

# Erik D. Demaine

## Academic Curriculum Vitæ

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Canadian and U.S. Citizen

## EDUCATIONAL BACKGROUND

Ph.D. University of Waterloo, 1996–2001. Advisors: Anna Lubiw and J. Ian Munro  
M.Math. University of Waterloo, 1995–1996. Advisor: David Taylor  
B.Sc. Dalhousie University, 1993–1995. Advisor: Sampalli Srinivas

## POSITIONS HELD

July 2011–present Professor, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology  
July 2007–June 2011 Associate Professor with tenure, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology  
July 2005–June 2007 Associate Professor, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology  
July 2005–June 2008 Esther and Harold E. Edgerton Professor, Massachusetts Institute of Technology  
Sept. 2001–June 2005 Assistant Professor, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology  
Sept. 2001–present Member, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology

## TEACHING

Spring 2018 MIT 6.009, (New) Introduction to Algorithms. 348 MIT students. Rated 6.5/7.0.  
Fall 2017 MIT 6.851, Advanced Data Structures. 53 MIT students. Rated 6.7/7.0.  
Spring 2017 MIT 6.849, Geometric Folding Algorithms: Linkages, Origami, Polyhedra. 33 MIT students. Rated 6.6/7.0.  
Fall 2016 MIT 6.006, (New) Introduction to Algorithms. 306 MIT students. Rated 6.4/7.0.  
May 2016 University of Tokyo, Geometric Folding Algorithms.  
Spring 2015 MIT 6.046, Design and Analysis of Algorithms. 233 MIT students. Rated 6.1/7.0.  
Fall 2014 MIT 6.890, Algorithmic Lower Bounds: Fun with Hardness Proofs. 37 MIT students.  
Spring 2014 MIT 6.851, Advanced Data Structures. 60 MIT students. Rated 6.5/7.0.  
Nov. 2013 The University of the Arts, Philadelphia, Computer-Aided Design of Glass Cane, with Martin Demaine.  
Fall 2013 MIT 6.006, (New) Introduction to Algorithms. 221 MIT students. Rated 6.5/7.0.  
July 2013 Haystack Mountain School of Crafts, Deer Isle, Maine, Computer-Aided Design of Glass Cane, with Martin Demaine and Peter Houk.  
Spring 2013 MIT 6.046, Design and Analysis of Algorithms. 158 MIT students. Rated 6.3/7.0.  
Spring 2013 MIT 6.S080, Mechanical Invention through Computation. 27 MIT/Harvard students. Rated 5.1/7.0.  
Fall 2012 MIT 6.849, Geometric Folding Algorithms: Linkages, Origami, Polyhedra. 30 MIT students. Rated 6.6/7.0.  
Spring 2012 MIT 6.851, Advanced Data Structures. 69 MIT students. Rated 6.6/7.0.  
Fall 2011 MIT 6.006, (New) Introduction to Algorithms. Rated 6.2/7.0.  
Fall 2011 MIT 6.889, Algorithms for Planar Graphs and Beyond. 16 MIT students. Rated 7.0/7.0.  
Spring 2011 MIT 6.006, (New) Introduction to Algorithms. 163 MIT students. Rated 5.7/7.0.

Fall	2010	MIT 6.849, Geometric Folding Algorithms: Linkages, Origami, Polyhedra. 39 MIT students. Rated 6.5/7.0. According to the <i>Underground Guide to Course 6</i> , “Demaine had a casual yet engaging style of presentation . . . had good blackboard technique and explained the concepts of the class clearly . . . [and] was very enthusiastic and knowledgeable about the material.” One student wrote “this class was one of the reasons I came to MIT!”
Spring	2010	MIT 6.851, Advanced Data Structures. 26 MIT students. Rated 6.4/7.0.
Spring	2010	Supervisor for MIT ESG SP.268, Topics in the Mathematics of Toys and Games, by Melissa Gymrek and Jing Li. 6 MIT students.
IAP	2007	MIT A433, Cool Algorithms: Video Recording for Future Generations, with Martin Demaine and Jean-Jacques Quisquater. 21 students.
Fall	2009	MIT 6.046, Design and Analysis of Algorithms. 109 MIT students. Rated 6.3/7.0.
Aug.	2008	MADALGO Summer School on Cache-Oblivious Algorithms. MADALGO, University of Aarhus, Denmark. Several lectures on cache-oblivious data structures and geometric algorithms.
Spring	2008	MIT 6.006, (New) Introduction to Algorithms. 75 MIT students. According to the <i>Underground Guide to Course 6</i> , “Demaine . . . was very enthusiastic and passionate . . . [and] related well to students.” Rated 6.2/7.0.
Fall	2007	MIT 6.885, Geometric Folding Algorithms: Linkages, Origami, Polyhedra. 20 MIT students, 44 listeners. According to the <i>Underground Guide to Course 6</i> , “Demaine . . . is an enthusiastic and fun lecturer. . . . Several students took the class because of the professor.” Rated 6.6/7.0.
Spring	2007	MIT 6.851, Advanced Data Structures. 25 MIT students, 11 listeners. According to the <i>Underground Guide to Course 6</i> , “Some [students] took it specifically because Erik Demaine was lecturing.” Rated 6.7/7.0.
IAP	2007	MIT 6.096, Knot Language: Recreating Inca Quipu/Khipu, with Martin Demaine and Jean-Jacques Quisquater. 23 credit MIT students, 20 listeners.
Fall	2006	MIT 6.046J/18.410J, Introduction to Algorithms, with Madhu Sudan. 90 MIT students, 2 listeners. According to the <i>Underground Guide to Course 6</i> , “Demaine . . . was funny and gave clear lectures . . . [has] a thorough understanding of the subject and was enthusiastic . . . very personable and available outside of class for help.” Rated 5.7/7.0.
Fall	2005	MIT 6.046J/18.410J/SMA5503, Introduction to Algorithms, with Charles Leiserson. 85 MIT students, 2 listeners, 6 SMA students. According to the <i>Underground Guide to Course 6</i> , “Demaine . . . was praised for being clear, enthusiastic, and funny. Students thought his lectures were fun, that he had a great presentation style, and they also appreciated his nerdy humor.” Rated 6.2/7.0.
Spring	2005	MIT 6.897, Advanced Data Structures. 12 MIT students, 7 listeners. Rated 6.7/7.0.
IAP	2005	MIT IAP 6451, Junkyard Art: The Art of Recycling, with Jeff Smith, Justin Adams, and Martin Demaine.
Fall	2004	MIT 6.885, Folding and Unfolding in Computational Geometry. 12 MIT students, 7 listeners. According to the <i>Underground Guide to Course 6</i> , “Demaine . . . was universally praised as an excellent, clear lecturer who made good use of the blackboard and projector. . . . No CS student should leave MIT without taking an Erik Demaine class.” Rated 6.5/7.0.
Fall	2004	MIT 4.491, Form-Finding and Structural Optimization, with Barb Cutler, Martin Demaine, Simon Greenwold, Axel Kilian, and John Ochsendorf.
Spring	2004	MIT 6.046J/18.410J, Introduction to Algorithms, with Shafi Goldwasser. 103 MIT students. According to the <i>Underground Guide to Course 6</i> , “Demaine . . . was widely considered to be an excellent lecturer. He was interesting and funny while giving clear explanations.” Rated 6.3/7.0.
Spring	2004	MIT 4.493, 3-D Design Tools for Equilibrium: Exploring Gaudi’s World, with

April 2004	Barb Cutler, Martin Demaine, Axel Kilian, and John Ochsendorf. 2004 Novartis IT Excellence Program MIT, MIT Office of Professional Education Programs. Lecture on algorithms.
IAP 2004	MIT IAP 5804, Building with Books, with Martin Demaine, Chris Dewart, Stephanie Hartman, Wendy Jacob, and John Ochsendorf.
Fall 2003	MIT 6.854/18.415J, Advanced Algorithms, with David Karger. 58 MIT students. According to the <i>Underground Guide to Course 6</i> , “Demaine was lively, charismatic, knowledgeable. . . His lectures were entertaining. . . insightful, interesting. . .” Rated 6.0/7.0.
Spring 2003	MIT 6.897, Advanced Data Structures. 37 MIT students, 10 listeners. According to the <i>Underground Guide to Course 6</i> , “Demaine was very knowledgeable about the material and gave very clear explanations of complicated material. Demaine created a laid back yet exciting environment to learn and was good at encouraging questions from the students.” Rated 6.2/7.0.
Fall 2002	MIT 6.046J/18.410J, Introduction to Algorithms, with Shafi Goldwasser. 112 MIT students. According to the <i>Underground Guide to Course 6</i> , “Demaine was easy to understand, knowledgeable, well prepared, and had good board technique. He was appreciated as a strong lecturer overall, with a good choice of topics presented in the class and well structured presentations.” Rated 5.7/7.0.
June 2002	EEF Summer School on Massive Data Sets. BRICS, University of Aarhus, Denmark. Several lectures on cache-oblivious algorithms and data structures.
Fall 2001	MIT 6.046J/18.410J/SMA5503, Introduction to Algorithms, with Charles Leiserson. 140 MIT students, 37 SMA students. According to the <i>Underground Guide to Course 6</i> , “A substantial number of students said that [Demaine’s] lectures in this course were among the best at MIT.” Rated 5.7/7.0.
Spring 1999	University of Waterloo CS 360, Introduction to the Theory of Computing. 80 students. Ranked by student evaluations as #2 teacher among 40 course offerings in computer science.

#### POSTDOCTORAL RESEARCHERS

1. Christian Sommer (2011–2012)
2. Siamak Tazari (2011)
3. André Schulz (2009–2010)
4. MohammadTaghi Hajiaghayi (joint with CMU, 2005–2007)

#### CURRENT STUDENTS

Ph.D. candidates:

1. Hugo Akitaya (Tufts) — computational geometry
2. Jayson Lynch (EECS) — energy-efficient algorithms
3. Quanquan Liu (EECS) — graph algorithms, games
4. Ali Vakilian (EECS) — combinatorial optimization

M.Eng. candidates:

5. Mikhail Rudoy — hardness proofs

Undergraduate researchers:

5. Eli Davis — computational origami
6. Jenny Ramseyer — computational origami
7. Mikhail Rudoy — hardness
8. Kai Xiao — games

I also serve as academic advisor to 21 MIT undergraduates (Sept. 2002–present).

## GRADUATED STUDENTS

## Ph.D. Theses:

1. Adam Hesterberg (Math), “Closed Quasigeodesics, Escaping from Polygons, and Conflict-Free Graph Coloring”, completed May 2018.
2. Zachary Abel (Math), “On Folding and Unfolding with Linkages and Origami”, completed Sept. 2016.
3. Jason Ku (MechE, cosupervised with Sanjay Sarma), “On the Design of Physical Folded Structures”, completed Aug. 2016.
4. Duks Koschitz (Architecture), “Computational Design with Curved Creases: David Huffman’s Approach to Paperfolding”, completed Aug. 2014.
5. Andrew Winslow (Tufts, cosupervised with Diane Souvaine), “Staged Self-Assembly and Polyomino Context-Free Grammars”, completed Feb. 2014.
6. Morteza Zadimoghaddam (EECS), “Online Allocation Algorithms with Applications in Computational Advertising”, completed Jan. 2014.
7. Jelani Nelson (EECS, cosupervised with Piotr Indyk): “Sketching and Streaming High-Dimensional Vectors”, completed Aug. 2011.
8. Nadia Benbernou (Math): “Geometric Algorithms for Reconfigurable Structures”, completed Aug. 2011.
9. Oren Weimann (EECS): “Accelerating Dynamic Programming”, completed Mar. 2009.
10. Mihai Pătraşcu (EECS): “Lower Bound Techniques for Data Structures”, completed Sept. 2008.
11. Dion Harmon (Math): “New Bounds on Optimal Binary Search Trees”, completed May 2006.
12. Robert Hearn (EECS, cosupervised with Gerald Sussman): “Games, Puzzles, and Computation”, completed May 2006.
13. MohammadTaghi Hajiaghayi (Math): “The Bidimensionality Theory and Its Algorithmic Applications”, completed May 2005.
14. Nicole Immorlica (EECS, cosupervised with David Karger): “Computing with Strategic Agents”, completed May 2005.
15. David Liben-Nowell (EECS): “An Algorithmic Approach to Social Networks”, completed May 2005.

## M.Eng. Theses:

16. Kimberly Baldauf (EECS): “A User Interface for Customizing Cane Layouts in Virtual Glass”, completed Sept. 2012.
17. Tom Morgan (EECS): “Map Folding”, completed June 2012.
18. Aviv Ovadya (EECS): “Origami Transformers: Folding Orthogonal Structures from Universal Hinge Patterns”, completed Aug. 2010.
19. Katherine Lai (EECS): “Complexity of Union-Split-Find Problems”, completed May 2008.
20. Ilya Baran: “Adaptive Algorithms for Problems Involving Black-Box Lipschitz Functions”, completed May 2004.

## EDITORIAL WORK

1. Editorial board, *Journal of Mathematics and the Arts*, 2014–2016.
2. Editorial board, *Journal of Computational Geometry*, 2009–2012.
3. Editorial board, *Discrete & Computational Geometry*, 2006–present.
4. Guest co-editor, Special Issue of Selected Papers from ALENEX 2003, *ACM Journal of Experimental Algorithmics*, volume 8, 2003.
5. Co-editor, *The Open Problems Project* (an up-to-date compilation of important open problems in computational geometry), with Joseph Mitchell and Joseph O’Rourke, 2001–present.

## CONFERENCE AND WORKSHOP COMMITTEES

1. Program committee, 8th International Conference on Fun with Algorithms, 2018.
2. Co-organizer, 33rd Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Mar. 2018.
3. Co-organizer, 32nd Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Jan. 2017.
4. Program committee cochair, 7th International Conference on Fun with Algorithms, 2016.

5. Co-organizer, 31st Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Mar. 2016.
6. Program committee, 16th Encuentros de Geometría Computacional, Barcelona, Spain, July 2015.
7. Program committee, 31st European Workshop on Computational Geometry, Ljubljana, Slovenia, March 2015.
8. Co-organizer, 30th Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Mar. 2015.
9. Co-organizer, ICERM Research Cluster: Towards Efficient Algorithms Exploiting Graph Structure, Providence, Rhode Island, Apr.–May 2014.
10. Co-organizer, 29th Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Mar. 2014.
11. Co-organizer, FOCS 2013 Tutorial on Bidimensional Structures: Algorithms and Combinatorics, Oct. 2013.
12. Co-organizer, Dagstuhl Seminar 13121 on Bidimensional Structures: Algorithms, Combinatorics and Logic, Wadern, Germany, Mar. 2013.
13. Co-organizer, 28th Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Mar. 2013.
14. Program committee, 18th International Conference on DNA Computing and Molecular Programming, Aarhus, Denmark, August 2012.
15. Program committee, 5th International Conference on Fun with Algorithms, Venice, Italy, June 2012.
16. Co-organizer, 27th Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Feb. 2012.
17. Program committee, 3rd Workshop on Massive Data Algorithmics, Paris, France, June 2011.
18. Program committee, 23rd Canadian Conference on Computational Geometry, Charlottetown, Canada, Aug. 2011.
19. Co-organizer, 26th Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Feb. 2011.
20. Program committee, 2nd Symposium on Innovations in Computer Science, Beijing, China, Jan. 2011.
21. Program committee, 2nd Workshop on Massive Data Algorithmics, Snowbird, Utah, June 2010.
22. Program committee, 5th International Conference on Fun with Algorithms, Ischia, Italy, June 2010.
23. Co-organizer, Seminar on Data Structures, Schloss Dagstuhl, Germany, Feb. 2010.
24. Co-organizer, 25th Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Feb. 2010.
25. Co-organizer, Seminar on Parameterized Complexity and Approximation Algorithms, Schloss Dagstuhl, Germany, Dec. 2009.
26. Program committee, Workshop on Massive Data Algorithmics, Aarhus, Denmark, June 2009.
27. Co-organizer, Workshop on Deciphering Inka Khipus and Other Lost Languages, Louvain-la-Neuve, Belgium, Apr. 2009.
28. Co-organizer, Workshop on Algorithmic Folding, Origami and Linkages, Brussels, Belgium, Mar. 2009.
29. Program committee, 25th European Workshop on Computational Geometry, Brussels, Belgium, Mar. 2009.
30. Co-organizer, 24th Bellairs Winter Workshop on Computational Geometry, Holetown, Barbados, Feb. 2009.
31. Program committee, 18th Annual Fall Workshop on Computational Geometry, Troy, NY, Oct. 2008.
32. Program committee, 17th Annual Fall Workshop on Computational Geometry, Hawthorne, NY, Nov. 2007.
33. Program committee, 19th Canadian Conference on Computational Geometry, Ottawa, Canada, Aug. 2007.
34. Program committee, 4th Workshop on Combinatorial and Algorithmic Aspects of Networking, Halifax, Canada, Aug. 2007.
35. Co-organizer, Seminar on Structure Theory and FPT Algorithmics for Graphs, Digraphs and Hypergraphs, Schloss Dagstuhl, Germany, July 2007.
36. Program committee, 13th Symposium on String Processing and Information Retrieval, Glasgow, Scotland, Oct. 2006.
37. Program committee, 2nd International Workshop on Parameterized and Exact Computation, Zürich, Switzerland, Sept. 2006.
38. Program committee, 10th Scandinavian Workshop on Algorithm Theory, Riga, Latvia, July 2006.
39. Program committee, 2nd Workshop on Combinatorial and Algorithmic Aspects of Networking, Waterloo, Canada, August 2005.
40. Program committee chair and organizing committee chair, 14th Annual Fall Workshop on Computational Geometry, Cambridge, MA, Nov. 2004.
41. Program committee, International Workshop on Parameterized and Exact Computation, Bergen, Norway, September 2004.
42. Program committee, 1st Workshop on Combinatorial and Algorithmic Aspects of Networking, Banff, Canada, August 2004.

43. Co-organizer, Seminar on Cache-Oblivious and Cache-Aware Algorithms, Schloss Dagstuhl, Germany, July 2004.
44. Program committee, 44th Annual IEEE Symposium on Foundations of Computer Science, Cambridge, Massachusetts, November 2003.
45. Program committee, 8th Workshop on Algorithms and Data Structures, Ottawa, Canada, July 2003.
46. Program committee, 19th Annual Symposium on Computational Geometry, San Diego, California, June 2003.
47. Video committee chair, 12th Annual Video Review of Computational Geometry, 19th Annual Symposium on Computational Geometry, San Diego, California, June 2003.
48. Program committee, 5th Workshop on Algorithm Engineering and Experiments, Baltimore, Maryland, January 2003.
49. Program committee, 12th Annual Fall Workshop on Computational Geometry, Piscataway, New Jersey, November 2002.
50. Program committee, 13th Annual ACM-SIAM Symposium on Discrete Algorithms, San Francisco, California, January 2002.
51. Co-organizer, Seminar on Algorithmic Combinatorial Game Theory, Schloss Dagstuhl, Germany, February 2002.
52. Program and organizing committee, 13th Canadian Conference on Computational Geometry, Waterloo, Canada, August 2001.
53. Video committee, 9th Annual Video Review of Computational Geometry, 16th Annual ACM Symposium on Computational Geometry, Hong Kong, June 2000.

#### UNIVERSITY COMMITTEES

1. Exhibitions Advisory Group, MIT Museum (2017)
2. EECS Lecturer Selection Committee (2016)
3. CSAIL Computer Science 2040 Study Group (2013)
4. CSAIL-QCRI Steering Committee (2013–present)
5. EECS Faculty Search (2012–2013)
6. CSAIL Director Search Committee (2011, 2012)
7. EECS Curriculum Committee (2011)
8. EECS Education Working Group (2011)
9. MIT CSAIL Theory Group space czar (2010–present)
10. MIT 150 Curatorial Board (2010–2011)
11. Theory of Computing Colloquium Committee (2005–present)
12. CSAIL Executive Committee (2005–2006, 2009–2011)
13. Editorial board of MIT Faculty Newsletter (2004–present)
14. Curator of CSAIL Collection (2003–present)
15. Graduate student admissions for MIT EECS, 2004.
16. Graduate student admissions for MIT EECS, 2003.
17. Graduate student admissions for MIT EECS, 2002.

#### BOARDS

1. Co-president of board, Gathering for Gardner Foundation (2016–present)
2. Advisory board, Museum of Mathematics (2011–present)
3. Support Board, Center for Graduate Education Initiative, Japan Advanced Institute of Science and Technology (2010–present)

#### COLLABORATORS

I have published papers with the following 424 co-authors: Scott Aaronson (MIT), Timothy G. Abbott (MIT), Zachary Abel (MIT), Aaron B. Adcock (Stanford U.), Aviv Adler (MIT), Micah Adler (U. Massachusetts, Amherst), Hee-Kap Ahn (Pohang U. Science & Technology), Oswin Aichholzer (TU Graz), Hugo A. Akitaya (Tufts U.), Noga Alon (Tel Aviv U.), Greg Aloupis (McGill U.), Stephen Alstrup (IT U. Copenhagen), Victor Alvarez (TU Braunschweig), Byoung Kwon An (MIT), Lars Arge (U. Aarhus), Esther Arkin (SUNY Stony Brook), Boris Aronov (Polytechnic Inst. NYU), Will Arora (MIT), Tetsuo

Asano (JAIST), Yasuhiko Asao (U. Tokyo), Daniel M. Aukes (Harvard U.), Franz Aurenhammer (TU Graz), Jonathan Bachrach (U. California, Berkeley), Mihai Bădoiu (Google), Sang Won Bae (Pohang U. Science & Technology), Hari Balakrishnan (MIT), Devin Balkcom (Dartmouth), Brad Ballinger (U. California, Davis), Ziv Bar-Joseph (Carnegie Mellon U.), Ilya Baran (MIT), George Barbastathis (MIT), Gill Barequet (Technion), MohammadHossein Bateni (Sharif U. Technology), Aaron Becker (U. Houston), Nadia M. Benbernou (MIT), Carl Bender (Washington U.), Michael Bender (SUNY Stony Brook), David Benoit (InfoInteractive Inc.), Piotr Berman (Penn State U.), Marshall Bern (PARC), Therese Biedl (U. Waterloo), Michael Biro (Swarthmore College), Amartya Shankha Biswas (MIT), Glencora Borradaile (U. Waterloo), Jeffrey Bosboom (MIT), Prosenjit Bose (Carleton U.), Jonathan Bredin (Colorado College), Broňa Brejová (U. Waterloo), David Bremner (U. New Brunswick, Fredericton), Ron Breukelaar (U. Leiden), Gerth Brodal (U. Aarhus), Andrej Brodnik (Luleø Technical U.), Kevin Buchin (Freie U. Berlin), Maike Buchin (Freie U. Berlin), David Bunde (Knox College), Kyle Burke (Plymouth State U.), Michael A. Burr (New York U.), Jonathan Buss (U. Waterloo), Steve Butler (Iowa State U.), Sergio Cabello (IMFM), Sarah Cannon (Tufts U.), Jason Cantarella (U. Georgia, Athens), Jean Cardinal (U. Libre de Bruxelles), Svante Carlsson (Luleø Technical U.), Eowyn Čenek (U. Waterloo), Cameron Chalk (U. Texas — Pan American), Timothy M. Chan (U. Waterloo), David Charlton (MIT), Kailiang Chen (MIT), Kenneth C. Cheung (MIT), Paul Christiano (MIT), Barry Cipra (Minnesota), Stelian Ciurea (U. Lucian Blaga), Austin Clements (MIT), Alex Cole (MIT), Richard Cole (New York U.), Sébastien Collette (U. Libre de Bruxelles), Robert Connelly (Cornell U.), Carmen Cortés (U. Sevilla), David Dalrymple (MIT), Mirela Damian (Villanova U.), Constantinos Daskalakis (MIT), Eli Davis (MIT), David DeHaan (U. Waterloo), Martin L. Demaine (MIT), Ajay Deshpande (MIT), Satyan Devadoss (Williams College), Karim Douïeb (Carleton U.), Vida Dujmović (McGill U.), Muriel Dulieu (Polytechnic Inst. NYU), Christian Duncan (U. Miami), Roozbeh Ebrahimi (SUNY Stony Brook), Alan Edelman (MIT), Sarah Eisenstat (MIT), Dania El-Khechen (Concordia U.), Dotan Emanuel (Tel Aviv U.), David Eppstein (U. California, Irvine), Jeff Erickson (U. Illinois, Urbana-Champaign), Ruy Fabila-Monroy (U. Nacional Autónoma de México), Martin Farach-Colton (Rutgers U.), Uriel Feige (Weizmann Institute), Sándor Fekete (TU Braunschweig), Samuel M. Felton (Harvard U.), Thomas Fevens (Concordia U.), Amos Fiat (Tel Aviv U.), Jeremy T. Fineman (Georgetown U.), Samuel Fiorini (U. Libre de Bruxelles), Robin Flatland (Siena College), Rudolf Fleischer (Fudan U.), Fedor Fomin (U. Bergen), Ian Foster (U. Chicago), Eli Fox-Epstein (Brown U.), Aviezri Fraenkel (Weizmann Institute), Greg Frederickson (Purdue U.), Erich Friedman (Stetson U.), Shmuel Gal (U. Haifa), Blaise Gassend (MIT), Neil Gershenfeld (MIT), Mohammad Ghodsi (Sharif U. Technology), David Gifford (MIT), Lukasz Golab (U. Waterloo), Mordecai Golin (Hong Kong U. Science and Technology), Alexander Golynski (U. Waterloo), Francisco Gomez-Martin (U. Politècnica de Madrid), Vineet Gopal (MIT), Aman Gour (IIT Bombay), Ronald Graham (U. California, San Diego), Forrest Green (MIT), Scott Greenwald (MIT), Saul Griffith (Otherlab), Joachim Gudmundsson (National ICT Australia), Alan Guo (MIT), Gregory Gutin (Royal Holloway U. London), Golnax Habibi (Rice U.), MohammadTaghi Hajiaghayi (U. Maryland), Angéle Hamel (Laurier U.), Dion Harmon (New England Complex Systems Institute), George Hart (SUNY Stony Brook), Vi Hart (SUNY Stony Brook), Nicholas J. A. Harvey (U. Waterloo), William Hasenplaugh (MIT), Elliot Hawkes (Stanford U.), Andrea Hawksley (MIT), Barry Hayes (PlaceWare Inc.), Robert A. Hearn (MIT), Adam Hesterberg (MIT), Duc A. Hoang (JAIST), Michael Hoffmann (ETH Zurich), Susan Hohenberger (Johns Hopkins U.), Bryan Holland-Minkley (Duke University), Markus Holzer (Technische U. München), Hendrik Jan Hoogeboom (U. Leiden), Takashi Horiyama (Saitama U.), Joseph Horton (U. New Brunswick, Fredericton), Hideaki Hosaka (Azabu Junior-High School), Yamming Huang (National Tsing Hua U.), David A. Huffman (U. California, Santa Cruz), John Hugg (Tufts U.), Thomas C. Hull (Western New England U.), Ferran Hurtado (U. Politècnica de Catalunya), John Iacono (Polytechnic Inst. NYU), Hayley Iben (U. California, Berkeley), Shinji Imahori (U. Tokyo), Nicole Immorlica (Northwestern U.), Piotr Indyk (MIT), Mashhood Ishaque (Tufts U.), Hiro Ito (Kyoto University), Takehiro Ito (Tohoku U.), Jin-ichi Itoh (Kumamoto U.), Tommi Jaakkola (MIT), Lars Jacobsen (U. Southern Denmark), Rob Johnson (SUNY Stony Brook), Thouis Jones (MIT), Gwenaël Joret (U. Libre de Bruxelles), Tim Kaler (MIT), Marcin Kamiński (U. Libre de Bruxelles), Daniel Kane (U. California, San Diego), Craig Kaplan (U. Waterloo), Dmitriy A. Katz (MIT), Jun Kawahara (Nara Inst. Science & Technology), Akitoshi Kawamura (U. Tokyo), Ken-ichi Kawarabayashi (National Inst. Informatics), Phillip Keldenich (TU Braunschweig), Carl

Kesselman (U. Southern California), Sangbae Kim (MIT), Taejung Kim (MIT), James King (U. Waterloo), Shaunak Kishore (MIT), Masashi Kiyomi (JAIST), Philip N. Klein (Brown U.), Ara Knaian (MIT), Christian Knauer (Freie U. Berlin), Stephen Kobourov (U. Arizona), Scott D. Kominers (Harvard U.), Goran Konjevod (Arizona State U.), Matias Korman (U. Libre de Bruxelles), Duks Koschitz (Pratt), Walter A. Kosters (U. Leiden), Irina Kostitsyna (TU Eindhoven), Bahram Kouhestani (Queens U.), Evangelos Kranakis (Carleton U.), Hannes Krasser (TU Graz), Danny Krizanc (Wesleyan U.), Jason Ku (MIT), Eric Kuo (Numerica Corporation), Anastasia Kurdia (U. Texas Dallas), Gad M. Landau (U. Haifa), Robert J. Lang (Lang Origami), Arthur Langerman (Langerman Diamonds), Stefan Langerman (U. Libre de Bruxelles), Sylvain Lazard (INRIA Lorraine), Tom Leighton (MIT), Charles E. Leiserson (MIT), Ben Leong (National U. Singapore), Vitus Leung (Sandia National Labs.), Chung-Shou Liao (National Tsing Hua U.), David Liben-Nowell (Carleton U.), Andrea Lincoln (MIT), Jeffrey Lindy (New York U.), Barbara Liskov (MIT), Ching-Hao Liu (National Tsing-Hua University), Quanquan Liu (MIT), Maarten Löffler (Utrecht U.), Po-Ru Loh (MIT), Alejandro López-Ortiz (U. Waterloo), Yongquan Lu (MIT), Anna Lubiw (U. Waterloo), Jayson Lynch (MIT), Fermi Ma (MIT), Sepideh Mahabadi (MIT), Hamid Mahini (Sharif U. Technology), David L. Malec (U. Maryland), Shelly Manber (MIT), Andrea Mantler (U. North Carolina, Chapel Hill), Pasin Manurangsi (MIT), Eric Martinez (U. Texas — Pan American), Dániel Marx (Tel Aviv U.), Hiroaki Matsui (JAIST), Samuel McCauley (SUNY Stony Brook), James McLurkin (Rice U.), Laura Meeker (MIT), Henk Meijer (Queens U.), Antonio Mesa (U. Habana), Friedhelm Meyer auf der Heide (U. Paderborn), Yair N. Minsky (Yale U.), Geronimo J. 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  187. “Sliding-Coin Puzzles” (joint work with Martin L. Demaine), in *Tribute to a Mathematician*, pages 63–72, 2004, A K Peters.
  188. “Fold-and-Cut Magic” (joint work with Martin L. Demaine), in *Tribute to a Mathematician*, pages 23–30, 2004, A K Peters.
  189. “Vertex-Unfolding of Simplicial Manifolds” (joint work with David Eppstein, Jeff Erickson, George W. Hart, and Joseph O’Rourke), in *Discrete Geometry: In Honor of W. Kuperberg’s 60th Birthday*, pages 215–228, 2003, Marcer Dekker Inc..
  190. “Infinitesimally Locked Self-Touching Linkages with Applications to Locked Trees” (joint work with

- Robert Connelly and Günter Rote), in *Physical Knots: Knotting, Linking, and Folding of Geometric Objects in  $\mathbb{R}^3$* , J. Calvo, K. Millett, and E. Rawdon, eds., pages 287–311, 2002, American Mathematical Society. Collection of papers from the Special Session on Physical Knotting and Unknotting at the AMS Spring Western Section Meeting, Las Vegas, Nevada, April 21–22, 2001.
191. “Cache-Oblivious Algorithms and Data Structures”, in *Lecture Notes from the EEF Summer School on Massive Data Sets*, BRICS, Denmark, June–July 2002.
  192. “The Complexity of Clickomania” (joint work with Therese C. Biedl, Martin L. Demaine, Rudolf Fleischer, Lars Jacobsen, and J. Ian Munro), in *More Games of No Chance*, R. J. Nowakowski, ed., pages 389–404, 2002, Cambridge University Press. Collection of papers from the MSRI Combinatorial Game Theory Research Workshop, Berkeley, California, July 24–28, 2000.
  193. “Phutball Endgames are Hard” (joint work with Martin L. Demaine and David Eppstein), in *More Games of No Chance*, R. J. Nowakowski, ed., pages 351–360, 2002, Cambridge University Press. Collection of papers from the MSRI Combinatorial Game Theory Research Workshop, Berkeley, California, July 24–28, 2000.
  194. “Coin-Moving Puzzles” (joint work with Martin L. Demaine and Helena A. Verrill), in *More Games of No Chance*, R. J. Nowakowski, ed., pages 405–431, 2002, Cambridge University Press. Collection of papers from the MSRI Combinatorial Game Theory Research Workshop, Berkeley, California, July 24–28, 2000.

#### REFEREED CONFERENCE PUBLICATIONS

Conference papers that have been accepted as journal articles or book chapters are only listed above (so each paper is listed once).

195. “Universal Hinge Patterns for Folding Strips Efficiently into Any Grid Polyhedron” (joint work with Nadia M. Benbernou, Martin L. Demaine, and Anna Lubiw), in *Proceedings of the 16th International Symposium on Algorithms and Data Structures*, to appear, July–Aug. 2017.
196. “Snipperclips: Cutting Tools into Desired Polygons using Themselves” (joint work with Matias Korman, André van Renssen, and Marcel Roeloffzen), in *Proceedings of the 29th Canadian Conference on Computational Geometry*, to appear, Ottawa, Canada, July 2017.
197. “Computing 3SAT on a Fold-and-Cut Machine” (joint work with Byoungkwon An, Martin L. Demaine, and Jason S. Ku), in *Proceedings of the 29th Canadian Conference on Computational Geometry*, to appear, Ottawa, Canada, July 2017.
198. “Common Development of Prisms, Anti-Prisms, Tetrahedra, and Wedges” (joint work with Amartya Shankha Biswas), in *Proceedings of the 29th Canadian Conference on Computational Geometry*, to appear, Ottawa, Canada, July 2017.
199. “Push-Pull Block Puzzles are Hard” (joint work with Isaac Grosz and Jayson Lynch), in *Proceedings of the 10th International Conference on Algorithms and Complexity*, Lecture Notes in Computer Science 10236, pages 177–195, Athens, Greece, May 2017.
200. “Origamizer: A Practical Algorithm for Folding Any Polyhedron” (joint work with Tomohiro Tachi), in *Proceedings of the 33rd International Symposium on Computational Geometry*, to appear, Brisbane, Australia, July 2017.
201. “Three Colors Suffice: Conflict-Free Coloring of Planar Graphs” (joint work with Zachary Abel, Victor Alvarez, Sándor Fekete, Aman Gour, Adam Hesterberg, Phillip Keldenich, and Christian Scheffer), in *Proceedings of the 28th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1951–1963, Barcelona, Spain, Jan. 2017.
202. “Universal Shape Replicators via Self-Assembly with Attractive and Repulsive Forces” (joint work with Cameron Chalk, Martin L. Demaine, Eric Martinez, Robert Schweller, Luis Vega, and Tim Wylie), in *Proceedings of the 28th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 225–238, Barcelona, Spain, Jan. 2017.
203. “The Complexity of Hex and the Jordan Curve Theorem” (joint work with Aviv Adler and Constantinos Daskalakis), in *Proceedings of the 43rd International Colloquium on Automata, Languages and Programming*, 24:1–24:14, Rome, Italy, July 2016.
204. “Cache-Adaptive Analysis” (joint work with Michael A. Bender, Roozbeh Ebrahimi, Jeremy T. Fineman, Rob Johnson, Andrea Lincoln, Jayson Lynch, and Samuel McCauley), in *Proceedings of the 28th*

- ACM Symposium on Parallelism in Algorithms and Architectures*, pages 135–144, Pacific Grove, CA, 2016.
205. “Toward an Energy Efficient Language and Compiler for (Partially) Reversible Algorithms” (joint work with Nirvan Tyagi and Jayson Lynch), in *Proceedings of the 8th International Conference on Reversible Computation*, Lecture Notes in Computer Science 9720, pages 121–136, Bologna, Italy, July 2016.
  206. “A PTAS for Planar Group Steiner Tree via Spanner Bootstrapping and Prize Collecting” (joint work with MohammadHossein Bateni, MohammadTaghi Hajiaghayi, and Dániel Marx), in *Proceedings of the 48th Annual ACM Symposium on Theory of Computing*, pages 570–583, Cambridge, MA, 2016.
  207. “Who Needs Crossings? Hardness of Plane Graph Rigidity” (joint work with Zachary Abel, Martin L. Demaine, Sarah Eisenstat, Jayson Lynch, and Tao B. Schardl), in *Proceedings of the 32nd International Symposium on Computational Geometry*, 3:1–3:15, Boston, MA, June 2016.
  208. “The Fewest Clues Problem” (joint work with Fermi Ma, Erik Waingarten, Ariel Schwartzman, and Scott Aaronson), in *Proceedings of the 8th International Conference on Fun with Algorithms*, 12:1–12:12, La Maddalena, Italy, June 2016.
  209. “Super Mario Bros. is Harder/Easier than We Thought” (joint work with Giovanni Viglietta and Aaron Williams), in *Proceedings of the 8th International Conference on Fun with Algorithms*, 13:1–13:14, La Maddalena, Italy, June 2016.
  210. “Energy-Efficient Algorithms” (joint work with Jayson Lynch, Geronimo J. Mirano, and Nirvan Tyagi), in *Proceedings of the 7th Annual ACM Conference on Innovations in Theoretical Computer Science*, pages 321–332, Cambridge, MA, Jan. 2016.
  211. “Dissection with the Fewest Pieces is Hard, Even to Approximate” (joint work with Jeffrey Bosboom, Martin L. Demaine, Jayson Lynch, Pasin Manurangsi, Mikhail Rudoy, and Anak Yodpinyanee), in *Revised Papers from the 18th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science 9943, pages 37–48, Kyoto, Japan, Sept. 2015.
  212. “Symmetric assembly puzzles are hard, beyond a few pieces” (joint work with Jason S. Ku, Matias Korman, Joseph Mitchell, Yota Otachi, André van Renssen, Marcel Roeloffzen, Ryuhei Uehara, and Yushi Uno), in *Revised Papers from the 18th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science 9943, pages 180–192, Kyoto, Japan, Sept. 2015.
  213. “Box pleating is hard” (joint work with Hugo A. Akitaya, Kenneth C. Cheung, Takashi Horiyama, Thomas C. Hull, Jason S. Ku, Tomohiro Tachi, and Ryuhei Uehara), in *Revised Papers from the 18th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science 9943, pages 167–179, Kyoto, Japan, Sept. 2015.
  214. “Mario Kart is Hard” (joint work with Jeffrey Bosboom, Adam Hesterberg, Jayson Lynch, and Erik Waingarten), in *Revised Papers from the 18th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science 9943, pages 49–59, Kyoto, Japan, Sept. 2015.
  215. “Bust-A-Move/Puzzle Bobble is NP-complete” (joint work with Stefan Langerman), in *Revised Papers from the 18th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science 9943, pages 94–104, Kyoto, Japan, Sept. 2015.
  216. “Single-player and two-player Buttons & Scissors games” (joint work with Kyle Burke, Robert Hearn, Adam Hesterberg, Michael Hoffmann, Hiro Ito, Irina Kostitsyna, Maarten Löffler, Yushi Uno, Christiane Schmidt, Ryuhei Uehara, and Aaron Williams), in *Revised Papers from the 18th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science 9943, pages 60–72, Kyoto, Japan, Sept. 2015.
  217. “Continuous flattening of orthogonal polyhedra” (joint work with Martin L. Demaine, Jin-Ichi Itoh, and Chie Nara), in *Revised Papers from the 18th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science 9943, pages 85–93, Kyoto, Japan, Sept. 2015.
  218. “New Geometric Algorithms for Fully Connected Staged Self-Assembly” (joint work with Sándor Fekete, Christian Scheffer, and Arne Schmidt), in *Proceedings of the 21st International Conference on DNA Computing and Molecular Programming*, pages 104–116, Cambridge, MA, Aug. 2015.
  219. “Cache-Oblivious Iterated Predecessor Queries via Range Coalescing” (joint work with Vineet Gopal and William Hasenplaugh), in *Proceedings of the 14th International Symposium on Algorithms and*

- Data Structures*, pages 249–262, Victoria, Canada, Aug. 2015.
220. “Polylogarithmic Fully Retroactive Priority Queues via Hierarchical Checkpointing” (joint work with Tim Kaler, Quanquan Liu, Aaron Sidford, and Adam Yedidia), in *Proceedings of the 14th International Symposium on Algorithms and Data Structures*, pages 263–275, Victoria, Canada, Aug. 2015.
  221. “Particle computation: Device fan-out and binary memory” (joint work with Hamed Mohtasham Shad, Rose Morris-Wright, Sándor P. Fekete, and Aaron Becker), in *Proceedings of the IEEE International Conference on Robotics and Automation*, pages 5384–5389, Seattle, WA, May 2015.
  222. “A Dissimilarity Measure for Comparing Origami Crease Patterns” (joint work with Seung Man Oh, Godfried T. Toussaint, and Martin L. Demaine), in *Proceedings of the 4th International Conference on Pattern Recognition Applications and Methods*, volume 1, pages 386–393, Lisbon, Portugal, Jan. 2015.
  223. “On Streaming and Communication Complexity of the Set Cover Problem” (joint work with Piotr Indyk, Sepideh Mahabadi, and Ali Vakilian), in *Proceedings of the 28th International Symposium on Distributed Computing*, pages 484–498, Austin, TX, Oct. 2014.
  224. “Flat Foldings of Plane Graphs with Prescribed Angles and Edge Lengths” (joint work with Zachary Abel, Martin L. Demaine, David Eppstein, Anna Lubiw, and Ryuhei Uehara), in *Proceedings of the 22nd International Symposium on Graph Drawing*, pages 272–283, Würzburg, Germany, Sept. 2014.
  225. “One Tile to Rule Them All: Simulating Any Tile Assembly System with a Single Universal Tile” (joint work with Martin L. Demaine, Sándor P. Fekete, Matthew J. Patitz, Robert T. Schweller, Andrew Winslow, and Damien Woods), in *Proceedings of the 41st International Colloquium on Automata, Languages and Programming*, J. Esparza, P. Fraigniaud, T. Husfeldt, and E. Koutsoupias, eds., Lecture Notes in Computer Science 8572, pages 368–379, 2014.
  226. “Canadians Should Travel Randomly” (joint work with Yamming Huang, Chung-Shou Liao, and Kunihiko Sadakane), in *Proceedings of the 41st International Colloquium on Automata, Languages and Programming*, J. Esparza, P. Fraigniaud, T. Husfeldt, and E. Koutsoupias, eds., Lecture Notes in Computer Science 8572, pages 380–391, 2014.
  227. “Playing Dominoes is Hard, Except by Yourself” (joint work with Fermi Ma and Erik Waingarten), in *Proceedings of the 7th International Conference on Fun with Algorithms*, pages 137–146, Lipari Island, Italy, July 2014.
  228. “Continuously Flattening Polyhedra Using Straight Skeletons” (joint work with Zachary Abel, Martin L. Demaine, Jin-Ichi Itoh, Anna Lubiw, Chie Nara, and Joseph O’Rourke), in *Proceedings of the 30th Annual Symposium on Computational Geometry*, to appear, Kyoto, Japan, June 2014.
  229. “Particle Computation: Designing Worlds to Control Robot Swarms with Only Global Signals” (joint work with Aaron Becker, Sándor Fekete, and James McLurkin), in *Proceedings of the 2014 IEEE International Conference on Robotics and Automation*, pages 6751–6756, Hong Kong, China, May–June 2014.
  230. “An End-To-End Approach to Making Self-Folded 3D Surface Shapes by Uniform Heating” (joint work with Byoungkwon An, Shuhei Miyashita, Michael T. Tolley, Daniel M. Aukes, Laura Meeker, Martin L. Demaine, Robert J. Wood, and Daniela Rus), in *Proceedings of the 2014 IEEE International Conference on Robotics and Automation*, pages 1466–1473, Hong Kong, China, May–June 2014.
  231. “How to Influence People with Partial Incentives” (joint work with MohammadTaghi Hajiaghayi, Hamid Mahini, David L. Malec, S. Raghavan, Anshul Sawant, and Morteza Zadimoghaddam), in *Proceedings of the 23rd International World Wide Web Conference*, pages 937–948, Seoul, Korea, Apr. 2014.
  232. “On Wrapping Spheres and Cubes with Rectangular Paper” (joint work with Alex Cole and Eli Fox-Epstein), in *Revised Papers from the 12th Japan Conference on Discrete and Computational Geometry and Graphs*, Lecture Notes in Computer Science, to appear, Tokyo, Japan, Sept. 2013.
  233. “Reconfiguring Massive Particle Swarms with Limited, Global Control” (joint work with Aaron Becker, Sándor Fekete, Golnax Habibi, and James McLurkin), in *Proceedings of the 9th International Symposium on Algorithms and Experiments for Sensor Systems, Wireless Networks and Distributed Robotics*, Lecture Notes in Computer Science 8243, pages 51–66, Sophia Antipolis, France, Sept. 2013.
  234. “Blame Trees” (joint work with Pavel Panchekha, David Wilson, and Edward Z. Yang), in *Proceedings of the 13th Algorithms and Data Structures Symposium*, Lecture Notes in Computer Science 8037, pages 280–290, London, Canada, Aug. 2013.

235. “Combining Binary Search Trees” (joint work with John Iacono, Stefan Langerman, and Özgür Özkan), in *Proceedings of the 40th International Colloquium on Automata, Languages and Programming*, pages 388–399, Riga, Latvia, July 2013.
236. “Algorithms for Designing Pop-Up Cards” (joint work with Zachary Abel, Martin L. Demaine, Sarah Eisenstat, Anna Lubiw, André Schulz, Diane Souvaine, Giovanni Viglietta, and Andrew Winslow), in *Proceedings of the 30th International Symposium on Theoretical Aspects of Computer Science*, pages 269–280, Kiel, Germany, Feb.–Mar. 2013.
237. “Two Hands Are Better Than One (up to constant factors): Self-Assembly In The 2HAM vs. aTAM” (joint work with Sarah Cannon, Martin L. Demaine, Sarah Eisenstat, Matthew J. Patitz, Robert Schweller, Scott M. Summers, and Andrew Winslow), in *Proceedings of the 30th International Symposium on Theoretical Aspects of Computer Science*, pages 172–184, Kiel, Germany, Feb.–Mar. 2013.
238. “Learning Disjunctions: Near-Optimal Trade-off between Mistakes and “I Don’t Know’s”” (joint work with Morteza Zadimoghaddam), in *Proceedings of the 24th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1369–1379, New Orleans, LA, Jan. 2013.
239. “Algorithms for Solving Rubik’s Cubes” (joint work with Martin L. Demaine, Sarah Eisenstat, Anna Lubiw, and Andrew Winslow), in *Proceedings of the 19th Annual European Symposium on Algorithms*, pages 689–700, Sept. 2011.
240. “ $O(1)$ -Approximations for Maximum Movement Problems” (joint work with Piotr Berman and Morteza Zadimoghaddam), in *Proceedings of the 14th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems*, pages 62–74, Princeton, NJ, Aug. 2011.
241. “Lossless Fault-Tolerant Data Structures with Additive Overhead” (joint work with Paul Christiano and Shaunak Kishore), in *Proceedings of the 12th Algorithms and Data Structures Symposium*, pages 243–254, Brooklyn, NY, Aug. 2011.
242. “Flattening Fixed-Angle Chains Is Strongly NP-Hard” (joint work with Sarah Eisenstat), in *Proceedings of the 12th Algorithms and Data Structures Symposium*, pages 314–325, Brooklyn, NY, Aug. 2011.
243. “Remarks on Separating Words” (joint work with Sarah Eisenstat, Jeffrey Shallit, and David A. Wilson), in *Proceedings of the 13th International Workshop on Descriptive Complexity of Formal Systems*, Lecture Notes in Computer Science 6808, pages 147–157, Giessen, Germany, July 2011.
244. “A generalization of the source unfolding of convex polyhedra” (joint work with Anna Lubiw), in *Revised Papers from the 14th Spanish Meeting on Computational Geometry*, A. Márquez, P. Ramos, and J. Urrutia, eds., Lecture Notes in Computer Science 7579, pages 185–199, Alcalá de Henares, Spain, June 2011.
245. “Meshes preserving minimum feature size” (joint work with Greg Aloupis, Martin L. Demaine, Vida Dujmović, and John Iacono), in *Revised Papers from the 14th Spanish Meeting on Computational Geometry*, A. Márquez, P. Ramos, and J. Urrutia, eds., Lecture Notes in Computer Science 7579, pages 258–273, Alcalá de Henares, Spain, June 2011.
246. “Contraction Decomposition in  $H$ -Minor-Free Graphs and Algorithmic Applications” (joint work with MohammadTaghi Hajiaghayi and Ken-ichi Kawarabayashi), in *Proceedings of the 43rd ACM Symposium on Theory of Computing*, pages 441–450, June 2011.
247. “Self-Assembly of Arbitrary Shapes Using RNase Enzymes: Meeting the Kolmogorov Bound with Small Scale Factor” (joint work with Matthew J. Patitz, Robert T. Schweller, and Scott M. Summers), in *Proceedings of the 28th International Symposium on Theoretical Aspects of Computer Science*, pages 201–212, Dortmund, Germany, Mar. 2011.
248. “Embedding Stacked Polytopes on a Polynomial-Size Grid” (joint work with André Schulz), in *Proceedings of the 22nd Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1177–1187, San Francisco, USA, Jan. 2011.
249. “Making Polygons by Simple Folds and One Straight Cut” (joint work with Martin L. Demaine, Andrea Hawksley, Hiro Ito, Po-Ru Loh, Shelly Manber, and Omari Stephens), in *Revised Papers from the China-Japan Joint Conference on Computational Geometry, Graphs and Applications*, Lecture Notes in Computer Science, pages 27–43, Dalian, China, Nov. 2010.
250. “Common Unfoldings of Polyominoes and Polycubes” (joint work with Greg Aloupis, Prosenjit K. Bose, Sebastien Collette, Martin L. Demaine, Karim Douieb, Vida Dujmović, John Iacono, Stefan Langerman, and Pat Morin), in *Revised Papers from the China-Japan Joint Conference on Compu-*

- tational Geometry, Graphs and Applications*, Lecture Notes in Computer Science 7033, pages 44–54, Dalian, China, Nov. 2010.
251. “Minimizing the Diameter of a Network using Shortcut Edges” (joint work with Morteza Zadimoghaddam), in *Proceedings of the 12th Scandinavian Symposium and Workshops on Algorithm Theory*, Lecture Notes in Computer Science 6139, pages 420–431, Bergen, Norway, June 2010.
  252. “Basic Network Creation Games” (joint work with Noga Alon, MohammadTaghi Hajiaghayi, and Tom Leighton), in *Proceedings of the 22nd ACM Symposium on Parallelism in Algorithms and Architectures*, pages 21–29, Santorini, Greece, June 2010.
  253. “Scheduling to Minimize Power Consumption using Submodular Functions” (joint work with Morteza Zadimoghaddam), in *Proceedings of the 22nd ACM Symposium on Parallelism in Algorithms and Architectures*, pages 21–29, Santorini, Greece, June 2010.
  254. “Shape Replication Through Self-Assembly and RNase Enzymes” (joint work with Zachary Abel, Nadia Benbernou, Mirela Damian, Martin L. Demaine, Robin Flatland, Scott Kominers, and Robert Schweller), in *Proceedings of the 21st Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1045–1064, Austin, TX, Jan. 2010.
  255. “Cache-Oblivious Dynamic Dictionaries with Optimal Update/Query Tradeoff” (joint work with Gerth Stølting Brodal, Jeremy T. Fineman, John Iacono, Stefan Langerman, and J. Ian Munro), in *Proceedings of the 21st Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1448–1456, Austin, TX, Jan. 2010.
  256. “Decomposition, Approximation, and Coloring of Odd-Minor-Free Graphs” (joint work with MohammadTaghi Hajiaghayi and Ken-ichi Kawarabayashi), in *Proceedings of the 21st Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 329–344, Austin, TX, Jan. 2010.
  257. “Folding a Better Checkerboard” (joint work with Martin L. Demaine, Goran Konjevod, and Robert J. Lang), in *Proceedings of the 20th Annual International Symposium on Algorithms and Computation*, Lecture Notes in Computer Science 5878, pages 1074–1083, Hawaii, USA, Dec. 2009.
  258. “A Distributed Boundary Detection Algorithm for Multi-Robot Systems” (joint work with James McLurkin), in *Proceedings of the 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems*, pages 4791–4798, St. Louis, MO, Oct. 2009.
  259. “Minimal Locked Trees” (joint work with Brad Ballinger, David Charlton, Martin L. Demaine, John Iacono, Ching-Hao Liu, and Sheung-Hung Poon), in *Proceedings of the 11th Algorithms and Data Structures Symposium*, Lecture Notes in Computer Science 5664, pages 61–73, Banff, Canada, Aug. 2009.
  260. “A pseudopolynomial algorithm for Alexandrov’s Theorem” (joint work with Daniel Kane and Gregory N. Price), in *Proceedings of the 11th Algorithms and Data Structures Symposium*, Lecture Notes in Computer Science 5664, pages 435–446, Banff, Canada, Aug. 2009.
  261. “Reconfiguration of List Edge-Colorings in a Graph” (joint work with Takehiro Ito and Marcin Kamiński), in *Proceedings of the 11th Algorithms and Data Structures Symposium*, Lecture Notes in Computer Science 5664, pages 375–386, Banff, Canada, Aug. 2009.
  262. “Approximation Algorithms via Structural Results for Apex-Minor-Free Graphs” (joint work with MohammadTaghi Hajiaghayi and Ken-ichi Kawarabayashi), in *Proceedings of the 36th International Colloquium on Automata, Languages and Programming*, Lecture Notes in Computer Science 5555, pages 316–327, Rhodes, Greece, July 2009.
  263. “Node-Weighted Steiner Tree and Group Steiner Tree in Planar Graphs” (joint work with MohammadTaghi Hajiaghayi and Philip Klein), in *Proceedings of the 36th International Colloquium on Automata, Languages and Programming*, Lecture Notes in Computer Science 5555, pages 328–340, Rhodes, Greece, July 2009.
  264. “The Geometry of Binary Search Trees” (joint work with Dion Harmon, John Iacono, Daniel Kane, and Mihai Pătraşcu), in *Proceedings of the 20th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 496–505, New York, NY, Jan. 2009.
  265. “Additive Approximation Algorithms for List-Coloring Minor-Closed Class of Graphs” (joint work with Ken-ichi Kawarabayashi and MohammadTaghi Hajiaghayi), in *Proceedings of the 20th Annual ACM-SIAM Symposium on Discrete Algorithms*, pages 1166–1175, New York, NY, Jan. 2009.
  266. “Realistic Reconfiguration of Crystalline (and Telecube) Robots” (joint work with Greg Aloupis,



- Sébastien Collette, Mirela Damian, Dania El-Khechen, Robin Flatland, Stefan Langerman, Joseph O'Rourke, Val Pinciu, Suneeta Ramaswami, Vera Sacristán, and Stefanie Wuhrer), in *Proceedings of the 8th International Workshop on the Algorithmic Foundations of Robotics*, Springer Tracts in Advanced Robotics 57, pages 433–447, Guanajuato, México, Dec. 2008.
267. “Reconfiguration of Cube-Style Modular Robots Using  $O(\log n)$  Parallel Moves” (joint work with Greg Aloupis, Sébastien Collette, Stefan Langerman, Vera Sacristán, and Stefanie Wuhrer), in *Proceedings of the 19th Annual International Symposium on Algorithms and Computation*, pages 342–353, Gold Coast, Australia, Dec. 2008.
  268. “Ordinal Embedding: Approximation Algorithms and Dimensionality Reduction” (joint work with Mihai Bădoiu, MohammadTaghi Hajiaghayi, Anastasios Sidiropoulos, and Morteza Zadimoghaddam), in *Proceedings of the 11th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems*, pages 21–34, Boston, MA, Aug. 2008.
  269. “Confluently Persistent Tries for Efficient Version Control” (joint work with Stefan Langerman and Eric Price), in *Proceedings of the 11th Scandinavian Workshop on Algorithm Theory*, Lecture Notes in Computer Science 5124, pages 160–172, Gothenburg, Sweden, July 2008. Invited to special issue of *Algorithmica*.
  270. “Constraint Logic: A Uniform Framework for Modeling Computation as Games” (joint work with Robert A. Hearn), in *Proceedings of the 23rd Annual IEEE Conference on Computational Complexity*, pages 149–162, College Park, MD, June 2008.
  271. “Moving-Baseline Localization” (joint work with Jun-geun Park and Seth J. Teller), in *Proceedings of the 7th International Conference on Information Processing in Sensor Networks*, pages 15–26, St. Louis, MO, Apr. 2008.
  272. “The Stackelberg Minimum Spanning Tree Game” (joint work with Jean Cardinal, Samuel Fiorini, Gwenaël Joret, Stefan Langerman, Ilan Newman, and Oren Weimann), in *Proceedings of the 10th Workshop on Algorithms and Data Structures*, Lecture Notes in Computer Science 4619, pages 64–76, Halifax, Canada, Aug. 2007.
  273. “A Pseudopolynomial Time  $O(\log n)$ -Approximation Algorithm for Art Gallery Problems” (joint work with Ajay Deshpande, Taejung Kim, and Sanjay E. Sarma), in *Proceedings of the 10th Workshop on Algorithms and Data Structures*, Lecture Notes in Computer Science 4619, pages 163–174, Halifax, Canada, Aug. 2007.
  274. “Revising Quorum Systems for Energy Conservation in Sensor Networks” (joint work with Daniela Tulone), in *Proceedings of the International Conference on Wireless Algorithms, Systems and Applications*, pages 147–157, Chicago, IL, Aug. 2007.
  275. “An Optimal Decomposition Algorithm for Tree Edit Distance” (joint work with Shay Mozes, Benjamin Rossman, and Oren Weimann), in *Proceedings of the 34th International Colloquium on Automata, Languages and Programming*, pages 146–157, Wrocław, Poland, July 2007. Invited to special issue of *Theoretical Computer Science*.
  276. “Deflating The Pentagon” (joint work with Martin L. Demaine, Thomas Fevens, Antonio Mesa, Michael Soss, Diane L. Souvaine, Perouz Taslakian, and Godfried Toussaint), in *Revised Papers from the Kyoto International Conference on Computational Geometry and Graph Theory*, Lecture Notes in Computer Science 4535, pages 56–67, Kyoto, Japan, June 2007.
  277. “Tight Bounds for Dynamic Convex Hull Queries (Again)” (joint work with Mihai Pătraşcu), in *Proceedings of the 23rd Annual ACM Symposium on Computational Geometry*, pages 354–363, Gyeongju, South Korea, June 2007.
  278. “Algorithmic Graph Minor Theory: Improved Grid Minor Bounds and Wagner’s Contraction” (joint work with MohammadTaghi Hajiaghayi and Ken-ichi Kawarabayashi), in *Proceedings of the 17th Annual International Symposium on Algorithms and Computation*, Lecture Notes in Computer Science 4288, pages 3–15, Calcutta, India, Dec. 2006. Awarded Best Paper. Invited to special issue of *Algorithmica*.
  279. “Voronoi game on graphs and its complexity” (joint work with Sachio Teramoto and Ryuhei Uehara), in *Proceedings of the 2nd IEEE Symposium on Computational Intelligence and Games*, pages 265–271, Reno, NV, May 2006.
  280. “De Dictionariis Dynamicis Paucis Spatio Utentibus (*lat.* On Dynamic Dictionaries Using Little Space)”

- (joint work with Friedhelm Meyer auf der Heide, Rasmus Pagh, and Mihai Pătraşcu), in *Proceedings of the 7th Latin American Symposium on Theoretical Informatics*, pages 349–361, Valdivia, Chile, Mar. 2006.
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395. “Metamorphosis of the Cube” (joint work with Martin Demaine, Anna Lubiw, Joseph O’Rourke, and Irena Pashchenko), in *8th Annual Video Review of Computational Geometry, Proceedings of the 15th Annual ACM Symposium on Computational Geometry*, pages 409–410, Miami Beach, FL, June 1999.
396. “Hiding Disks in Folded Polygons” (joint work with Therese C. Biedl, Martin L. Demaine, Anna Lubiw, and Godfried T. Toussaint), in *Proceedings of the 10th Canadian Conference on Computational Geometry*, Montréal, Canada, Aug. 1998.
397. “Unfolding Some Classes of Orthogonal Polyhedra” (joint work with Therese Biedl, Martin Demaine, Anna Lubiw, Mark Overmars, Joseph O’Rourke, Steve Robbins, and Sue Whitesides), in *Proceedings of the 10th Canadian Conference on Computational Geometry*, Montréal, Canada, Aug. 1998.

#### PATENTS

398. “Reconfigurable Logic Automata” (joint work with David Allen Dalrymple, Neil Gershenfeld, Forrest Green, and Ara Knaian), US 8,013,629 B2, Sept. 2011.

#### PLENARY TALKS

- Feb. 2017 “Art, Math, Science, Technology Collide”, Plenary talk, Museum of the White Mountains, Plymouth, NH.
- Jan. 2017 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, The University of the West Indies, Cave Hill, Barbados.
- Dec. 2016 “Replicators, Transformers, and Robot Swarms: Science Fiction through Geometric Algorithms”, Plenary talk, 12th International Workshop on the Algorithmic Foundations of Robotics, San Francisco, CA.
- Nov. 2016 “Playing with Art and Science: Origami, Glass, and Mathematics” (presented with Martin L. Demaine), Plenary talk, Walker-Ames Lecturers, University of Washington, Seattle, WA.
- Nov. 2016 “Replicators, Transformers, and Robot Swarms: Science Fiction through Geometric Algorithms”, Plenary talk, University of Washington, Seattle, WA.
- Nov. 2016 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, International Conference on Mathematical Modeling and Applications: Origami-Based Modeling and Analysis, Tokyo, Japan.
- Sept. 2016 “Fun with Fonts: Algorithmic Typography”, Plenary talk, 19th Japan Conference on Discrete and Computational Geometry, Graphs, and Games, Tokyo, Japan.



- May 2016 “Geometric Puzzles: Algorithms and Complexity”, Plenary talk, Japan Advanced Institute of Science and Technology, Kanazawa, Japan.
- May 2016 “New Results in Computational Origami: Physical and Theoretical Limits”, Plenary talk, Meiji University, Tokyo, Japan.
- Mar. 2016 “Replicators, Transformers, and Robot Swarms: Science Fiction through Geometric Algorithms”, Plenary talk, Kavli Lecture, Cornell University, Ithaca, NY.
- Mar. 2016 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, Kieval Lecture, Cornell University, Ithaca, NY.
- Mar. 2016 “Fun with Fonts: Mathematical Typography”, Plenary talk, The 2016 AMS Einstein Public Lecture in Mathematics, University of Georgia, Athens, GA.
- Mar. 2016 “Mathematical Magic”, Plenary talk, Math Encounters, Museum of Mathematics, New York, NY.
- Jan. 2016 “Fun with Fonts: Mathematical Typography”, Plenary talk, Networked Life: Celebrating the life and career of Fan Chung and Ron Graham, La Jolla, CA.
- Jan.–Feb. 2016 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, 2016 Information Theory and Applications Workshop, La Jolla, CA.
- Dec. 2015 “Playing with Art and Science: Origami, Glass, and Mathematics”, Plenary talk, MoSAIC Fest: Math of Science, Art, Industry & Culture, Cambridge, MA.
- June 2015 “Fun with Fonts: Mathematical Typography”, Plenary talk, Connections in Discrete Mathematics: A celebration of the work of Ron Graham, Vancouver, Canada.
- June 2015 “Playing with Art and Science: Origami, Glass, and Mathematics” (presented with Martin L. Demaine), Plenary talk, Above the Fold: Artist Lecture, Hermitage Museum and Gardens, Norfolk, VA.
- June 2015 “Folding Paper: Visual Art Meets Mathematics” (presented with Martin L. Demaine), Plenary talk, Museum of Science and Industry, Chicago, IL.
- Apr. 2015 “Folding: Science Fiction to Science”, Plenary talk, Active Matter Summit, Cambridge, MA.
- Apr. 2015 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, Computer Science Colloquium, Tufts University, Medford, MA.
- Apr. 2015 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, 7th Annual Marvin I. Freedman Memorial Colloquium, Boston University, Boston, MA.
- Jan. 2015 “Playing with Art and Science: Origami, Glass, and Mathematics” (presented with Martin L. Demaine), Plenary talk, Detroit Institute of Arts, Detroit, MI.
- Nov. 2014 “Computational Origami: from Science to Sculpture” (presented with Martin L. Demaine and Shandra McLane), Plenary talk, Museum of Glass, Tacoma, WA.
- Oct. 2014 “Folding Paper: Visual Art Meets Mathematics” (presented with Martin L. Demaine), Plenary talk, 10th Annual Center Institute, Boston, MA.
- Aug. 2014 “Replicators, Transformers, and Robot Swarms: Science Fiction through Geometric Algorithms”, Plenary talk, ICE-TCS Theory Day 2014, Reykjavik, Iceland.
- Aug. 2014 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, Crossroads of Art and Science, Icelandic Centre of Excellence in Theoretical Computer Science, Reykjavik University, Reykjavik, Iceland.
- Aug. 2014 “Playing with Art and Science: Origami, Glass, and Mathematics”, Plenary talk, 20th Origami Tanteidan Convention, Tokyo, Japan.
- Aug. 2014 “Computational Origami: from Science to Sculpture”, Plenary talk, 38th ASME Mechanisms & Robotics Conference, Buffalo, NY.
- July 2014 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- July 2014 “Fun with Fonts: Algorithmic Typography”, Plenary talk, 7th International Conference on Fun with Algorithms, Lipari Island, Italy.
- June 2014 “Playing with Art and Science: Origami, Glass, and Mathematics”, Plenary talk, OrigamiUSA Annual Convention, New York, NY.
- June 2014 “Recent Results in Recreational Computer Science”, Plenary talk, Workshop on Geometric Puzzles and Games, Computational Geometry Week, Kyoto, Japan.

- June 2014 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Vienna Gödel Lecture, Vienna University of Technology, Vienna, Austria.
- Apr. 2014 “Replicators, Transformers, and Robot Swarms: Science Fiction through Geometric Algorithms”, Plenary talk, Centre College, Danville, KY.
- Apr. 2014 “Playing with Art and Science: Origami, Glass, and Mathematics” (presented with Martin L. Demaine), Plenary talk, Humana Lecture Series, Centre College, Danville, KY.
- Apr. 2014 “The Art and Mathematics of Origami” (presented with Martin L. Demaine), Plenary talk, Lunch with the Arts, Community Arts Center, Danville, KY.
- Apr. 2014 “Folding Paper: Visual Art Meets Mathematics” (presented with Martin L. Demaine), Plenary talk, Dallas Contemporary, Dallas, TX.
- Apr. 2014 “Art & Science through Craft” (presented with Martin L. Demaine), Plenary talk, Make/Speak, Boston, MA.
- Feb. 2014 “Replicators, Transformers, and Robot Swarms: Science Fiction through Geometric Algorithms”, Plenary talk, Theory Seminar Series, North Carolina State University, Raleigh, NC.
- Feb. 2014 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Triangle Computer Science Distinguished Lecturer Series, North Carolina State University.
- Jan. 2014 “MIT Glass Lab” (presented with Martin L. Demaine and Peter Houk), Plenary talk, Hot Gatherings, Cool Conversations, Museum of Fine Arts, St. Petersburg, FL.
- Nov. 2013 “Playing with Art and Science” (presented with Martin L. Demaine), Plenary talk, University of the Arts, Philadelphia, PA.
- Nov. 2013 “Replicators, Transformers, and Robot Swarms: Science Fiction through Geometric Algorithms”, Plenary talk, Simons Foundation, New York, NY.
- Oct. 2013 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, event for exhibit “Intersection”, Edwards Art Gallery, Holderness School, Plymouth, NH.
- Oct. 2013 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, Lafayette College, Easton, PA.
- Sept. 2013 “Geometric Folding Algorithms: Linkages, Origami, Polyhedra”, Plenary talk, University of Electro-Communications, Tokyo, Japan.
- Sept. 2013 “Robot Swarms, Transformers, and Algorithms”, Plenary talk, 12th Japan Conference on Discrete and Computational Geometry and Graphs, Tokyo, Japan.
- Sept. 2013 “Computational Origami: How to Fold (Almost) Anything”, Plenary talk, event for exhibit “Form of Computational Origami”, Komaba Museum, University of Tokyo, Tokyo, Japan.
- Aug. 2013 “How Hard Are Puzzles? (computationally)”, Plenary talk, Mathematics of Various Entertaining Subjects (MOVES), New York, NY.
- July 2013 “Playing with Art and Science” (presented with Martin L. Demaine), Plenary talk, Haystack 2013 Summer Conference, Haystack Mountain School of Crafts, Deer Isle, ME.
- June 2013 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- June 2013 “Folding Glass” (presented with Martin L. Demaine), Plenary talk, GlassBoston, Cambridge, MA.
- June 2013 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Canadian Mathematical Society Summer Meeting, Halifax, Canada.
- Apr. 2013 “Geometric Puzzles”, Plenary talk, Creative Intelligence Lecture Series, Transylvania University, Lexington, KY.
- Apr. 2013 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, University of Kentucky, Lexington, KY.
- Apr. 2013 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Friends of Mathematics Lecture, Kansas State University, Manhattan, KS.
- Apr. 2013 “From Transformers to Star Trek Replicators”, Plenary talk, Friends of Mathematics Lecture, Kansas State University, Manhattan, KS.
- Apr. 2013 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, AMS Arnold Ross Lecture, Museum of Mathematics, New York, NY.
- Jan. 2013 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, Renwick Gallery, Smithsonian American Art Museum, Washington, DC.

- Dec. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, National Tsing Hua University, Hsinchu, Taiwan.
- Dec. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Academia Sinica, Taipei, Taiwan.
- Dec. 2012 “Origami Robots and Star Trek Replicators”, Plenary talk, 23rd International Symposium on Algorithm and Computation, Taipei, Taiwan.
- Dec. 2012 “What’s the Best Way to Wrap a Krembo?”, Plenary talk, Teacher Day, Israeli Origami Center, Tel Aviv, Israel.
- Dec. 2012 “Beyond Planar Graphs: Minors, Bidimensionality, & Decomposition”, Plenary talk, Thailand-Japan Joint Conference on Computational Geometry and Graphs, Bangkok, Thailand.
- Nov. 2012 “Mathematical and Puzzle Fonts”, Plenary talk, 3rd Annual Gathering for Gardner Celebration of Mind, Boston, MA.
- Nov. 2012 “Modern Graph and Network Algorithms: Minors, Bidimensionality, & Decomposition”, Plenary talk, National Institutes of Health, Washington, DC.
- Nov. 2012 “Geometric Folding Algorithms: Linkages, Origami, Polyhedra”, Plenary talk, National Institutes of Health, Washington, DC.
- Oct. 2012 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, New York University Abu Dhabi, Abu Dhabi, United Arab Emirates.
- Oct. 2012 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, Khalifa University, Abu Dhabi, United Arab Emirates.
- Aug. 2012 “How Hard Are Puzzles? (computationally, in the limit)”, Plenary talk, International Puzzle Party 2012, Arlington, VA.
- July 2012 “Folding Paper: Visual Art Meets Mathematics” (presented with Martin L. Demaine), Plenary talk, event for exhibit “(Un)folding Patterns”, Dorsky Gallery, Long Island City, NY.
- July 2012 “Geometric Folding Algorithms: Linkages, Origami, Polyhedra”, Plenary talk, Symposium on Geometry Processing, Tallinn, Estonia.
- July 2012 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- May 2012 “Origami from Science to Sculpture”, Plenary talk, Cairo Science Festival, Cairo, Egypt.
- Apr. 2012 “Origami from Science to Sculpture”, Plenary talk, Big Ideas for Busy People, Cambridge Science Festival, Cambridge, MA.
- Mar. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Pólya Lecture, Kentucky Section Meeting of the Mathematical Association of America, Louisville, KY.
- Mar. 2012 “Geometric Puzzles: Algorithms and Complexity”, Plenary talk, William Marshall Bullitt Lecture, Department of Mathematics, University of Louisville, Louisville, KY.
- Mar. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Pólya Lecture, Southeastern Section Meeting of the Mathematical Association of America, Atlanta, GA.
- Mar. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Pólya Lecture and Anderson Distinguished Lecture, Louisiana/Mississippi Section Meeting of the Mathematical Association of America, Natchitoches, LA.
- Feb. 2012 “Folding Paper: Visual Art Meets Mathematics”, Plenary talk, opening event for exhibit “Mens et Manus: Folded Paper of MIT”, Fuller Craft Museum, Brockton, MA.
- Jan. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Carnegie Capital Science Evenings, Carnegie Institution for Science, Washington, DC.
- Jan. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Mathematics Colloquium, National Security Agency, Washington, DC.
- Jan. 2012 “Recent Results in Computational Geometry”, Plenary talk, SIAM Minisymposium on Vistas in Applied, Computational, and Discrete Mathematics, 2012 Joint Mathematics Meetings, Boston, MA.
- Jan. 2012 “Geometric Puzzles: Algorithms and Complexity”, Plenary talk, Gerald and Judith Porter Public Lecture, 2012 Joint Mathematics Meetings, Boston, MA.
- Oct. 2011 “Constructing Strings at the Nano Scale via Staged Self-Assembly”, Plenary talk, 18th Symposium on String Processing and Information Retrieval, Pisa, Italy.
- Oct. 2011 “Geometric Puzzles: Algorithms and Complexity”, Plenary talk, Distinguished Lecture Series,

- Fields Institute, Toronto, Canada.
- Oct. 2011 “Linkage Folding: From Erdős to Proteins”, Plenary talk, Distinguished Lecture Series, Fields Institute, Toronto, Canada.
- Oct. 2011 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Distinguished Lecture Series, Fields Institute, Toronto, Canada.
- July 2011 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- June 2011 “Geometric Puzzles: Algorithms and Complexity”, Plenary talk, 14th Spanish Meeting on Computational Geometry: In honor of Ferran Hurtado’s 60th Birthday, Alcalá de Henares, Spain.
- May 2011 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Pólya Lecture, Michigan Section Meeting of the Mathematical Association of America, Kalamazoo, MI.
- Apr. 2011 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Pólya Lecture, 79th Annual Wisconsin Section Meeting of the Mathematical Association of America, Menomonie, WI.
- Apr. 2011 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Pólya Lecture, Missouri Section Spring Meeting of the Mathematical Association of America, Columbia, MO.
- Mar. 2011 “The Geometry of Origami, from Science to Sculpture”, Plenary talk, Math Encounters, Museum of Mathematics, New York, NY.
- Feb. 2011 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Pólya Lecture, Northern California, Nevada and Hawaii Section Meeting of the Mathematical Association of America, Santa Rosa, CA.
- Jan. 2011 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, Distinguished Lecture Series, University of British Columbia, Vancouver, Canada.
- Nov. 2010 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, 55th Annual Fall Sectional Meeting, Northeastern Section, Mathematical Association of America, Providence, RI.
- Nov. 2010 “Geometric Puzzles: Algorithms and Complexity”, Plenary talk, China-Japan Joint Conference on Computational Geometry, Graphs and Applications, Dalian, China.
- Oct. 2010 “Origami Transformers and Star Trek Replicators”, Plenary talk, 20th Annual Fall Workshop on Computational Geometry, Stony Brook, NY. Also part of Distinguished Lecture Series, Stony Brook University.
- Sept. 2010 “Magic, Origami and Puzzles: The Art of Mathematics”, Plenary talk, Richard and Louise Guy Lecture, University of Calgary, Calgary, Canada.
- July 2010 “Computational Origami from Science to Sculpture”, Plenary talk, 5th International Conference on Origami in Science, Mathematics and Education, Singapore.
- July 2010 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- June 2010 “Algorithmic Graph Minors and Bidimensionality”, Plenary talk, 36th International Workshop on Graph-Theoretic Concepts in Computer Science, Crete, Greece.
- June 2010 “Staged Assembly Algorithms”, Plenary talk, 16th International Meeting on DNA Computing and Molecular Programming, Hong Kong, China.
- Apr. 2010 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, 17th Annual Hudson River Undergraduate Mathematics Conference, Keene, NH.
- Apr. 2010 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, 26th British Colloquium for Theoretical Computer Science, Edinburgh, Scotland.
- Jan. 2010 “Mathematics Is Art: Art Is Mathematics” (presented with Martin L. Demaine), Plenary talk, The Entertainment Gathering, Monterey, CA.
- Nov. 2009 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, 7th Japan Conference on Computational Geometry and Graphs, Kanazawa, Japan.
- Sept. 2009 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, 17th Annual European Symposium on Algorithms, Copenhagen, Denmark.
- Aug. 2009 “Algorithms Meet Art, Puzzles, and Magic”, Plenary talk, 11th Algorithms and Data Structures Symposium, Banff, Canada.
- July 2009 “Mathematics Is Art”, Plenary talk, 12th Annual Conference of BRIDGES: Mathematical Connections in Art, Music, and Science, Banff, Canada.

- July 2009 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- July 2009 “Actuator Nets: Folding, Reconfiguring, and Deploying Sensors”, Plenary talk, 5th International Workshop on Algorithmic Aspects of Wireless Sensor Networks, Rhodes, Greece.
- May 2009 “Between the Folds: The Art and Science of Origami”, Plenary talk, The Graduate Center, City University of New York, New York, NY.
- Apr. 2009 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, MIT Club of Belgium Gala Honoring Ferdinand Dierkens, Brussels, Belgium.
- Mar. 2009 “Linkage Folding: From Erdős to Proteins”, Plenary talk, International Francqui Chair Lectures, Faculté Universitaire des Sciences Agronomiques de Gembloux, Gembloux, Belgium.
- Feb. 2009 “Origami, Linkages, and Polyhedra: Geometric Folding Algorithms”, Plenary talk, International Francqui Chair Lectures, Vrije Universiteit Brussel, Brussels, Belgium.
- Dec. 2008 “(Theoretical) Computer Science is Everywhere”, Plenary talk, International Francqui Chair Lectures, Université Catholique de Louvain, Louvain, Belgium.
- Nov. 2008 “Mathematics meets Art, Puzzles, and Magic: Fun with Algorithms”, Plenary talk, International Francqui Chair Lectures, Université Libre de Bruxelles, Brussels, Belgium.
- Oct. 2008 “Folding Matter”, Plenary talk, DARPA InfoChemistry meeting, Cambridge, MA.
- Sept. 2008 “(Theoretical) Computer Science is Everywhere”, Plenary talk, Microsoft Research New England, Cambridge, MA.
- Aug. 2008 “Fun with Algorithms and Folding III: Transformers: Reconfigurable Robots and Hinged Dissections”, Plenary talk, Earle Raymond Hedrick Lecture Series, MathFest 2008, Madison, WI.
- Aug. 2008 “Fun with Algorithms and Folding II: Origami, Linkages, and Polyhedra: Geometric Folding Algorithms”, Plenary talk, Earle Raymond Hedrick Lecture Series, MathFest 2008, Madison, WI.
- July 2008 “Fun with Algorithms and Folding I: Mathematics Meets Art, Puzzles, and Magic”, Plenary talk, Earle Raymond Hedrick Lecture Series, MathFest 2008, Madison, WI.
- July 2008 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- May 2008 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Katayanagi Prize Lecture, Tokyo University of Technology, Tokyo, Japan.
- May 2008 “Algorithmic Graph Minors and Bidimensionality”, Plenary talk, 3rd International Workshop on Parameterized and Exact Computation, Victoria, Canada.
- Apr. 2008 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Katayanagi Prize Lecture, Carnegie Mellon University, Pittsburgh, PA.
- Apr. 2008 “Computational Origami”, Plenary talk, MIND’08: The Design and the Elastic Mind Symposium, New York, NY.
- Dec. 2007 “Permuting Polygons” (presented with Stefan Langerman), Plenary talk, Japan Advanced Institute of Science and Technology, Kanazawa, Japan.
- Oct. 2007 “Geometric Folding Algorithms: Linkages, Origami, Polyhedra”, Plenary talk, IDEAS Boston, Boston, MA.
- June 2007 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- Apr. 2007 “Linkage Folding: From Erdős to Proteins”, Plenary talk, Cantrell Lecture Series, University of Georgia, Athens, GA.
- Apr. 2007 “Mathematics Meets Art, Puzzles, and Magic: Fun with Algorithms”, Plenary talk, Cantrell Lecture Series, University of Georgia, Athens, GA.
- Apr. 2007 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Cantrell Lecture Series, University of Georgia, Athens, GA.
- Mar. 2007 “Computational Geometry through the Information Lens”, Plenary talk, 23rd European Workshop on Computational Geometry, Graz, Austria.
- Jan. 2007 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Anderson Science Lecture, Denison University, Granville, OH.
- Nov. 2006 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Gerhard Herzberg

- Lecture, Carleton University, Ottawa, Canada.
- Sept. 2006 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, 14th Annual European Symposium on Algorithms, Zürich, Switzerland.
- Sept. 2006 “The Mathemagic of Origami”, Plenary talk, 4th International Conference on Origami in Science, Mathematics, and Education, Pasadena, CA.
- Aug. 2006 “Linkage Folding: From Erdős to Proteins”, Plenary talk, Paul Erdős Memorial Lecture, 18th Canadian Conference on Computational Geometry, Kingston, Canada.
- July 2006 “Folding Puzzles: Origami, Mathematics, and Algorithms”, Plenary talk, International Puzzle Party 2006, Boston, MA.
- July 2006 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- July 2006 “Adaptive Analysis of Algorithms: Sets and Curves”, Plenary talk, Analysis of Algorithms 2006, Alden Biesen, Belgium.
- June 2006 “Linkage Folding: From Steam Engines to Proteins”, Plenary talk, AMS-IMS-SIAM Joint Summer Research Conference, Discrete and Computational Geometry—Twenty Years Later, Snowbird, UT.
- June 2005 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Women’s Technology Program, Massachusetts Institute of Technology, Cambridge, MA.
- June 2005 “Solving Puzzles with Algorithms: Coins, Telescopes, and Tetris”, Plenary talk, BIRS Combinatorial Game Theory Workshop, Banff, Canada.
- Feb. 2005 “Mathematics Meets Origami, Art, Puzzles, and Magic: Fun with Algorithms”, Plenary talk, Annual Meeting of the American Association for Advancement of Science, Washington, DC.
- Jan. 2005 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Joint Mathematics Meetings of the American Mathematical Society and Mathematical Association of America, Atlanta, GA.
- Dec. 2004 “Puzzles, Art, and Magic with Algorithms”, Plenary talk, 15th Annual International Symposium on Algorithms and Computation, Hong Kong, China.
- Oct. 2004 “Fast Algorithms for Hard Graph Problems: Bidimensionality, Minors, and Local Treewidth”, Plenary talk, 12th International Symposium on Graph Drawing, Harlem, NY.
- Oct. 2004 “Puzzles, Art, and Magic with Algorithms”, Plenary talk, Computer Science Invitational Lecture Series, University of Waterloo, Waterloo, Canada.
- July 2004 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Plenary talk, Distinguished Colloquium Speaker, Oakland University Summer Mathematics Institute, Rochester, MI.
- May 2004 “Puzzles, Art, and Magic with Algorithms”, Plenary talk, 3rd International Conference on Fun with Algorithms, Isola d’Elba, Italy.
- Apr. 2004 “Paper, Polyhedra, and Linkages: Folding with Algorithms” and “Linkages: From Steam Engines to Protein Folding”, Plenary talk, 2004 Arnold Dresden Lectures, Swarthmore College, Swarthmore, PA.
- Dec. 2003 “Folding and Unfolding in Computational Geometry”, Plenary talk, VIGRE Undergraduate Mathematics Colloquium, University of Michigan, Ann Arbor, MI.
- Aug. 2003 “Folding and Unfolding: Linkage Folding” and “Folding and Unfolding: Computational Origami”, Plenary talk, MSRI Introductory Workshop in Discrete and Computational Geometry, Berkeley, CA.
- May 2003 “Origami, linkages, and polyhedra: Folding with algorithms”, Plenary talk, National Science Bowl Science Day, Chevy Chase, MD.
- Dec. 2002 “Folding and Unfolding in Computational Geometry”, Plenary talk, IBM/NYU/Columbia Theory Day, New York, NY.
- Aug. 2002 “Infinitesimally Locked Linkages with Applications to Locked Trees”, Plenary talk, Conference on Discrete, Combinatorial and Computational Geometry, Beijing, China.
- Aug. 2001 “Playing Games with Algorithms: Algorithmic Combinatorial Game Theory”, Plenary talk, 26th Symposium on Mathematical Foundations in Computer Science, Mariánské Lázně, Czech Republic.
- June 2001 “Playing Games with Algorithms”, Plenary talk, University of Waterloo Faculty of Mathematics

- Graduate Student Conference, Waterloo, Canada.
- Nov. 2000 “Folding and Unfolding Linkages, Paper, and Polyhedra”, Plenary talk, Japan Conference on Discrete and Computational Geometry 2000, Tokyo, Japan.
- June 2000 “Research is Fun: A Brief Look at Some Work in Algorithms”, Plenary talk, University of Waterloo Faculty of Mathematics Graduate Student Conference, Waterloo, Canada.

#### INVITED TALKS

(excluding contributed talks for the conference papers listed above)

- Aug. 2016 “Why Mario is so Hard/Fun”, Invited talk, University of Electro-Communications, Tokyo, Japan.
- Mar.–Apr. 2016 “Secret Messages in Juggling and Card Shuffling”, Invited talk, Gathering for Gardner 12, Atlanta, GA.
- Feb.–Apr. 2013 “Efficient Algorithms from Graph Structure Theory: Minors, Bidimensionality, and Decomposition”, Invited talk, Special Session on Treewidth: Connecting Fixed-Parameter Tractability, Graphical Models, and Sparse Linear Algebra, SIAM Conference on Computational Science and Engineering, Boston, MA.
- Nov. 2012 “Algorithms Meet Art, Puzzles, and Magic”, Invited talk, Two Sigma Investments, New York, NY.
- Oct. 2012 “My Student and Friend”, Invited talk, Workshop on Data Structures (in memory of Mihai Pătraşcu), 53rd Annual IEEE Symposium on Foundations of Computer Science, New Brunswick, NJ.
- May 2012 “The History of I/O Models”, Invited talk, Tutorial on Algorithms for Memory-Sensitive Computing, 44th ACM Symposium on Theory of Computing, New York, NY.
- Mar.–Apr. 2012 “Rubik’s Cubes and Super Mario Bros.”, Invited talk, Gathering for Gardner 10, Atlanta, GA.
- Feb.–Mar. 2012 “Extreme Folding”, Invited talk, Focus Session: Extreme Mechanics - Origami, Creasing, and Folding, American Physical Society March Meeting, Boston, MA.
- Nov. 2011 “Computational Origami from Science to Sculpture”, Invited talk, OrigamiMIT Convention, Cambridge, MA.
- Nov. 2011 “Algorithms Meet Art, Puzzles, and Magic”, Invited talk, Computer Science Colloquium Series, University of Maryland, College Park, MD.
- Oct. 2011 “Algorithms for Solving Rubik’s Cube”, Invited talk, 2nd Annual Martin Gardner Celebration of Mind, Boston, MA.
- Oct. 2010 “Algorithms Meet Art, Puzzles, and Magic”, Invited talk, Renaissance colloquium, Renaissance Technologies, East Setauket, NY.
- July 2010 “On Re-writing the Order and Border of Biomedicine: The Nano-Looking Glass”, Invited talk, NanoGagliato, Gagliato, Italy.
- July 2010 “On Mathematical Nanomedicine”, Invited talk, NanoGagliato, Gagliato, Italy.
- July 2010 “Computational Origami from Science to Sculpture”, Invited talk, Huamin Primary School, Singapore.
- July 2010 “Algorithms Meet Art, Puzzles, and Magic”, Invited talk, Department of Mathematics, National University of Singapore, Singapore.
- Mar. 2010 “Puzzling Ciphers: Origami Mazes & Elastic Letters”, Invited talk, Gathering for Gardner 9, Atlanta, GA.
- Mar. 2010 “New Models of Computation”, Invited talk, Seminar on Data Structures, Schloss Dagstuhl, Wadern, Germany.
- Feb. 2010 “Bidimensionality”, Invited talk, Graph Theory Meeting, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach-Walke, Germany.
- Jan. 2010 “Folding Matter”, Invited talk, Department of Nanomedicine and Biomedical Engineering, University of Texas Health Science Center, Houston, TX.
- Jan. 2010 “Computational Origami from Science to Sculpture”, Invited talk, MAA Invited Paper Session on The Mathematics of Origami, Joint Mathematics Meetings of the American Mathematical Society and Mathematical Association of America, San Francisco, CA.

- Jan. 2010 “Mathematics Is Art”, Invited talk, MAA Session on Arts and Mathematics, I, Joint Mathematics Meetings of the American Mathematical Society and Mathematical Association of America, San Francisco, CA.
- Jan. 2010 “Algorithms Meet Art, Puzzles, and Magic”, Invited talk, Northwestern University, Chicago, IL.
- Dec. 2009 “Overview of Bidimensionality”, Invited talk, Seminar on Parameterized Complexity and Approximation Algorithms, Schloss Dagstuhl, Wadern, Germany.
- Sept. 2009 “Computational Origami from Science to Sculpture”, Invited talk, Session on “From Flapping Birds to Space Telescopes: The Modern Science of Origami”, British Science Festival, Guildford, England.
- Sept. 2009 “Computational Origami from Science to Sculpture”, Invited talk, British Origami Society Autumn Convention, Winchester, England.
- Aug. 2009 “The Theory and Practice of Origami”, Invited talk, 5th International Fab Lab Forum and Symposium on Digital Fabrication.
- Feb. 2009 “Discussant”, Invited talk, Mathematics of Origami: From the Joys of Recreation to the Frontiers of Research, Annual Meeting of the American Association for Advancement of Science, Chicago, IL.
- Mar. 2008 “Hinged Dissections and Coin-Flipping Magic”, Invited talk, Gathering for Gardner 8, Atlanta, GA.
- Dec. 2007 “Permuting Polygons” (presented with Stefan Langerman), Invited talk, Japan Advanced Institute of Science and Technology, Ishikawa, Japan.
- May 2006 “Linkage Folding: From Steam Engines to Proteins”, Invited talk, Theory Colloquium, Massachusetts Institute of Technology, Cambridge, MA.
- Apr. 2006 “Origami, Polyhedra, and Linkages: Folding with Algorithms”, Invited talk, Université Catholique de Louvain, Louvain-la-Neuve, Belgium.
- May 2005 “Algorithmic Time Travel”, Invited talk, The Time Traveler Convention, Cambridge, MA.
- May 2005 “Computational Origami”, Invited talk, MIT-CSAIL Speaker Series, Museum of Science, Boston, MA.
- Apr. 2005 “Origami as the Shape of Things to Come”, Invited talk, Defense Science Research Council Spring Review, Washington, DC.
- Mar. 2005 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Invited talk, Departmental Seminar Series, Department of Computer and Information Science, Polytechnic University, Brooklyn, NY.
- Jan. 2005 “Origami, Linkages, and Polyhedra: Folding with Algorithms”, Invited talk, Seminar der Theoretischen Informatik, ETH Zürich, Zürich, Switzerland.
- Aug. 2004 “Approximation Algorithms for Embedding with Extra Information and Ordinal Relaxation”, Invited talk, Microsoft Research, Redmond, WA.
- Apr. 2004 “Picture-Hanging and Jigsaw Puzzles”, Invited talk, Gathering for Gardner VI, Atlanta, GA.
- Apr. 2004 “How to Mow Your Lawn or Find a Bridge along a River: Algorithms for Geometric Optimization”, Invited talk, Session on New Trends/Emerging Ideas, INFORMS Conference on OR/MS Practice, Cambridge, MA.
- Mar. 2004 “Logarithmic Lower Bounds in the Cell-Probe Model”, Invited talk, Seminar on Data Structures, Schloss Dagstuhl, Wadern, Germany.
- Mar. 2004 “Paper, Polyhedra, and Linkages: Folding with Algorithms”, Invited talk, Geometry-Algebra-Singularities-Combinatorics Seminar, Northeastern University, Boston, MA.
- Jan. 2004 “Retroactive data structures”, Invited talk, Workshop on Dynamic Algorithms and Applications, New Orleans, LA.
- Nov. 2003 “Folding and Unfolding in Computational Geometry”, Invited talk, Theoretical Computer Science/Discrete Mathematics Seminar, Institute for Advanced Study, Princeton, NJ.
- Oct. 2003 “Open problems in cache-oblivious geometric data structures”, Invited talk, Eindhoven-Carleton Workshop on Computational Geometry, Hilversum, Netherlands.
- May 2003 “Online Searching with Turn Cost”, Invited talk, DIMACS Workshop on Geometric Optimization, Piscataway, NJ.



- Mar. 2003 “Instance-optimal algorithms for black-box curve manipulation”, Invited talk, Seminar on Computational Geometry, Schloss Dagstuhl, Wadern, Germany.
- Feb. 2003 “Frequency Estimation of Internet Packet Streams with Limited Space”, Invited talk, Computer Science Colloquium, Boston University, Boston, MA.
- Jan. 2003 “Algorithms for Estimating Trends in a Stream of Network Packets Using Little Memory”, Invited talk, Special Session on Discrete Models, Joint Mathematics Meetings of the American Mathematical Society and Mathematical Association of America, Baltimore, MD.
- Oct. 2002 “An Energy-Driven Approach to Linkage Unfolding”, Invited talk, Special Session on Optimal Geometry of Curves and Surfaces, AMS Fall Central Section Meeting, Madison, WI.
- Sept. 2002 “How Small Can You Make an Index of the Web?”, Invited talk, Dipartimento di Informatica, University of Pisa, Pisa, Italy.
- June 2002 “Competitive Facility Location: The Voronoi Game”, Invited talk, Facility Location Optimization Workshop, Vancouver, Canada.
- Apr. 2002 “Folding and Cutting Paper”, Invited talk, Gathering for Gardner V, Atlanta, GA.
- Apr. 2002 “Folding and Unfolding in Computational Geometry”, Invited talk, College of Computing, Georgia Institute of Technology, Atlanta, GA.
- Apr. 2002 “Folding and Unfolding in Computational Geometry”, Invited talk, EECS Colloquium, Tufts University, Medford, MA.
- Feb. 2002 “PushPush is PSPACE-complete”, Invited talk, Seminar on Algorithmic Combinatorial Game Theory, Schloss Dagstuhl, Wadern, Germany.
- Feb. 2002 “Cache-Oblivious Traversal of a Dynamic List”, Invited talk, Seminar on Data Structures, Schloss Dagstuhl, Wadern, Germany.
- Feb. 2002 “Recent Results in Computational Origami”, Invited talk, Mathematics and Science of Origami: Visualize the Possibilities, Annual Meeting of the American Association for Advancement of Science, Boston, MA.
- Feb. 2002 “Locked and Unlocked Polygonal Chains”, Invited talk, Symposium on Robot Arm Manipulation: Geometric Challenges, Annual Meeting of the American Association for Advancement of Science, Boston, MA.
- Dec. 2001 “History of Geometric Constructions by Paper Folding”, Invited talk, Special Session on History of Mathematics, Canadian Mathematical Society Winter Meeting, Toronto, Canada.
- Dec. 2001 “Folding and Unfolding in Computational Geometry”, Invited talk, EAS Computer Science Colloquium Series, Harvard University, Cambridge, MA.
- Dec. 2001 “Folding and Unfolding in Computational Geometry”, Invited talk, Department of Computer Science, University of Toronto, Toronto, Canada.
- Oct. 2001 “Playing Games with Algorithms: Algorithmic Combinatorial Game Theory”, Invited talk, Combinatorics Seminar, Massachusetts Institute of Technology.
- Oct. 2001 “Folding and Unfolding in Computational Geometry”, Invited talk, Applied Mathematics Colloquium, Massachusetts Institute of Technology.
- Apr. 2001 “Infinitesimally Locked Linkages with Applications to Locked Trees”, Invited talk, Special Session on Physical Knotting and Unknotting, AMS Spring Western Section Meeting, Las Vegas, NV.
- Apr. 2001 “Folding and Unfolding Linkages, Paper, and Polyhedra”, Invited talk, Michigan State University, East Lansing, MI.
- Mar. 2001 “When Can You Fold a Map?”, Invited talk, Seminar on Computational Geometry, Schloss Dagstuhl, Wadern, Germany.
- Jan. 2001 “Cache-Oblivious Search Trees”, Invited talk, Shannon Laboratory, AT&T Labs Research, Florham Park, NJ.
- Jan. 2001 “Flipping Polygons”, Invited talk, Department of Computer Science, State University of New York, Stony Brook, NY.
- Dec. 2000 “Convexifying Polygons and Straightening Polygonal Arcs”, Invited talk, Department of Information Science, University of Tokyo, Tokyo, Japan.
- Dec. 2000 “Straightening Polygonal Arcs and Convexifying Polygonal Cycles”, Invited talk, Department of Computer Science, Hong Kong University of Science and Technology, Hong Kong, China.

- Oct. 2000 “Folding and Unfolding Linkages, Paper, and Polyhedra”, Invited talk, Discrete Geometry and Graph Theory Seminar, Department of Mathematics, Cornell University, Ithaca, NY.
- Oct. 2000 “Cutting Polygons with a Circular Saw”, Invited talk, Department of Applied Mathematics and Statistics, State University of New York, Stony Brook, NY.
- Sept. 2000 “Experience with Adaptive Set Intersection”, Invited talk, Seminar on Experimental Algorithmics, Schloss Dagstuhl, Wadern, Germany.
- Sept. 2000 “Minimum-Turn Milling”, Invited talk, Special Session on Discrete and Applied Geometry, AMS Fall Central Section Meeting, Toronto, Canada.
- Aug. 2000 “Minimum-Turn Milling”, Invited talk, Session on Geometric Instances of Graph Optimization Problems, 17th International Symposium on Mathematical Programming, Atlanta, GA.
- June 2000 “Convexifying Polygons and Straightening Polygonal Arcs”, Invited talk, Minisymposium on Computational Geometry: Folding, 10th SIAM Conference on Discrete Mathematics, Minneapolis, MN.
- May 2000 “Folding and Unfolding Linkages, Paper, and Polyhedra”, Invited talk, Discrete Geometry Meeting, Mathematisches Forschungsinstitut Oberwolfach, Oberwolfach-Walke, Germany.
- Apr. 2000 “Convexifying Polygons and Straightening Polygonal Arcs”, Invited talk, Special Session on Discrete Geometry, 2000 AMS Spring Eastern Section Meeting #952, Lowell, MA.
- Apr. 2000 “Convexifying Polygons and Straightening Polygonal Arcs”, Invited talk, Algorithms seminar, Department of Computer Science, University at Stony Brook, Stony Brook, NY.
- Mar. 2000 “Matchings in Cubic Planar Graphs”, Invited talk, Mittagsseminars, Institut für Informatik, Freie Universität Berlin, Berlin, Germany.
- Mar. 2000 “Folding and Unfolding Polyhedra”, Invited talk, Informatik-Kolloquiums, Institut für Informatik, Freie Universität Berlin, Berlin, Germany.
- Mar. 2000 “Convexifying Polygons and Straightening Polygonal Arcs”, Invited talk, Tutte Colloquium, Department of Combinatorics and Optimization, University of Waterloo, Waterloo, Canada.
- Mar. 2000 “Folding and Cutting Paper”, Invited talk, Computational Geometry Lecture, Department of Computer Science, Smith College, Northampton, MA.
- Mar. 2000 “PushPush is NP-hard in 2D”, Invited talk, Research Seminar, Department of Computer Science, Smith College, Northampton, MA.
- Feb. 2000 “Adaptive Set Intersections, Unions, and Differences”, Invited talk, Seminar on Data Structures, Schloss Dagstuhl, Wadern, Germany.
- Jan. 2000 “Convexifying Polygons and Straightening Polygonal Arcs”, Invited talk, Geometry Seminar, Courant Institute of Mathematical Sciences, New York University, New York, NY.
- Dec. 1999 “Collapsing Polyhedra”, Invited talk, 4th Geometry Festival, Budapest, Hungary.
- Dec. 1999 “Folding and Cutting Paper”, Invited talk, Algorithmic Discrete Mathematics Graduate Program, Institut für Informatik, Freie Universität Berlin, Berlin, Germany.
- Oct. 1999 “Folding and Unfolding Polyhedra”, Invited talk, Department of Applied Mathematics and Statistics, University at Stony Brook, Stony Brook, NY.
- Oct. 1999 “Straightening Chains and Convexifying Polygons”, Invited talk, School of Computer Science, Carleton University, Ottawa, Canada.
- June 1999 “Straightening Chains and Convexifying Polygons”, Invited talk, Monte Verite Conference on Discrete and Computational Geometry, Ascona, Switzerland.
- Apr. 1999 “Straightening Chains and Convexifying Polygons”, Invited talk, Algorithms and Complexity Seminar, Department of Computer Science, University of Waterloo, Waterloo, Canada.
- Apr. 1999 “Straightening Chains and Convexifying Polygons”, Invited talk, Theory Seminar, Department of Computer Science, University of Illinois, Urbana-Champaign, IL.
- Mar. 1999 “Straightening Chains and Convexifying Polygons”, Invited talk, Department of Applied Mathematics and Statistics, State University of New York, Stony Brook, NY.
- Mar. 1999 “Straightening Chains and Convexifying Polygons”, Invited talk, Algorithms Seminar, School of Computer Science, McGill University, Montréal, Canada.
- Nov. 1998 “Efficient Algorithms for Petersen’s Matching Theorem”, Invited talk, Tutte Colloquium, Department of Combinatorics and Optimization, University of Waterloo, Waterloo, Canada.
- Nov. 1998 “Folding and Cutting Paper”, Invited talk, Department of Applied Mathematics and Statistics,

- State University of New York, Stony Brook, NY.
- Oct. 1998 “Folding and Cutting Paper”, Invited talk, Algorithms Seminar, School of Computer Science, McGill University, Montréal, Canada.
- May 1998 “Higher-Order Concurrency in Java”, Invited talk, University of New Brunswick, Fredericton, Canada.
- Mar. 1998 “Efficient Algorithms for Petersen’s Matching Theorem”, Invited talk, Data Structures Seminar, Schloss Dagstuhl, Wadern, Germany.
- Jan. 1998 “Folding and Cutting Paper”, Invited talk, Special Session on Mathematical Methods in Paper Folding, Joint Mathematics Meetings of the American Mathematical Society and Mathematical Association of America, Baltimore, MD.
- Sept. 1997 “Higher-Order Concurrency in Java”, Invited talk, Colloquia Series, Department of Computer Science, Rochester Institute of Technology, Rochester, NY.

#### SERVED AS REFEREE

Journals: Nature, Journal of the ACM, SIAM Journal on Computing, SIAM Review, Journal of Algorithms, Algorithmica, Discrete & Computational Geometry, Computational Geometry: Theory and Applications, International Journal of Computational Geometry and Applications, Information Processing Letters, Discrete Mathematics, Discrete Applied Mathematics, Graphs and Combinatorics, Journal of Combinatorial Mathematics and Combinatorial Computing, INTEGERS: The Electronic Journal of Combinatorial Number Theory, Operations Research Letters, International Journal of Game Theory, Nordic Journal of Computing, Microprocessors and Microsystems.

Conferences: 48th, 50th, 51st Annual IEEE Symposium on Foundations of Computer Science (2007, 2009, 2010), 15th, 17th, 18th, 21st, 25th, 28th Annual ACM Symposium on Computational Geometry (1999, 2001, 2002, 2005, 2009, 2012), 35th–39th, 41st, 43rd ACM Symposium on Theory of Computing (2003–2007, 2009, 2011), 14th–21st, 23rd, 25th Annual ACM-SIAM Symposium on Discrete Algorithms (2003–2010, 2012, 2014), 37th–38th International Conference and Exhibition on Computer Graphics and Interactive Techniques (2010–2011), 10th, 12th, 13th Annual European Symposium on Algorithms (2002, 2004, 2005), 29th, 36th International Colloquium on Automata, Languages and Programming (2002, 2009), 37th International Conference and Exhibition on Computer Graphics and Interactive Techniques (2010), 25th ACM Symposium on Principles of Database Systems (2006), 7th International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (2004), 9th Scandinavian Workshop on Algorithm Theory (2004), 19th Annual IEEE Conference on Computational Complexity (2004), Latin American Theoretical Informatics (2000, 2002, 2004, 2008), 6th Workshop on Algorithm Engineering and Experiments (2004), 22nd, 14th Annual International Symposium on Algorithms and Computation (2011, 2003), 6th, 9th, 11th Symposium on Graph Drawing (1998, 2001, 2003), 25th, 18th Canadian Conference on Computational Geometry (2013, 2006), Japan Conference on Discrete and Computational Geometry (1998, 2000, 2002, 2015), 15th Annual ACM Symposium on Parallel Algorithms and Architectures (2003), 22nd Annual Conference on the Foundations of Software Technology and Theoretical Computer Science (2002), 3rd International Conference on Computers and Games (2002), 3rd–4th Annual BRIDGES Conference: Mathematical Connections in Art, Music, and Science (2000–2001).

Book chapters: Akiyama-Chvátal Festschrift (Springer), Discrete and Computational Geometry: The Goodman-Pollack Festschrift (Springer), Physical Knots: Knotting, Linking, and Folding of Geometric Objects in 3-space (American Mathematical Society), Experimental Algorithmics — the State of the Art (Lecture Notes in Computer Science, Springer-Verlag).

Books: A K Peters, Cambridge University Press.

Grants: National Science Foundation.

#### AWARDS

- Burgess & Elizabeth Jamieson Award for Excellence in Teaching, MIT EECS, 2018  
 Honorary Doctor of Science degree, Bard College, 2017  
 ACM Fellow, 2016  
 Research and Development and Art Award, Vatican Giuseppe Sciacca Foundation, 2016

Rare Craft Fellowship Award, American Craft Council, 2016  
Nerode Prize, European Association for Theoretical Computer Science and IPEC, 2015  
University of Waterloo Faculty of Mathematics Young Alumni Achievement Medal, 2015  
Steven and Renee Finn Innovation Fellow, MIT EECS, 2013–2014  
Guggenheim Fellow, John Simon Guggenheim Memorial Foundation, 2013  
Presburger Award, European Association for Theoretical Computer Science, 2013  
Outstanding Student, Hall of Fame, Science Atlantic, 2012  
Sculpture invited to permanent collection of Smithsonian American Art Museum, Washington, DC, 2011  
George Pólya Lecturer, Mathematical Association of America, 2010–2012  
Université Libre de Bruxelles Gold Medal, 2008  
Featured in 56-minute documentary *Between the Folds* about origami, 2008  
“Computational Origami” sculpture purchased for permanent collection of Museum of Modern Art (MoMA), New York, 2008  
Earle Raymond Hedrick Lecturer, Mathematical Association of America, 2008  
Katayanagi Emerging Leadership Prize, Carnegie Mellon University and Tokyo University of Technology, 2008  
International Francqui Chair of Belgium and Francqui Gold Medal, 2007  
Honorary Doctor of Laws degree, Dalhousie University, 2007  
Alfred P. Sloan Research Fellowship, 2006–2008  
Esther and Harold E. Edgerton Professor at MIT, 2005–2008  
Harold E. Edgerton Faculty Achievement Award, Apr. 2005  
DOE Early Career Principal Investigator Award, Sept. 2004  
NSF CAREER Award, June 2004  
Ruth and Joel Spira Award for Distinguished Teaching in EECS at MIT, May 2004  
MacArthur Fellowship, Nov. 2003  
NSERC Doctoral Prize and Silver Medal, Mar. 2003 (best PhD thesis & research in Canada, 1 of 4 awards)  
Popular Science “Brilliant 10”, Sept. 2003  
Boston Magazine “40 Bostonians to Watch”, June 2002  
Governor General’s Academic Gold Medal (best PhD at U. Waterloo), June 2002  
NSF Mathematical Sciences Postdoctoral Research Fellowship, 2001 (declined)  
NSERC Postdoctoral Fellowship, 2001 (declined)

## PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery (ACM)  
ACM Special Interest Group on Algorithms and Computation Theory (SIGACT)  
American Mathematical Society (AMS)  
Canadian Mathematical Society (CMS)  
Mathematical Association of America (MAA)  
Society for Industrial and Applied Mathematics (SIAM)