prof. Csaba Tóth.
- 2019 July, Carleton University, Canada. Invited by Prof. Prosenjit Bose.
- 2022 June, Carleton University, Canada. Invited by Prof. Prosenjit Bose.
- 2024 January, University of California at San Diego, U.S.A. Invited by Prof. Andrew Suk.

#### *Visiting Positions*

- 2017-2020: Visiting Fellow at the School of Information Technologies within the Faculty of Engineering and Information Technologies of the University of Sydney.

#### *Workshop Organization*



- I organized an invitation-only workshop on “Geometric Graph Theory”, held in Lennox Head, NSW, Australia, in 2012. Attendance: Prof. P. Eades and Prof. S.-H. Hong from The University of Sydney (Australia), Prof. B. McKay from Australian National University (Australia), Prof. D. R. Wood and Prof. G. Farr from Monash University (Australia), Prof. M. Kaufmann from Tübingen University (Germany), Prof. Janos Pach from EPFL (Switzerland), and Prof. C. Tóth from California State University (U.S.A.).
- I co-organized (with S.-H. Hong and K. Klein from The University of Sydney from Roma Tre University) a workshop on “Theory and Practice of Graph Drawing”, held at the Microsoft Research Office Redmond (U.S.A.) in 2012, in conjunction with the 20th International Symposium on Graph Drawing (GD ’12). Attendance: 43 participants.
- I am the co-organizer (with G. Da Lozzo, G. Di Battista, and M. Patrignani from Roma Tre University) of a workshop called “Summer Workshop on Graph Drawing”, which had its first edition at Castiglione del Lago (Italy) in 2021 (19 participants), its second edition at Caldana (Italy) in 2022 (28 participants), and its third edition at Caldana (Italy) in 2023 (31 participants).

## Service to the Community

### *Steering Committees*

- International Symposium on Graph Drawing and Network Visualization (GD), 2016-2018

### *Program Committees*

- International Symposium on Graph Drawing and Network Visualization (GD 2011, GD 2013, GD 2015, GD 2017 - **Co-Chair**, GD 2020, GD 2023).
- Australasian Theory Symposium (CATS 2013).
- Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2016, CALDAM 2017).
- International Symposium on Algorithms and Computation (ISAAC 2016, ISAAC 2024).
- European Workshop on Computational Geometry (EuroCG 2017).
- International Symposium on Computational Geometry (SoCG 2018).
- Annual European Symposium on Algorithms (ESA 2020).

### *Editorial Board*

- 2021-2024: Journal of Computational Geometry (JoCG).

### *Reviews*

- Journals: Journal of Graph Algorithms and Applications, Discrete and Computational Geometry, Computational Geometry: Theory and Applications, Transactions on Computers, Algorithmica, Journal of Combinatorial Optimization, Journal of Discrete Algorithms, Information Processing Letters, The Computer Journal, International Journal of Computational Geometry and Applications, European Journal of Operational Research, Electronic Journal on Combinatorics, Discrete Applied Mathematics, Journal of Computational Geometry, Transactions on Visualization and Computer Graphics, Theoretical Computer Science, International Journal on Foundations of Computer Science, Journal of the ACM, Combinatorica, Graphs and Combinatorics.

- Conferences: GD '06, GD '07, GD '08, IWOCOA '09, CIAC '10, GD '10, SoCG '11, FOCS '11, CCCG '11, FSTTCS '11, FAW '12, COCOON '12, GD '12, ISAAC '12, COCOON '13, SEA '13, ICALP '13, SODA '14, LATIN '14, STACS '14, ICALP '14, WG '14, CCCG '14, GD '14, SODA '15, SoCG '15, CSR '15, SODA '16, SoCG '16, GD '16, MFCS '17, CCCG '17, GD '18, SODA '18, STACS '19, GD '19, SODA '19, SoCG '20, CIAC '20, EuroCG '21, ICALP '21, WADS '21, GD '21, GD '22, SOCG '23.

## Publications and Citations

### *Edited Books*

1. Fabrizio Frati, Kwan-Liu Ma (eds.) Graph Drawing and Network Visualization - 25th International Symposium, GD 2017, Boston, MA, USA, September 25-27, 2017, Revised Selected Papers. Lecture Notes in Computer Science 10692, Springer 2018, ISBN 978-3-319-73914-4

### *Journal Publications*

1. F. Frati, M. Hoffmann, and C. D. Tóth. Universal Geometric Graphs. *Combinatorics, Probability and Computing*, 32(5), 742-761, 2023.
2. K. Buchin, W. S. Evans, F. Frati, I. Kostitsyna, M. Löffler, T. Ophelders, A. Wolff. Morphing Planar Graph Drawings Through 3D. *Computing in Geometry and Topology*, 2(1), 5:1–5:18, 2023.
3. M. A. Bekos, G. Da Lozzo, F. Frati, M. Gronemann, T. Mchedlidze, C. N. Raftopoulou. Recognizing DAGs with page-number 2 is NP-complete. *Theoretical Computer Science*, 946: 113689, 2023.
4. O. Aichholzer, M. Borrazzo, P. Bose, J. Cardinal, F. Frati, P. Morin, and B. Vogtenhuber. Drawing Graphs as Spanners. *Discrete and Computational Geometry*, 68(3): 774-795, 2022.
5. F. Frati. Planar rectilinear drawings of outerplanar graphs in linear time. *Computational Geometry: Theory and Applications*. 103:101854, 2022.
6. F. Barrera-Cruz, M. Borrazzo, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, V. Roselli. How to Morph a Tree on a Small Grid. *Discrete and Computational Geometry*, 67(3): 743-786, 2022.
7. V. Dujmović, F. Frati, D. Goncalves, P. Morin, G. Rote. Every Collinear Set in a Planar Graph Is Free. *Discrete and Computational Geometry*, 65: 999-1027, 2021.
8. B. Covella, F. Frati, M. Patrignani. On the Area Requirements of Straight-Line Orthogonal Drawings of Ternary Trees. *Theoretical Computer Science*, 852: 197-211, 2021.
9. G. Di Battista, F. Frati, M. Patrignani, M. Tais. Schematic Visualization of Large Biconnected Graphs. *Journal of Graph Algorithms and Applications*, 25(1): 311-352, 2021.
10. G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, V. Roselli. Upward Planar Morphs. *Algorithmica*, 82(10): 2985-3017, 2020.
11. M. Borrazzo, F. Frati. On the Planar Edge-Length Ratio of Planar Graphs. *Journal of Computational Geometry*, 11(1): 137-155, 2020.
12. G. Da Lozzo, G. Di Battista, F. Frati. Extending Upward Planar Graph Drawings. *Computational Geometry: Theory and Applications*, 91:101668, 2020.
13. M. Borrazzo, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani. Graph Stories in Small Area. *Journal of Graph Algorithms and Applications*, 24(3): 269-292, 2020.
14. G. Da Lozzo, A. D'Angelo, F. Frati. Planar Greedy Drawings of 3-Connected Planar Graphs. *Discrete and Computational Geometry*, 63(1): 114-157, 2020.

15. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, I. Rutter. Beyond Level Planarity: Cyclic, torus, and simultaneous level planarity. *Theoretical Computer Science*, 804: 161-170, 2020.
16. F. Frati, M. Patrignani, V. Roselli. LR-Drawings of Ordered Rooted Binary Trees and Near-Linear Area Drawings of Outerplanar Graphs. *Journal of Computer and System Sciences*, 107: 28-53, 2020.
17. F. Frati, M. Hoffmann, V. Kusters. Simultaneous Embeddings with Few Bends and Crossings. *Journal of Graph Algorithms and Applications*, 23(4): 683-713, 2019.
18. E. Arseneva, P. Bose, P. Cano, A. D'Angelo, V. Dujmovic, F. Frati, S. Langerman and A. Tappini. Pole Dancing: 3D Morphs for Tree Drawings. *Journal of Graph Algorithms and Applications*, 23(3): 579-602, 2019.
19. M. Chimani, G. Di Battista, F. Frati, K. Klein. Advances on Testing C-Planarity of Embedded Flat Clustered Graphs. *International Journal of Foundations of Computer Science*, 30(2): 197-230, 2019.
20. G. Da Lozzo, V. Dujmovic, F. Frati, T. Mchedlidze, V. Roselli. Drawing Planar Graphs with Many Collinear Vertices. *Journal of Computational Geometry*, 9(1): 94-130, 2018.
21. G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani. Computing NodeTrix Representations of Clustered Graphs. *Journal of Graph Algorithms and Applications*, 22(2): 139-176, 2018.
22. V. Dujmovic, F. Frati. Stack and Queue Layouts via Layered Separators. *Journal of Graph Algorithms and Applications*, 22(1): 89-99, 2018.
23. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, I. Rutter. Intersection-Link Representations of Graphs. *Journal of Graph Algorithms and Applications*, 21(4): 731-755, 2017.
24. S. Alamdari, P. Angelini, F. Barrera-Cruz, T. M. Chan, G. Da Lozzo, G. Di Battista, F. Frati, P. Haxell, A. Lubiw, M. Patrignani, V. Roselli, S. Singla, B. T. Wilkinson. How to Morph Planar Graph Drawings. *SIAM Journal on Computing*, 46(2): 824-852, 2017.
25. F. Frati. A Lower Bound on the Diameter of the Flip Graph. *Electronic Journal of Combinatorics*: 24(1):P43, 2017.
26. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati. Strip Planarity Testing for Embedded Planar Graphs. *Algorithmica*, Algorithmica 77(4): 1022-1059, 2017.
27. T. Chan, F. Frati, C. Gutwenger, A. Lubiw, P. Mutzel, M. Schaefer. Drawing Partially Embedded and Simultaneously Planar Graphs. *Journal of Graph Algorithms and Applications*, 19(2): 681-706, 2015.
28. G. Aloupis, L. Barba, P. Carmi, V. Dujmovic, F. Frati, P. Morin. Compatible Connectivity-Augmentation of Disconnected Graphs. *Discrete & Computational Geometry*, 54(2): 459-480, 2015.
29. P. Angelini, W. Evans, F. Frati, J. Gudmundsson. SEFE with No Mapping via Large Induced Outerplane Graphs in Plane Graphs. *Journal of Graph Theory*, 82(1): 45-64, 2016.
30. H. R. Dehkordi, F. Frati, J. Gudmundsson. Increasing-Chord Graphs On Point Sets. *Journal of Graph Algorithms and Applications*, 19(2): 761-778, 2015.
31. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, V. Roselli. The Importance of Being Proper (In Clustered-Level Planarity and T-Level Planarity). *Theoretical Computer Science*, 571: 1-9, 2015.
32. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, V. Roselli. Relaxing the Constraints of Clustered Planarity. *Computational Geometry: Theory and Applications*. 48(2):42-75, 2015.
33. P. Angelini, G. Di Battista, F. Frati, V. Jelinek, J. Kratochvil, M. Patrignani, I. Rutter. Testing Planarity of Partially Embedded Graphs. *IEEE Transactions on Algorithms*, 11(4), article no. 32, 2015.
34. F. Frati, J. Gudmundsson, S. Gaspers, L. Mathieson. Augmenting Graphs to Minimize the Diameter. *Algorithmica*, 72(4):995-1010, 2015.

35. F. Frati. Multilayer Drawings of Clustered Graphs. *Journal of Graph Algorithms and Applications*, 18(5): 633–675, 2014.
36. F. Frati, J. Gudmundsson, E. Welzl. On the Number of Upward Planar Orientations of Maximal Planar Graphs. *Theoretical Computer Science*, 544: 32–59, 2014.
37. P. Angelini, D. Eppstein, F. Frati, M. Kaufmann, S. Lazard, T. Mchedlidze, M. Teillaud, A. Wolff. Universal Point Sets for Planar Graph Drawings with Circular Arcs. *Journal of Graph Algorithms and Applications*, 18(3): 313–324, 2014.
38. F. Frati, M. Kaufmann, J. Pach, C. Tóth, D. Wood. On the Upward Planarity of Mixed Plane Graphs. *Journal of Graph Algorithms and Applications*, 18(2): 253–279, 2014.
39. P. Angelini, T. Bruckdorfer, M. Chiesa, F. Frati, M. Kaufmann, C. Squarcella. On the Area Requirements of Euclidean Minimum Spanning Trees. *Computational Geometry: Theory and Applications*, 47(2): 200–213, 2014.
40. G. Di Battista, F. Frati, J. Pach. On the Queue Number of Planar Graphs. *SIAM Journal on Computing*, 42(6): 2243–2285, 2013.
41. F. Frati, R. Fulek, A. R. Vargas. On the Page Number of Upward Planar Directed Graphs. *Journal of Graph Algorithms and Applications*, 17(3):221–244, 2013.
42. E. Di Giacomo, F. Frati, R. Fulek, L. Grilli, M. Krug. Orthogeodesic Point-Set Embedding of Trees. *Computational Geometry: Theory and Applications*, 46(8):924–944, 2013.
43. P. Angelini, G. Di Battista, F. Frati. Simultaneous Embedding of Embedded Planar Graphs. *International Journal on Computational Geometry and Applications*, 23(2): 93–126, 2013.
44. V. Dujmović, F. Frati, G. Joret, D. R. Wood. Nonrepetitive Colourings of Planar Graphs with  $O(\log n)$  Colours. *Electronic Journal of Combinatorics*: 20(1):P51, 2013.
45. G. Di Battista, F. Frati, M. Patrignani. Nonconvex Representations of Plane Graphs. *SIAM Journal on Discrete Mathematics*, 26(4):1670–1681, 2012.
46. F. Frati. Straight-line Drawings of Outerplanar Graphs in  $O(dn \log n)$  Area. *Computational Geometry: Theory and Applications*, 45:524–533, 2012.
47. P. Angelini, G. Di Battista, F. Frati. Succinct Greedy Drawings Do Not Always Exist. *Networks*, 59(3):267–274, 2012.
48. P. Angelini, F. Frati. Acyclically 3-Colorable Planar Graphs. *Journal of Combinatorial Optimization*, 24(2): 116–130, 2012.
49. P. Angelini, G. Di Battista, F. Frati, M. Patrignani, I. Rutter. Testing the Simultaneous Embeddability of Two Graphs whose Intersection is a Biconnected or a Connected Graph. *Journal of Discrete Algorithms*, 14:150–172, 2012.
50. P. Angelini, E. Colasante, G. Di Battista, F. Frati, M. Patrignani. Monotone Drawings of Graphs. *Journal of Graph Algorithms and Applications*, 16(1): 5–35, 2012.
51. F. Frati, M. Kaufmann. Polynomial Area Bounds for MST Embeddings of Trees. *Computational Geometry: Theory and Applications*, 44: 529–543, 2011.
52. F. Frati. Lower Bounds on the Area Requirements of Series-Parallel Graphs. *Discrete Mathematics and Theoretical Computer Science*, 12(5):139–174, 2010.
53. P. Angelini, F. Frati, M. Kaufmann. Straight-line Rectangular Drawings of Clustered Graphs. *Discrete and Computational Geometry*, 45(1):88–140, 2011.

54. U. Brandes, C. Erten, J. Fowler, F. Frati, M. Geyer, C. Gutwenger, S.-H. Hong, M. Kaufmann, S. Kobourov, G. Liotta, P. Mutzel, A. Symvonis. Colored Simultaneous Geometric Embeddings and Universal Pointsets. *Algorithmica*, 60(3):569–592, 2011.
55. P. Angelini, L. Cittadini, G. Di Battista, W. Didimo, F. Frati, M. Kaufmann, A. Symvonis. On the Perspectives Opened by Right Angle Crossing Drawings. *Journal of Graph Algorithms and Applications*, 15(1):53–78, 2011.
56. F. Frati. A Note on Isosceles Planar Graph Drawing. *Information Processing Letters*, 110(12–13):507–509, 2010.
57. P. Angelini, F. Frati, L. Grilli. An Algorithm to Construct Greedy Drawings of Triangulations. *Journal of Graph Algorithms and Applications*, 14(1):19–51, 2010.
58. C. Binucci, E. Di Giacomo, W. Didimo, A. Estrella-Balderrama, F. Frati, S. Kobourov, G. Liotta. *Upward Straight-line Embeddings of Directed Graphs into Point Sets*. *Computational Geometry: Theory and Applications*, 43:219–232, 2010.
59. G. Di Battista, F. Frati. Efficient C-Planarity Testing for Embedded Flat Clustered Graphs with Small Faces. *Journal of Graph Algorithms and Applications*, 13(3):349–378, 2009.
60. F. Frati, M. Kaufmann, S. Kobourov. Constrained Simultaneous and Near Simultaneous Embeddings. *Journal of Graph Algorithms and Applications*, 13(3):447–465, 2009.
61. G. Di Battista, G. Drovandi, F. Frati. How to Draw a Clustered Tree. *Journal of Discrete Algorithms*, 7(4):479–499, 2009.
62. F. Frati, M. Geyer, M. Kaufmann. Planar Packings of Trees and Spider Trees. *Information Processing Letters*, 109(6):301–307, 2009.
63. G. Di Battista, F. Frati, M. Patrignani. On Embedding a Graph on the Grid with the Maximum Number of Bends and Other Bad Features. *Theory of Computing Systems*, 44:143–159, 2009.
64. G. Di Battista, F. Frati. Small Area Drawings of Outerplanar Graphs. *Algorithmica*, 54(1):25–53, 2009.
65. P. F. Cortese, G. Di Battista, F. Frati, M. Patrignani, M. Pizzonia. C-Planarity of C-Connected Clustered Graphs. *Journal of Graph Algorithms and Applications*, 12(2):225–262, 2008.
66. F. Frati. On Minimum Area Planar Upward Drawings of Directed Trees and Other Families of Directed Acyclic Graphs. *International Journal of Computational Geometry and Applications*, 18(3):251–271, 2008.

#### *Book Chapters*

1. F. Frati. Clustered Graph Drawing. In *Encyclopedia of Algorithms*, 2nd Edition, M. Y. Kao editor, Springer Science + Business Media New York, pages 1–6, 2015.
2. G. Di Battista, F. Frati. Drawing Trees, Outerplanar Graphs, Series-Parallel Graphs, and Planar Graphs in Small Area. In *Geometric Graph Theory*, J. Pach editor, Springer, pages 121–165, 2013.
3. P. Angelini, G. Di Battista, W. Didimo, F. Frati, S.-H. Hong, M. Kaufmann, G. Liotta, A. Lubiw. RAC and LAC Drawings of Planar Graphs in Subquadratic Area. In *Special Festschrift volume*, Springer-Verlag, volume 7579 of LNCS, pages 200–209, 2012.
4. J. Fox, F. Frati, J. Pach, R. Pinchasi. Crossings Between Curves with Many Tangencies. In *An Irregular Mind (Szemerédi is 70)*, Bolyai Society Mathematical Studies, vol. 21, pages 1–10, 2010.

#### *International Conference Publications*

1. K. Buchin, W. S. Evans, F. Frati, I. Kostitsyna, M. Löffler, T. Ophelders, A. Wolff. Morphing Planar Graph Drawings Through 3D. In *48th International Conference on Current Trends in Theory and Practice of Computer Science (SOFSEM '23)*, Springer-Verlag, LNCS, 80–95, 2023.
2. C. Alegría, G. Da Lozzo, G. Di Battista, F. Frati, F. Grosso, M. Patrignani. Unit-length Rectangular Drawings of Graphs. In *30th International Symposium on Graph Drawing and Network Visualization (GD '22)*, Springer-Verlag, LNCS, 127–143, 2022.
3. S. Chaplick, E. Di Giacomo, F. Frati, R. Ganian, C. N. Raftopoulou, K. Simonov. Testing Upward Planarity of Partial 2-Trees. In *30th International Symposium on Graph Drawing and Network Visualization (GD '22)*, Springer-Verlag, LNCS, 175–187, 2022.
4. M. A. Bekos, G. Da Lozzo, F. Frati, M. Gronemann, T. Mchedlidze, C. N. Raftopoulou. Recognizing DAGs with Page-Number 2 Is NP-complete. In *30th International Symposium on Graph Drawing and Network Visualization (GD '22)*, Springer-Verlag, LNCS, 361–370, 2022.
5. S. Chaplick, E. Di Giacomo, F. Frati, R. Ganian, C. N. Raftopoulou, K. Simonov. Parameterized Algorithms for Upward Planarity. In *38th International Symposium on Computational Geometry (SoCG '22)*, vol. 224 of LIPIcs, 26:1–26:16, 2022.
6. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani. 2-Level Quasi Planarity or How Caterpillars Climb (SPQR-)Trees. In *32nd ACM-SIAM Symposium on Discrete Algorithms (SODA '21)*, ACM, pages 2779–2798, 2021.
7. G. Di Battista, F. Frati. From Tutte to Floater and Gotsman: On the Resolution of Planar Straight-Line Drawings and Morphs. In *29th International Symposium on Graph Drawing and Network Visualization (GD '21)*, Springer-Verlag, LNCS, 109-122, 2021.
8. C. Alegría, M. Borrazzo, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani. Planar Straight-Line Realizations of 2-Trees with Prescribed Edge Lengths. In *29th International Symposium on Graph Drawing and Network Visualization (GD '21)*, Springer-Verlag, LNCS, 166-183, 2021.
9. F. Frati. Planar Rectilinear Drawings of Outerplanar Graphs in Linear Time. In *28th International Symposium on Graph Drawing and Network Visualization (GD '20)*, Springer-Verlag, LNCS, 423-435, 2020.
10. G. Di Battista, F. Frati, M. Patrignani, M. Tais. Schematic Visualization of Large Biconnected Graphs. In *28th International Symposium on Graph Drawing and Network Visualization (GD '20)*, Springer-Verlag, LNCS, 160-172, 2020.
11. O. Aichholzer, M. Borrazzo, P. Bose, J. Cardinal, F. Frati, P. Morin, and B. Vogtenhuber. Drawing Graphs as Spanners. In *46th International Workshop on Graph-Theoretic Concepts in Computer Science (WG '20)*, Springer-Verlag, LNCS, 310-324, 2020.
12. F. Frati, M. Hoffmann, and C. D. Tóth. Universal Geometric Graphs. In *46th International Workshop on Graph-Theoretic Concepts in Computer Science (WG '20)*, Springer-Verlag, LNCS, 174-186, 2020.
13. G. Da Lozzo, A. D'Angelo, F. Frati. On the Area Requirements of Planar Greedy Drawings of Triconnected Planar Graphs. In *26th International Conference on Computing and Combinatorics (COCOON '20)*, Springer-Verlag, LNCS, 435-447, 2020.
14. M. Borrazzo, F. Frati. On the Edge-Length Ratio of Planar Graphs. In *27th International Symposium on Graph Drawing and Network Visualization (GD '19)*, Springer-Verlag, LNCS, 165-178, 2019.
15. M. Borrazzo, G. Da Lozzo, F. Frati, M. Patrignani. Graph Stories in Small Area. In *27th International Symposium on Graph Drawing and Network Visualization (GD '19)*, Springer-Verlag, LNCS, 545-558, 2019.
16. F. Barrera-Cruz, M. Borrazzo, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, V. Roselli. How to Morph a Tree on a Small Grid. In *16th International Symposium on Algorithms and Data Structures (WADS '19)*, Springer-Verlag, LNCS, pages 57–70, 2019.

17. G. Da Lozzo, G. Di Battista, F. Frati. Extending Upward Planar Graph Drawings. In *16th International Symposium on Algorithms and Data Structures (WADS '19)*, Springer-Verlag, LNCS, pages 339–352, 2019.
18. V. Dujmovic, F. Frati, D. Goncalves, P. Morin, G. Rote. Every Collinear Set in a Planar Graph Is Free. In *30th ACM-SIAM Symposium on Discrete Algorithms (SODA '19)*, ACM, pages 1521–1538, 2019.
19. E. Arseneva, P. Bose, P. Cano, A. D'Angelo, V. Dujmovic, F. Frati, S. Langerman and A. Tappini. Pole Dancing: 3D Morphs for Tree Drawings. In *26th International Symposium on Graph Drawing and Network Visualization (GD '18)*, Springer-Verlag, LNCS, pages 371–384, 2018. **Best paper Award.**
20. G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, V. Roselli. Upward Planar Morphs. In *26th International Symposium on Graph Drawing and Network Visualization (GD '18)*, Springer-Verlag, LNCS, pages 92–105, 2018.
21. B. Covella, F. Frati, M. Patrignani. On the Area Requirements of Straight-Line Orthogonal Drawings of Ternary Trees. In *29th International Workshop on Combinatorial Algorithms (IWOCA '18)*, Springer-Verlag, LNCS, pages 128–140, 2018.
22. G. Da Lozzo, A. D'Angelo, F. Frati. On Planar Greedy Drawings of 3-Connected Planar Graphs. In *33rd Symposium on Computational Geometry (SoCG '17)*, vol. 77 of LIPIcs, 33:1–33:16, 2017.
23. F. Frati, M. Patrignani, V. Roselli. LR-Drawings of Ordered Rooted Binary Trees and Near-Linear Area Drawings of Outerplanar Graphs. In *28th ACM-SIAM Symposium on Discrete Algorithms (SODA '17)*, ACM, pages 1980–1999, 2017.
24. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, I. Rutter. Beyond Level Planarity. In *24th International Symposium on Graph Drawing and Network Visualization (GD '16)*, Springer-Verlag, LNCS, pages 482–495, 2016.
25. G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani. Computing NodeTrix Representations of Clustered Graphs. In *24th International Symposium on Graph Drawing and Network Visualization (GD '16)*, Springer-Verlag, LNCS, pages 107–120, 2016.
26. G. Da Lozzo, V. Dujmovic, F. Frati, T. Mchedlidze, V. Roselli. Drawing Planar Graphs with Many Collinear Vertices. In *24th International Symposium on Graph Drawing and Network Visualization (GD '16)*, Springer-Verlag, LNCS, pages 152–165, 2016.
27. V. Dujmovic, F. Frati. Stack and Queue Layouts via Layered Separators. In *24th International Symposium on Graph Drawing and Network Visualization (GD '16)*, Springer-Verlag, LNCS, pages 511–518, 2016.
28. F. Frati, M. Hoffmann, V. Kusters. Simultaneous Embeddings with Few Bends and Crossings. In *23rd International Symposium on Graph Drawing and Network Visualization (GD '15)*, Springer-Verlag, volume 9411 of LNCS, pages 166–179, 2015.
29. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, I. Rutter. Intersection-Link Representations of Graphs. In *23rd International Symposium on Graph Drawing and Network Visualization (GD '15)*, Springer-Verlag, volume 9411 of LNCS, pages 217–230, 2015.
30. P. Angelini, G. Da Lozzo, F. Frati, A. Lubiw, M. Patrignani, V. Roselli. Optimal Morph of Convex Drawings. In *31st Symposium on Computational Geometry (SoCG '15)*, volume 34 of LIPIcs, pages 126–140, 2015.
31. G. Aloupis, L. Barba, P. Carmi, V. Dujmovic, F. Frati, P. Morin. Compatible Connectivity-Augmentation of Disconnected Graphs. In *26th ACM-SIAM Symposium on Discrete Algorithms (SODA '15)*, ACM, pages 1602–1615, 2015.
32. H. R. Dehkordi, F. Frati, J. Gudmundsson. Increasing-Chord Graphs On Point Sets. In *22nd International Symposium on Graph Drawing (GD '14)*, Springer-Verlag, volume 8871 of LNCS, pages 464–475, 2014.
33. T. Chan, F. Frati, C. Gutwenger, A. Lubiw, P. Mutzel, M. Schaefer. Drawing Partially Embedded and Simultaneously Planar Graphs. In *22nd International Symposium on Graph Drawing (GD '14)*, Springer-Verlag, volume 8871 of LNCS, pages 25–39, 2014.

34. M. Chimani, G. Di Battista, F. Frati, K. Klein. Advances on Testing C-Planarity of Embedded Flat Clustered Graphs. *In 22nd International Symposium on Graph Drawing (GD '14)*, Springer-Verlag, volume 8871 of LNCS, pages 416-427, 2014.
35. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, V. Roselli. The Importance of Being Proper (In Clustered-Level Planarity and T-Level Planarity). *In 22nd International Symposium on Graph Drawing (GD '14)*, Springer-Verlag, volume 8871 of LNCS, pages 246-258, 2014.
36. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, V. Roselli. Morphing Planar Graph Drawings Optimally. *In 41st International Colloquium on Automata, Languages, and Programming (ICALP '14)*, Springer-Verlag, volume 8572 of LNCS, pages 126-137, 2014.
37. P. Angelini, W. Evans, F. Frati, J. Gudmundsson. SEFE with No Mapping via Large Induced Outerplane Graphs in Plane Graphs. *In 24th International Symposium on Algorithms and Computation (ISAAC '13)*, Springer-Verlag, volume 8283 of LNCS, pages 185-195, 2013.
38. F. Frati, J. Gudmundsson, S. Gaspers, L. Mathieson. Augmenting Graphs to Minimize the Diameter. *In 24th International Symposium on Algorithms and Computation (ISAAC '13)*, Springer-Verlag, volume 8283 of LNCS, pages 383-393, 2013.
39. F. Frati, M. Kaufmann, J. Pach, C. Tóth, D. Wood. On the Upward Planarity of Mixed Plane Graphs. *In 21st International Symposium on Graph Drawing (GD '13)*, Springer-Verlag, volume 8242 of LNCS, pages 1-12, 2013.
40. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati. Strip Planarity Testing. *In 21st International Symposium on Graph Drawing (GD '13)*, Springer-Verlag, volume 8242 of LNCS, pages 37-48, 2013.
41. P. Angelini, F. Frati, M. Patrignani, V. Roselli. Morphing Planar Graph Drawings Efficiently. *In 21st International Symposium on Graph Drawing (GD '13)*, Springer-Verlag, volume 8242 of LNCS, pages 49-60, 2013.
42. S. Alamdari, P. Angelini, T. M. Chan, G. Di Battista, F. Frati, A. Lubiw, M. Patrignani, V. Roselli, S. Singla, B. T. Wilkinson. Morphing Planar Graph Drawings with a Polynomial Number of Steps. *In 24th ACM-SIAM Symposium on Discrete Algorithms (SODA '13)*, pages 1656-1667, 2013.
43. F. Frati, J. Gudmundsson, E. Welzl. On the Number of Upward Planar Orientations of Maximal Planar Graphs. *In 23rd International Symposium on Algorithms and Computation (ISAAC '12)*, Springer-Verlag, volume 7676 of LNCS, pages 413-422, 2012.
44. F. Frati, M. Glisse, W. Lenhart, G. Liotta, T. Mchedlidze, R. I. Nishat. Point-Set Embeddability of 2-Colored Trees. *In 20th International Symposium on Graph Drawing (GD '12)*, Springer-Verlag, volume 7704 of LNCS, pages 291-302, 2013.
45. D. Bremner, W. Evans, F. Frati, L. Heyer, S. Kobourov, W. Lenhart, G. Liotta, D. Rappaport, S. Whitesides. On Representing Graphs by Touching Cuboids. *In 20th International Symposium on Graph Drawing (GD '12)*, Springer-Verlag, volume 7704 of LNCS, pages 187-198, 2013.
46. F. Frati. Multilevel Drawings of Clustered Graphs. *In 18th Annual International Computing and Combinatorics Conference (COCOON '12)*, Springer-Verlag, volume 7434 of LNCS, pages 311-322, 2012.
47. P. Angelini, G. Di Battista, F. Frati. Simultaneous Embedding of Embedded Graphs. *In 22nd International Symposium on Algorithms and Computation (ISAAC '11)*, Springer-Verlag, volume 7074 of LNCS, pages 271-280, 2011.
48. F. Frati, R. Fulek, A. Ruiz Vargas. On the Page Number of Upward Planar Directed Acyclic Graphs. *In 19th International Symposium on Graph Drawing (GD '11)*, Springer-Verlag, volume 7034 of LNCS, pages 391-402, 2011.
49. E. Di Giacomo, F. Frati, R. Fulek, L. Grilli, M. Krug. Orthogeodesic Point-Set Embeddings of Trees. *In 19th International Symposium on Graph Drawing (GD '11)*, Springer-Verlag, volume 7034 of LNCS, pages 52-63, 2011.



50. P. Angelini, T. Bruckdorfer, M. Chiesa, F. Frati, M. Kaufmann, C. Squarcella. On the Area Requirements of Euclidean Minimum Spanning Trees. *In 12th Algorithms and Data Structures Symposium (WADS '11)*, Springer-Verlag, volume 6844 of LNCS, pages 25–36, 2011.
51. P. Angelini, E. Colasante, G. Di Battista, F. Frati, M. Patrignani. Monotone Drawings of Graphs. *In 18th International Symposium on Graph Drawing (GD '10)*, Springer-Verlag, volume 6502 of LNCS, pages 13–24, 2010.
52. P. Angelini, F. Frati, M. Geyer, M. Kaufmann, T. Mchedlidze, A. Symvonis. Upward Geometric Graph Embeddings into Point Sets. *In 18th International Symposium on Graph Drawing (GD '10)*, Springer-Verlag, volume 6502 of LNCS, pages 25–37, 2010.
53. F. Frati. Improved Lower Bounds on the Area Requirements of Series-Parallel Graphs. *In 18th International Symposium on Graph Drawing (GD '10)*, Springer-Verlag, volume 6502 of LNCS, pages 220–225, 2010.
54. G. Di Battista, F. Frati, J. Pach. On the Queue Number of Planar Graphs. *In 51st Symposium on Foundations of Computer Science (FOCS '10)*, IEEE, pages 365–374, 2010.
55. P. Angelini, G. Di Battista, F. Frati, M. Patrignani, I. Rutter. Testing the Simultaneous Embeddability of Two Graphs whose Intersection is a Biconnected Graph or a Tree. *In Workshop on Combinatorial Algorithms (IWOC '10)*, Springer-Verlag, volume 6460 of LNCS, pages 212–225, 2011.
56. J. Fox, F. Frati, J. Pach, R. Pinchasi. Crossings between Curves with Many Tangencies. *In 3rd Workshop on Algorithms and Computation (WALCOM '10)*, Springer-Verlag, volume 5942 of LNCS, pages 1–8, 2010.
57. P. Angelini, F. Frati. Acyclically 3-Colorable Planar Graphs. *In 3rd Workshop on Algorithms and Computation (WALCOM '10)*, Springer-Verlag, volume 5942 of LNCS, pages 113–124, 2010.
58. P. Angelini, G. Di Battista, F. Frati, V. Jelinek, J. Kratochvil, M. Patrignani, I. Rutter. Testing Planarity of Partially Embedded Graphs. *In 21st Symposium On Discrete Algorithms (SODA '10)*, ACM-SIAM, pages 202–221, 2010.
59. P. Angelini, L. Cittadini, G. Di Battista, W. Didimo, F. Frati, M. Kaufmann, A. Symvonis. On the Perspectives Opened by Right Angle Crossing Drawings. *In 17th International Symposium on Graph Drawing (GD '09)*, Springer-Verlag, volume 5849 of LNCS, pages 21–32, 2010.
60. P. Angelini, G. Di Battista, F. Frati. Succinct Greedy Drawings Do Not Always Exist. *In 17th International Symposium on Graph Drawing (GD '09)*, Springer-Verlag, volume 5849 of LNCS, pages 171–182, 2010.
61. P. Angelini, F. Frati, M. Patrignani. Splitting Clusters To Get C-Planarity. *In 17th International Symposium on Graph Drawing (GD '09)*, Springer-Verlag, volume 5849 of LNCS, pages 57–68, 2010.
62. P. Angelini, F. Frati, M. Kaufmann. Straight-line Rectangular Drawings of Clustered Graphs. *In 11th Algorithms and Data Structures Symposium (WADS '09)*, Springer-Verlag, volume 5664 of LNCS, pages 25–35, 2008.
63. P. Angelini, F. Frati, L. Grilli. An Algorithm to Construct Greedy Drawings of Triangulations. *In 16th International Symposium on Graph Drawing (GD '08)*, Springer-Verlag, volume 5417 of LNCS, pages 26–37, 2008.
64. G. Di Battista, F. Frati, M. Patrignani. Non-Convex Representations of Graphs. *In 16th International Symposium on Graph Drawing (GD '08)*, Springer-Verlag, volume 5417 of LNCS, pages 390–395, 2008.
65. F. Frati. A Lower Bound on the Area Requirements of Series-Parallel Graphs. *In 34th International Workshop on Graph-Theoretic Concepts in Computer Science (WG '08)*, Springer-Verlag, volume 5344 of LNCS, pages 159–170, 2008.
66. Alejandro Estrella-Balderrama, F. Frati, S. Kobourov. Upward Straight-line Embeddings of Directed Graphs into Point Sets. *In 34th International Workshop on Graph-Theoretic Concepts in Computer Science (WG '08)*, Springer-Verlag, volume 5344 of LNCS, pages 122–133, 2008.

67. F. Frati. Straight-line Orthogonal Drawings of Binary and Ternary Trees. *In 15th International Symposium on Graph Drawing (GD '07)*, Springer-Verlag, volume 4875 of LNCS, pages 76–87, 2007.
68. F. Frati, M. Kaufmann, S. Kobourov. Constrained Simultaneous and Near Simultaneous Embeddings. *In 15th International Symposium on Graph Drawing (GD '07)*, Springer-Verlag, volume 4875 of LNCS, pages 268–279, 2007.
69. G. Di Battista, F. Frati. Efficient C-Planarity Testing for Embedded Flat Clustered Graphs with Small Faces. *In 15th International Symposium on Graph Drawing (GD '07)*, Springer-Verlag, volume 4875 of LNCS, pages 291–302, 2007.
70. F. Frati, M. Patrignani. A Note on Minimum Area Straight-line Drawings of Planar Graphs. *In 15th International Symposium on Graph Drawing (GD '07)*, Springer-Verlag, volume 4875 of LNCS, pages 339–344, 2007.
71. F. Frati, M. Geyer, M. Kaufmann. Packing and Squeezing Subgraphs into Planar Graphs. *In 32nd International Symposium on Mathematical Foundations of Computer Science (MFCS '07)*, Springer-Verlag, volume 4708 of LNCS, pages 394–405, 2007.
72. F. Frati. On Minimum Area Planar Upward Drawings of Directed Trees and Other Families of Directed Acyclic Graphs. *In 33rd International Workshop on Graph-Theoretic Concepts in Computer Science (WG '07)*, Springer-Verlag, volume 4769 of LNCS, pages 133–144, 2007.
73. G. Di Battista, G. Drovandi, F. Frati. How to Draw a Clustered Tree. *In 10th Workshop on Algorithms and Data Structures (WADS '07)*, Springer-Verlag, volume 4619 of LNCS, pages 89–101, 2007.
74. U. Brandes, C. Erten, J. Fowler, F. Frati, M. Geyer, C. Gutwenger, S.-H. Hong, M. Kaufmann, S. Kobourov, G. Liotta, P. Mutzel, A. Symvonis. Colored Simultaneous Geometric Embeddings. *In 13th Annual International Computing and Combinatorics Conference (COCOON '07)*, Springer-Verlag, volume 4598 of LNCS, pages 254–263, 2007.
75. G. Di Battista, F. Frati, M. Patrignani. On Embedding a Graph on the Grid with the Maximum Number of Bends and Other Bad Features. *In Fun with Algorithms (FUN '07)*, Springer-Verlag, volume 4475 of LNCS, pages 1–13, 2007.
76. P. F. Cortese, G. Di Battista, F. Frati, L. Grilli, K. A. Lehmann, G. Liotta, M. Patrignani, I. Tollis, F. Trotta. On the Topologies of Local Minimum Spanning Trees. *In 3rd Workshop on Combinatorial and Algorithmic Aspects of the Networks (CAAN '06)*, Springer-Verlag, volume 4235 of LNCS, pages 31–44, 2006.
77. F. Frati, G. Di Battista. Three Dimensional Drawings of Bounded Degree Trees. *In 14th International Symposium on Graph Drawing (GD '06)*, Springer-Verlag, volume 4372 of LNCS, pages 89–94, 2006.
78. F. Frati. Embedding Graphs Simultaneously with Fixed Edges. *In 14th International Symposium on Graph Drawing (GD '06)*, Springer-Verlag, volume 4372 of LNCS, pages 108–113, 2006.
79. G. Di Battista, F. Frati. Small Area Drawings of Outerplanar Graphs. *In 13th International Symposium on Graph Drawing (GD '05)*, Springer-Verlag, volume 3843 of LNCS, pages 89–100, 2005.

#### Conference Abstracts

1. P. Angelini, G. Da Lozzo, G. Di Battista, F. Frati, M. Patrignani, I. Rutter. On the Relationship Between Map Graphs and Clique Planar Graphs. *In 23rd International Symposium on Graph Drawing (GD '15)*, Springer-Verlag, volume 9411 of LNCS, pages 548–550, 2015.
2. P. Angelini, D. Eppstein, F. Frati, M. Kaufmann, S. Lazard, T. Mchedlidze, M. Teillaud, A. Wolff. Universal Point Sets for Planar Graph Drawings with Circular Arcs. *In 25th Canadian Conference on Computational Geometry (CCCG '13)*, 2013.

3. P. Angelini, G. Di Battista, W. Didimo, F. Frati, S.-H. Hong, M. Kaufmann, G. Liotta, A. Lubiw. RAC and LAC Drawings of Planar Graphs in Subquadratic Area. *In 14th Spanish Meeting on Computational Geometry (EGC '11)*, CRM, volume 8 of Documents, pages 125–128, 2011.
4. F. Frati. Planar Packing of Diameter-Four Trees. *In 21st Canadian Conference on Computational Geometry (CCCG '09)*, pages 95–98, 2009.
5. C. Binucci, E. Di Giacomo, W. Didimo, A. Estrella-Balderrama, F. Frati, S. Kobourov, G. Liotta. Directed Graphs with an Upward Straight-line Embedding into Every Point Set. *In 21st Canadian Conference on Computational Geometry (CCCG '09)*, pages 21–24, 2009.
6. F. Frati. Straight-line Drawings of Outerplanar Graphs in  $O(dn \log n)$  Area. *In 19th Canadian Conference on Computational Geometry (CCCG '07)*, pages 225–228, 2007.

#### *Ph.D. Thesis*

1. Fabrizio Frati. Small Screens and Large Graphs: Area-Efficient Drawings of Planar Combinatorial Structures, Università degli Studi “Roma Tre”, Dottorato di Ricerca in Ingegneria Informatica, XXI Ciclo, 2009

#### *Other*

1. Fabrizio Frati and Kwan-Liu Ma. Special Issue of Selected Papers from the 25th International Symposium on Graph Drawing and Network Visualization (GD 2017) Guest Editors’ Foreword. *Journal of Graph Algorithms and Applications*, 22(3): 397-399, 2018.

#### *Citations*

- 1945 citations according to Google Scholar, as of 28/12/2023, h-index equal to 26.
- 1386 citations according to Scopus, as of 28/12/2023, h-index equal to 21.