

Curriculum Vitae: Anna LUBIW

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Citizenship: Canada

Areas: computational geometry, graph drawing, graph algorithms

Degrees

- 1986, Ph.D., Department of Computer Science, University of Toronto, Toronto, Ontario. Thesis: *Orderings and Some Combinatorial Optimization Problems with Geometric Applications*. Supervisors: R. Mathon and S. Cook; thesis work done with J. Edmonds.
- 1982, M.Math, Department of Combinatorics and Optimization, University of Waterloo, Waterloo, Ontario. Thesis: *Γ -Free Matrices*. Supervisor: J. Edmonds.
- 1979, B.Sc., Math and Computer Science, University of Toronto, Toronto, Ontario.

Employment

- July 2004—present, Professor, School of Computer Science, University of Waterloo, Waterloo, Ontario. (3/4 time)
- August 2009–June 2010, Visiting Researcher, MIT Computer Science and Artificial Intelligence Laboratory.
- July 1993—June 2004, Associate Professor, Department of Computer Science, University of Waterloo, Waterloo, Ontario. (3/4 time from Jan. 1995. Maternity leave Sept.—Dec. 1994 and Jan.—June 1997.)

- August 2001–July 2002, Visiting Researcher, University of Arizona, Department of Computer Science.
- January 1994–April 1994, Visiting Researcher, DIMACS.
- September 1993–December 1993, Visiting Researcher, University of Wisconsin, Computer Sciences Department.
- August 1987–June 1993, Assistant Professor, Department of Computer Science, University of Waterloo, Waterloo, Ontario.
- Sept. 1986–July 1987, NSERC (Natural Sciences and Engineering Research Council of Canada) Postdoctoral Fellowship, Mathematical Institute of the Hungarian Academy of Sciences, Budapest, Hungary.
- Jan. 1986–Aug. 1986, NSERC Postdoctoral Fellowship, Department of Computer Science, University of California, Berkeley, CA.
- June 1979–Aug. 1980, employee in computer aided design of integrated circuits, Bell Northern Research, Ottawa, Ontario.

Awards

- Ross and Muriel Cheriton Faculty Fellow, May 2014–April 2017.
- University of Waterloo Outstanding Performance Award, 2012.
- ACM Distinguished Scientist, 2009.
- NSERC PostDoctoral Fellowship, 1986–1987.

Publications (* indicates student co-author)

Published in Refereed Journals

- [50] Prosenjit Bose, Anna Lubiw, Vinayak Pathak*, and Sander Verdonschot*. Flipping Edge-Labelled Triangulations. *Computational Geometry: Theory and Applications. Special issue in memory of Ferran Hurtado* (2016). URL: <http://arxiv.org/abs/1310.1166>.
- [49] Erik D. Demaine, David Eppstein, Adam Hesterberg*, Hiro Ito, Anna Lubiw, Ryuhei Uehara, and Yushi Uno. Folding a Paper Strip to Minimize Thickness. *J. Discrete Algorithms* 36 (2016), 18–26. DOI: 10.1016/j.jda.2015.09.003.

- [48] Stephen Kiazzyk* and Anna Lubiw. Star unfolding from a geodesic curve. *Discrete & Computational Geometry* (2016), 1–19. DOI: 10.1007/s00454-016-9795-1.
- [47] Timothy M. Chan, Fabrizio Frati, Carsten Gutwenger, Anna Lubiw, Petra Mutzel, and Marcus Schaefer. Drawing Partially Embedded and Simultaneously Planar Graphs. *J. Graph Algorithms and Applications* 19.2 (2015), 681–706. DOI: 10.7155/jgaa.00375.
- [46] Anna Lubiw and Vinayak Pathak*. Flip distance between two triangulations of a point set is NP-complete. *Computational Geometry* 49 (2015), 17–23. DOI: <http://dx.doi.org/10.1016/j.comgeo.2014.11.001>.
- [45] Oswin Aichholzer, Greg Aloupis, Erik D. Demaine, Martin L. Demaine, Sándor P. Fekete, Michael Hoffmann, Anna Lubiw, Jack Snoeyink, and Andrew Winslow*. Covering Folded Shapes. *Journal of Computational Geometry* 5.1 (2014), 150–167. URL: <http://www.jocg.org/index.php/jocg/article/view/160>.
- [44] Mustaq Ahmed* and Anna Lubiw. Shortest paths avoiding forbidden subpaths. *Networks* 61.4 (2013), 322–334. DOI: 10.1002/net.21490.
- [43] Brad Ballinger, Nadia Benbernou*, Prosenjit Bose, Mirela Damian, Erik Demaine, Vida Dujmović, Robin Flatland, Ferran Hurtado, John Iacono, Anna Lubiw, Pat Morin, Vera Sacristán, Diane Souvaine, and Ryuhei Uehara. Coverage with k -transmitters in the presence of obstacles. *Journal of Combinatorial Optimization* 25.2 (2013), 208–233. DOI: 10.1007/s10878-012-9475-x.
- [42] Gill Barequet, Nadia Benbernou*, David Charlton*, Erik D. Demaine, Martin L. Demaine, Mashhood Ishaque*, Anna Lubiw, André Schulz, Diane L. Souvaine, Godfried T. Toussaint, and Andrew Winslow*. Bounded-degree polyhedronization of point sets. *Comput. Geom.* 46.2 (2013), 148–153. DOI: 10.1016/j.comgeo.2012.02.008.
- [41] Therese C. Biedl, Anna Lubiw, Mark Petrick*, and Michael J. Spriggs*. Morphing orthogonal planar graph drawings. *ACM Transactions on Algorithms* 9.4 (2013), 29. DOI: 10.1145/2500118.
- [40] Erik D. Demaine, Martin L. Demaine, Jin ichi Itoh, Anna Lubiw, Chie Nara, and Joseph O’Rourke. Refold rigidity of convex polyhedra. *Comput. Geom.* 46.8 (2013), 979–989. DOI: 10.1016/j.comgeo.2013.05.002.
- [39] Bernhard Haeupler*, Krishnam Raju Jampani*, and Anna Lubiw. Testing Simultaneous Planarity when the Common Graph is 2-Connected. *J. Graph Algorithms Appl.* 17.3 (2013), 147–171. DOI: 10.7155/jgaa.00289.
- [38] Giuseppe Di Battista, Ethan Kim*, Giuseppe Liotta, Anna Lubiw, and Sue Whitesides. The Shape of Orthogonal Cycles in Three Dimensions. *Discrete & Computational Geometry* 47.3 (2012), 461–491. DOI: 10.1007/s00454-011-9381-5.
- [37] Krishnam Raju Jampani* and Anna Lubiw. The Simultaneous Representation Problem for Chordal, Comparability and Permutation Graphs. *Journal of Graph Algorithms and Applications* 16.2 (2012), 283–315. URL: <http://www.cs.brown.edu/sites/jgaa/accepted/2012/JampaniLubiw2012.16.2.pdf>.

- [36] Mustaq Ahmed* and Anna Lubiw. Shortest Descending Paths: towards an Exact Algorithm. *Int. J. Comput. Geometry Appl.* 21.4 (2011), 431–466. DOI: 10.1142/S0218195911003755.
- [35] Stephane Durocher, Krishnam Raju Jampani*, Anna Lubiw, and Lata Narayanan. Modelling gateway placement in wireless networks: Geometric k-centres of unit disc graphs. *Comput. Geom.* 44.5 (2011), 286–302. DOI: 10.1016/j.comgeo.2010.12.003.
- [34] Anna Lubiw and Mark Petrick*. Morphing Planar Graph Drawings with Bent Edges. *J. Graph Algorithms Appl.* 15.2 (2011), 205–227. URL: <http://jgaa.info/accepted/2011/LubiwPetrick2011.15.2.pdf>.
- [33] Mustaq Ahmed*, Sandip Das, Sachin Lodha, Anna Lubiw, Anil Maheshwari, and Sasanka Roy*. Approximation algorithms for shortest descending paths in terrains. *J. of Discrete Algorithms* 8.2 (2010), 214–230. DOI: 10.1016/j.jda.2009.05.001. URL: <http://arxiv.org/abs/0805.1401>.
- [32] Peter Brass, Ferran Hurtado, Benjamin J. Lafreniere*, and Anna Lubiw. A Lower Bound on the Area of a 3-Coloured Disk Packing. *Int. J. Comput. Geometry Appl.* 20.3 (2010), 341–360. DOI: 10.1142/S0218195910003335. URL: <http://arxiv.org/abs/0804.1173>.
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- [28] Peter Brass, Eowyn Cenek*, Christian A. Duncan, Alon Efrat, Cesim Erten*, Dan P. Ismailescu, Stephen G. Kobourov, Anna Lubiw, and Joseph S. B. Mitchell. On simultaneous planar graph embeddings. *Comput. Geom. Theory Appl.* 36.2 (2007), 117–130. DOI: 10.1016/j.comgeo.2006.05.006.
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- [26] Therese C. Biedl, Anna Lubiw, and Julie Sun*. When can a net fold to a polyhedron? *Comput. Geom. Theory Appl.* 31.3 (2005), 207–218. DOI: 10.1016/j.comgeo.2004.12.004.
- [25] Claudia Iturriaga* and Anna Lubiw. Elastic labels around the perimeter of a map. *J. Algorithms* 47.1 (2003), 14–39. DOI: 10.1016/S0196-6774(03)00004-X.

- [24] Giuseppe Di Battista, Giuseppe Liotta, Anna Lubiw, and Sue Whitesides. Embedding problems for paths with direction constrained edges. *Theor. Comput. Sci.* 289.2 (2002), 897–917. DOI: 10.1016/S0304-3975(01)00408-X.
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- [12] Michael D. Hutton* and Anna Lubiw. Upward Planar Drawing of Single-Source AcyclicDi-graphs. *SIAM J. Comput.* 25.2 (1996), 291–311. DOI: 10.1137/S0097539792235906.
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- [10] Collette R. Coullard and Anna Lubiw. Distance visibility graphs. *Int. J. Comput. Geometry Appl.* 2.4 (1992), 349–362. DOI: 10.1142/S0218195992000202.
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- [2] Anna Lubiw. Doubly lexical orderings of matrices. *SIAM J. Comput.* 16.5 (1987), 854–879. DOI: 10.1137/0216057.
- [1] Anna Lubiw. Some NP-Complete Problems Similar to Graph Isomorphism. *SIAM J. Comput.* 10.1 (1981), 11–21. DOI: 10.1137/0210002.

Selected for Conference Proceedings

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- [80] David Eppstein, Philipp Kindermann, Stephen G. Kobourov, Giuseppe Liotta, Anna Lubiw, Aude Maignan, Debajyoti Mondal, Hamideh Vosoughpour, Sue Whitesides, and Stephen K. Wismath. On the Planar Split Thickness of Graphs. In: *Proceedings 12th Latin American Symposium (LATIN)*. Vol. 9644. Lecture Notes in Computer Science. Springer, 2016, 403–415. DOI: 10.1007/978-3-662-49529-2_30.

- [79] Gabriel Triangulations and Angle-Monotone Graphs: Local Routing and Recognition. In: *24th International Symposium on Graph Drawing and Network Visualization (GD 2016)*. 2016.
- [78] Zachary Abel*, Robert Connelly, Erik D. Demaine, Martin Demaine, Thomas Hull, Anna Lubiw, and Tomohiro Tachi. Rigid Flattening of Polyhedra with Slits. In: *Origami⁶: Proceedings of the 6th International Meeting on Origami in Science, Mathematics and Education (OSME 2014)*. American Math Society, 2015.
- [77] Patrizio Angelini, Giordano Da Lozzo, Fabrizio Frati, Anna Lubiw, Maurizio Patrignani, and Vincenzo Roselli. Optimal Morphs of Convex Drawings. In: *31st International Symposium on Computational Geometry (SoCG)*. Vol. 34. Leibniz International Proceedings in Informatics (LIPIcs). 2015, 126–140. DOI: 10.4230/LIPIcs.SOCG.2015.126.
- [76] Erik D. Demaine, David Eppstein, Adam Hesterberg*, Hiro Ito, Anna Lubiw, Ryuhei Uehara, and Yushi Uno. Folding a Paper Strip to Minimize Thickness. In: *9th International Workshop on Algorithms and Computation (WALCOM 2015), Dhaka, Bangladesh*. Vol. 8973. Lecture Notes in Computer Science. Springer, 2015. DOI: 10.1007/978-3-319-15612-5_11.
- [75] Stephen Kiazzyk* and Anna Lubiw. Star unfolding from a geodesic curve. In: *31st Annual Symposium on Computational Geometry (SoCG)*. Vol. 34. Leibniz International Proceedings in Informatics (LIPIcs). 2015, 390–404. DOI: 10.4230/LIPIcs.SOCG.2015.390.
- [74] Reconfiguring a Chain of Cubes. In: *Proceedings of the 27th Canadian Conference on Computational Geometry (CCCG)*. 2015. URL: <http://www.cccg.ca/proceedings/2015/40.pdf>.
- [73] Zachary Abel*, Erik D. Demaine, Martin L. Demaine, Jin ichi Itoh, Anna Lubiw, Chie Nara, and Joseph O’Rourke. Continuously Flattening Polyhedra Using Straight Skeletons. In: *Proc. 30th Annual Symposium on Computational Geometry (SoCG)*. 2014, 396–405. DOI: 10.1145/2582112.2582171.
- [72] Zachary Abel*, Erik D. Demaine, Martin L. Demaine, David Eppstein, Anna Lubiw, and Ryuhei Uehara. Flat Foldings of Plane Graphs with Prescribed Angles and Edge Lengths. In: *Graph Drawing, 22nd International Symposium, GD 2014*. Vol. 8871. Lecture Notes in Computer Science. Springer, 2014, 272–283. DOI: 10.1007/978-3-662-45803-7_23.
- [71] Fidel Barrera-Cruz*, Penny Haxell, and Anna Lubiw. Morphing Schnyder drawings of planar triangulations. In: *Graph Drawing, 22nd International Symposium, GD 2014*. Vol. 8871. Lecture Notes in Computer Science. Springer, 2014, 294–305. DOI: 10.1007/978-3-662-45803-7_25.

- [70] Fidel Barrera-Cruz*, Therese Biedl, Martin Derka*, Stephen Kiazzyk*, Anna Lubiw, and Hamideh Vosoughpour*. Turning Orthogonally Convex Polyhedra into Orthoballs. In: *Proceedings of the 26th Canadian Conference on Computational Geometry, CCCG*. 2014.
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- [67] Anna Lubiw, Jack Snoeyink, and Hamideh Vosoughpour*. Visibility Graphs, Dismantlability, and the Cops and Robbers Game. In: *Proceedings of the 26th Canadian Conference on Computational Geometry, CCCG*. 2014.
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- Foundations of mobile computing*. Toronto, Canada: ACM, 2008, 79–86. DOI: 10.1145/1400863.1400879.
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- [42] Stephen Bahun* and Anna Lubiw. Optimal Schedules for 2-guard Room Search. In: *Proceedings of the 19th Annual Canadian Conference on Computational Geometry, CCCG 2007*. 2007, 245–248. URL: <http://www.cs.uwaterloo.ca/~alubiw/papers/guards.pdf>.
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- [22] Therese C. Biedl, Prosenjit Bose, Erik D. Demaine*, and Anna Lubiw. Efficient Algorithms for Petersen’s Matching Theorem. In: *Proceedings of the Tenth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*. 1999, 130–139. DOI: 10.1145/314500.314544.
- [21] Therese C. Biedl, Erik D. Demaine*, Martin L. Demaine, Sylvain Lazard, Anna Lubiw, Joseph O’Rourke, Mark H. Overmars, Steve Robbins, Ileana Streinu, Godfried T. Toussaint, and Sue Whitesides. Locked and Unlocked Polygonal Chains in 3D. In: *Proceedings of the Tenth Annual ACM-SIAM Symposium on Discrete Algorithms (SODA)*. 1999, 866–867. DOI: 10.1145/314500.314977.
- [20] Erik D. Demaine*, Martin L. Demaine, and Anna Lubiw. Folding and one straight cut suffice. In: *SODA '99: Proceedings of the tenth annual ACM-SIAM symposium on Discrete algorithms*. Baltimore, Maryland, United States: Society for Industrial and Applied Mathematics, 1999, 891–892. DOI: 10.1145/314500.315072.
- [19] Erik D. Demaine*, Martin L. Demaine, and Anna Lubiw. Polyhedral Sculptures with Hyperbolic Paraboloids. In: *Proceedings of the 2nd Annual Conference of BRIDGES: Mathematical Connections in Art, Music, and Science (BRIDGES'99)*. Winfield, Kansas, 1999, 91–100. URL: <http://erikdemaine.org/papers/BRIDGES99/paper.pdf>.
- [18] Erik D. Demaine*, Martin L. Demaine, Anna Lubiw, Joseph O’Rourke, and Irena Pashchenko*. Metamorphosis of the cube. In: *SCG '99: Proceedings of the fifteenth annual symposium on Computational geometry*. Miami Beach, Florida, United States: ACM, 1999, 409–410. DOI: 10.1145/304893.304995. URL: <http://erikdemaine.org/metamorphosis/>.
- [17] Claudia Iturriaga* and Anna Lubiw. Elastic Labels Around the Perimeter of a Map. In: *WADS '99: Proceedings of the 6th International Workshop on Algorithms and Data Structures*. London, UK, UK: Springer-Verlag, 1999, 306–317. DOI: 10.1007/3-540-48447-7_31.

- [16] Therese C. Biedl, Erik D. Demaine*, Martin L. Demaine, Anna Lubiw, and Godfried T. Toussaint. Hiding disks in folded polygons. In: *Tenth Canadian Conference on Computational Geometry (CCCG)*. 1998. URL: <http://cgm.cs.mcgill.ca/cccg98/proceedings/cccg98-biedl-hiding.ps.gz>.
- [15] Therese C. Biedl, Erik D. Demaine*, Martin L. Demaine, Sylvain Lazard, Anna Lubiw, Joseph O'Rourke, Steve Robbins, Ileana Streinu, Godfried T. Toussaint, and Sue Whitesides. On reconfiguring tree linkages: Trees can lock. In: *Tenth Canadian Conference on Computational Geometry (CCCG)*. 1998. URL: <http://cgm.cs.mcgill.ca/cccg98/proceedings/cccg98-biedl-reconfiguring.ps.gz>.
- [14] Therese C. Biedl, Erik D. Demaine*, Martin L. Demaine, Anna Lubiw, Mark H. Overmars, Joseph O'Rourke, Steve Robbins, and Sue Whitesides. Unfolding some classes of orthogonal polyhedra. In: *Tenth Canadian Conference on Computational Geometry (CCCG)*. 1998. URL: <http://cgm.cs.mcgill.ca/cccg98/proceedings/cccg98-biedl-unfolding.ps.gz>.
- [13] Claudia Iturriaga* and Anna Lubiw. Elastic Labels on the Perimeter of a Rectangle. In: *GD '98: Proceedings of the 6th International Symposium on Graph Drawing*. London, UK, UK: Springer-Verlag, 1998, 451–453. DOI: 10.1007/3-540-37623-2_42.
- [12] Claudia Iturriaga* and Anna Lubiw. Elastic Labels: the Two-Axis Case. In: *GD '97: Proceedings of the 5th International Symposium on Graph Drawing*. London, UK, UK: Springer-Verlag, 1997, 181–192. DOI: 10.1007/3-540-63938-1_61.
- [11] Hossam A. ElGindy, Giuseppe Liotta, Anna Lubiw, Henk Meijer, and Sue Whitesides. Recognizing Rectangle of Influence Drawable Graphs. In: *GD '94: Proceedings of the DIMACS International Workshop on Graph Drawing*. London, UK, UK: Springer-Verlag, 1995, 352–363. DOI: 10.1007/3-540-58950-3_390.
- [10] Anna Lubiw and Naji Mouawad*. Interval Graphs as Visibility Graphs of Simple Polygons Part 1: Parachutes. In: *6th Canadian Conference on Computational Geometry (CCCG)*. 1994, 18–23.
- [9] Prosenjit Bose*, Jonathan F. Buss, and Anna Lubiw. Pattern Matching for Permutations. In: *WADS '93: Proceedings of the Third Workshop on Algorithms and Data Structures*. London, UK, UK: Springer-Verlag, 1993, 200–209. DOI: 10.1007/3-540-57155-8_248.
- [8] Prosenjit Bose*, Leonidas J. Guibas, Anna Lubiw, Mark H. Overmars, Diane L. Souvaine, and Jorge Urrutia. The Floodlight Problem. In: *5th Canadian Conference on Computational Geometry (CCCG)*. 1993, 399–404.
- [7] Hazel Everett, Anna Lubiw, and Joseph O'Rourke. Recovery of Convex Hulls From External Visibility Graphs. In: *5th Canadian Conference on Computational Geometry (CCCG)*. 1993, 309–314.
- [6] Anna Lubiw and Nora Sleumer*. Maximal Outerplanar Graphs Are Relative Neighbourhood Graphs. In: *5th Canadian Conference on Computational Geometry (CCCG)*. 1993, 198–203. URL: <http://www.cs.uwaterloo.ca/~alubiw/papers/mop.pdf>.

- [5] Collette R. Coullard and Anna Lubiw. Distance Visibility Graphs. In: *Symposium on Computational Geometry*. 1991, 289–296. DOI: 10.1145/109648.109681.
- [4] Michael D. Hutton* and Anna Lubiw. Upward planar drawing of single source acyclic digraphs. In: *SODA '91: Proceedings of the second annual ACM-SIAM symposium on Discrete algorithms*. San Francisco, California, United States: Society for Industrial and Applied Mathematics, 1991, 203–211. DOI: 10.1145/127787.127828.
- [3] Anna Lubiw. Decomposing polygonal regions into convex quadrilaterals. In: *SCG '85: Proceedings of the first annual symposium on Computational geometry*. Baltimore, Maryland, United States: ACM, 1985, 97–106. DOI: 10.1145/323233.323247.
- [2] Anna Lubiw. Doubly Lexical Orderings of Matrices. In: *Proceedings of the 17th Annual ACM Symposium on Theory of Computing, STOC*. 1985, 396–404. DOI: 10.1145/22145.22189.
- [1] G. Sakauye, A. Lubiw, J. Royle, R. Epplett, J. Twidale, E. Shew, E. Attfield, F. Brglez, and P. Wilcox. A set of programs for MOS design. In: *Proceedings of the 18th Design Automation Conference*. IEEE Press. 1981, 435–442. DOI: 10.1109/DAC.1981.1585392.

Technical Reports (not listed above)

- [2] Erik D. Demaine*, Martin L. Demaine, Anna Lubiw, and Joseph O'Rourke. *Examples, Counterexamples, and Enumeration Results for Foldings and Unfoldings between Polygons and Polytopes*. Tech. rep. 069. Smith College, 2000. URL: <http://arxiv.org/abs/cs.CG/0007019>.
- [1] Anna Lubiw and Joseph O'Rourke. *When Can a Polygon Fold to a Polytope?* Tech. rep. 1996. URL: <ftp://cs.smith.edu/pub/orourke.papers/folding.ps.Z>.

Theses

- [2] Anna Lubiw. Orderings and some combinatorial optimization problems with geometric applications. PhD thesis. Toronto, Ont., Canada, 1986.
- [1] Anna Lubiw. Gamma-free matrices. MA thesis. 1982.

Recent Invited Talks

- June 2016, “Flipping Edge-Labelled Triangulations,” A New Era of Discrete & Computational Geometry: 30 Years Later, Ascona, Switzerland.
- January 2016, “Star Unfoldings of Convex Polyhedra,” AMS Special Session on Origami Methods and Applications, Joint Mathematics Meeting, Seattle, WA.

- October–November 2015, “Flattening and Unfolding Convex Polyhedra,” Utrecht University, Technical U. of Eindhoven, Free University of Brussels.
- October 2015, “Self-Approaching Graphs,” CMO-BIRS Workshop: Searching and Routing in Discrete and Continuous Domains, Oaxaca, Mexico.
- September 2015, “Flattening and Unfolding Convex Polyhedra,” Cheriton Research Symposium, University of Waterloo.
- May 2014, “Visibility Graphs, Dismantlability, and the Cops-and-Robbers Game,” Fields Institute Workshop on Graphs and Algorithms, Toronto.
- June 2013, “Morphing Planar Graph Drawings,” minisymposium at Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM).
- October 2011, “Reconfiguration of Graph Drawings, Fields Institute Workshop on Rigidity, Toronto.
- June 2011, “Simultaneous Graph Representations, minisymposium at Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM).
- April, 2010, “Simultaneous Graph Problems,” MIT Theory of Computation colloquium.

Grants/Awards

- April 2015—April 2020, NSERC (Natural Sciences and Engineering Research Council of Canada) Discovery Grant, \$43,000/year.
- April 2010—April 2015, NSERC (Natural Sciences and Engineering Research Council of Canada) Discovery Grant, \$43,000/year.
- April 2005—April 2010, NSERC (Natural Sciences and Engineering Research Council of Canada) Discovery Grant, \$37,000/year.
- April 2000—April 2005, NSERC (Natural Sciences and Engineering Research Council of Canada) Operating Grant, \$37,000/year.
- April 1996—April 2000, NSERC (Natural Sciences and Engineering Research Council of Canada) Operating Grant, \$34,500–\$39,848/year.
- April 1993—April 1996, NSERC Operating Grant, \$28,000/year.
- April 1990—April 1993, NSERC Operating Grant, \$25,428/year.
- April 1988—April 1990, NSERC Operating Grant, \$16,000/year.

- August 1987—March 1988, University of Waterloo interim grant, \$5000.
- Sept. 1986—July 1987, NSERC Postdoctoral Fellowship.
- Sept. 1980—Aug. 1982 and Sept. 1983—Dec. 1985, NSERC postgraduate scholarships.

Teaching

- Algorithms for Shortest Paths, graduate, 2014.
- Graph Theoretic Algorithms, graduate, 2011.
- Geometric Graphs, graduate, 2009.
- Algorithms for Polyhedra, graduate, 2002, 2004.
- Computational Geometry, graduate, 1990, 1995, 2006, 2008.
- Algorithms, advanced graduate, 1988 and 1992
- Design and Analysis of Algorithms, 4th year undergraduate/beginning graduate, 1987, 1988, 1991, 1992, 1995, 1997, 2000, 2006, 2007, 2012, 2013.
- Algorithms, 3rd year undergraduate, 1999, 2005, 2008, 2012.
- Introductory Theory of Computation, 3rd year undergraduate, 1987, 1988, 1995, 1996, 1998, 2001, 2004.
- Models of Computation, 3rd year undergraduate, 2003, 2007, 2011.
- Data Structures and Algorithms, 3rd year undergraduate, 1991
- Linear Programming, 3rd year undergraduate, 1981
- Logic and Computation, 2nd year undergraduate, 2015
- Data Structures and Data Management, 2nd year undergraduate, 1998, 1999, 2000, 2005.
- Programming Languages and Computer Architecture, 2nd year undergraduate, 1989, 1990, and 1992

Supervision

Postdoc:

- Megan Owen, January 2012—December 2013
- Steph Durocher, August 2007—July 2008

PhD:

- Zuzana Masarova, (informal supervision of student at IST Austria) June 2015 – present
- Hamide Vosoughpour, September 2011 – present
- Vinayak Pathak, September 2011 – December 2014.
- Fidel Barrera-Cruz (informal supervision, primary supervisor P.E. Haxell) May 2012 – June 2014 F. Berrera-Cruz is a postdoc at Georgia Tech.
- Krishnam Raju Jampani, 2011, thesis: “Simultaneous Graph Representation Problems.” K.R. Jampani currently works at Google.
- Mustaq Ahmed, 2009, thesis: “Constrained Shortest Paths in Terrains and Graphs.” M. Ahmed currently works at Google.
- Michael Spriggs, 2007, co-supervised with Therese Biedl, thesis: “Morphing Parallel Graph Drawings”.
- Erik Demaine, 2001, co-supervised with J.I. Munro, thesis: “Folding and Unfolding”, winner of Governor General’s Gold Medal and a 2003 NSERC Doctoral Prize. E. Demaine is currently a faculty member at MIT.
- Claudia Iturriaga, 1999, thesis: “Map Labeling Problems”. C. Iturriaga works at Agfa.
- Naji Mouawad, 1996, thesis: “Interval Graphs as Visibility Graphs of Simple Polygons”.
- Hari Titan, 1993, co-supervised with A. Vannelli, thesis: “MaxCuts in Circuit Layout, Bitmaps and Ising Models: Algorithms and Computational Experience”.

Master’s:

- Kshitij Jain, September 2016 – present
- Shikha Mahajan, September 2015 – present
- Sweta Barman, September 2015 – present

- Yizhe Zeng, September 2012 – September 2014
- Stephen Kiazzyk, September 2012 – October 2014
- Hella Hoffman, visiting grad student, September 2012 – April 2013
- Taylor Gordon, 2010, co-supervised with J.I. Munro, thesis: “Simultaneously Embedding Planar Graphs at Fixed Vertex Locations”. T. Gordon is currently at Google.
- Mina Razaghpour, 2008, thesis: “The Steiner Ratio for the Obstacle-Avoiding Steiner Tree Problem”. M. Razaghpour currently works for Google.
- Steve Bahun, 2008, thesis: “Algorithms for Optimizing Search Schedules in a Polygon”.
- Benjamin Lafreniere, 2008, thesis: “Packing Unit Disks”. B. Lafreniere is in the PhD program at UW.
- Brendan Lucier, 2006, co-supervised with J.I. Munro, thesis: “Unfolding and Reconstructing Polyhedra”. B. Lucier is currently in the PhD program at UofT.
- Luke Tanur, 2005, thesis: “A Geometric Approach to Pattern Matching in Polyphonic Music”.
- Julie Sun, 1999, thesis: “Folding Orthogonal Polyhedra”.
- Nora Sleumer, 1993, thesis: “Outerplanar Graphs as Proximity Graphs”. N. Sleumer completed her PhD at ETH, Zurich.
- Prosenjit Bose, 1991, co-supervised by J.I. Munro, thesis: “Visibility in Simple Polygons”. Joint publication in Canadian Conference on Computational Geometry, as listed above. P. Bose is currently a faculty member at Carleton University.
- Paul Colley, 1991, thesis: “Visibility Graphs of Uni-monotone Polygons”. Publication in Fourth Canadian Conference on Computational Geometry, “Recognizing visibility graphs of uni-monotone polygons”. P. Colley completed his PhD at Queen’s University.
- Michael Hutton, 1990, thesis: “Upward Planar Drawing of Single Source Acyclic Digraphs”. Joint publication in ACM-SIAM Symposium on Discrete Algorithms, and SIAM J. Computing, as listed above. M. Hutton completed his PhD at U. of Toronto.
- Krishna Gopinathan, 1988, essay: “Decomposing a Graph Uniquely into Triconnected Components”

Undergraduates (since 2008):

- Nicholas Wray, May 2008 – August 2008. Graph morphing software.

External Examiner:

- P. Angelini, “On The Existence And Optimality Of Some Planar Graph Embeddings,” Roma Tre University, Italy, 2010.

Service

- Chair, School Council, July 2016—present.
- Chair, School Council, July 2014—June 2015.
- Women in Computer Science Committee, July 2014—June 2015.
- School of Computer Science Advisory Committee on Appointments, August 2012—June 2014.
- Women in CS Committee (chair), August 2011—July 2012.
- School of Computer Science Promotion and Tenure Committee, July 2010—2011.
- School of Computer Science Graduate Committee, July 2010—2011.
- School of Computer Science Annual Evaluation Committee, 2009.
- School of Computer Science Commons Committee, September 2005—2009.
- Women in CS Committee, August 2008—2009.
- Women in CS Committee (chair), August 2007—August 2008.
- School of Computer Science Promotion and Tenure Committee, June 2007—April 2008.
- School of Computer Science Advisory Committee on Appointments, October 2006—May 2007.
- Math Faculty Promotion and Tenure Committee, September 2004—January 2007.
- Subcommittee on Graduate Course Evaluations, September 2004—June 2005.
- Graduate Committee, January 2002—August 2004.
- Web Committee, September 2002—present.
- Promotion and Tenure Committee, July 2002—May 2003.
- Interdisciplinary Grants Committee, Sept. 2000—July 2001.
- National Scholarship Competition Committee, spring 2001.

- Graduate Committee, Sept. 1999—July 2001.
- Promotion and Tenure Committee, July 1996—December 1998
- Curriculum Committee Sept. 1988—August 1991
- PhD Comprehensive Exam Committee, Sept. 1991—July 1993, Fall 1996.
- Nominating Committee for Chair of Computer Science, Sept. 1991—Dec. 1991
- First Year Course Evaluation Committee, July 1992—July 1993
- Graduate Committee, Sept. 1992—July 1993

Refereeing

- 2015. Book chapter for Origami 6, American Math Society. Journals: *Algorithmica*, *Networks*, *Computer Aided Geometric Design*, *Journal of Computational Geometry*. Conferences: *International Workshop on Graph-Theoretic Concepts in Computer Science*
- 2014. Journals: *Discrete & Computational Geometry* (2), *SIAM J. Discrete Math.*, *J. Graph Algorithms and Applications*. Conferences: *European Symp. on Algorithms*, *Math. Foundations of Computer Science*, *Origami6*, *Scandinavian Workshop on Algorithm Theory*, *Graph Drawing* (12).
- 2013. Journals: *Discrete & Computational Geometry*, *SIAM J. Computing*, *Int. J. Computational Geometry Applications*, *J. Discrete Algorithms*, *J. Computational Geometry* (2), *Theoretical Computer Science*. Conferences: *Symp. Computational Geometry* (3), *Graph Drawing*, *Symp. Algorithms and Data Structures (WADS)*

Editor

- *Journal of Computational Geometry*
- *Journal of Graph Algorithms and Applications*

Program Committees

- co-chair, Symposium on Computational Geometry, 2016
- co-chair, Graph Drawing 2015
- Computational Geometry: Young Researchers Forum 2015
- Steering Committee, Graph Drawing, 2014 - 2016.
- NSERC Discovery Grant Evaluation Committee, 3 year term, 2012–2014.
- Graph Drawing 2014
- LATIN (Latin American Theoretical INformatics), 2014
- 25th Canadian Conference on Computational Geometry (CCCG), 2013.
- Graph Drawing 2012.
- Symposium on Discrete Algorithms (SODA), 2012.
- 23rd Canadian Conference on Computational Geometry (CCCG), 2011.
- International Workshop on Combinatorial Algorithms (IWOCA), 2011.
- Symposium on Computational Geometry (SoCG), 2011.
- 22st Canadian Conference on Computational Geometry, 2010.
- Fall Workshop on Computational Geometry 2009.
- 21st Canadian Conference on Computational Geometry, 2009.
- International Symposium on Algorithms and Computation (ISAAC) 2008.
- Symposium on Computational Geometry (SoCG), 2004
- 16th Canadian Conference on Computational Geometry, 2004.
- Graph Drawing 2002.
- 13th Canadian Conference on Computational Geometry, 2001.
- 12th Canadian Conference on Computational Geometry, 2000.
- organizer of mini-symposium for SIAM Conference on Discrete Math, 2000.
- Video Review, Symposium on Computational Geometry, 2000.
- Symposium on Computational Geometry, 1999.

- Graph Drawing 1998.
- Graph Drawing 1995.
- co-chair of program committee, and local organizer for Fifth Canadian Conference on Computational Geometry, August, 1993, University of Waterloo.
- Fourth Canadian Conference on Computational Geometry, August 1992.

Professional Memberships: ACM