

Martin L. Demaine

Artist Curriculum Vitæ

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American and Canadian
Born in USA on September 14, 1942

BIOGRAPHY

Martin Demaine is a visual artist and theoretical computer scientist. Martin started the first private hot glass studio in Canada and has been called the father of Canadian glass. Since 2005, he has been an Artist-in-Residence at the Massachusetts Institute of Technology. His artistic focus is on sculpture with hand-folded paper and hand-blown glass, with additional interests in film. Most of his recent artwork explores the connections between mathematics and art, using mathematics as both a tool and inspiration for sculpture. His curved-crease folded paper sculptures, jointly designed and made with his son Erik Demaine, are in the permanent collections of the Museum of Modern Art (MoMA) in New York and of the Smithsonian American Art Museum. He appears in the recent documentary *Between the Folds* about the art and science of origami.

ARTIST STATEMENT

The most surprising and exciting results arise at the borders between different fields of study. This importance of interdisciplinary work is well known in the sciences, but it extends far beyond, in particular to the boundary between science and art. By pursuing every project in both scientific and artistic directions, our work can be in both fields simultaneously. By imagining new forms of visual art, we encounter new scientific questions about how they might be constructed; and scientific results and unsolved problems inspire new visual art illustrating the beauty and challenge of science, which in turn helps us better understand the science. This inspiration in both directions leads us to more unusual and rich results, both artistic and scientific, than would be possible by focusing in just one discipline.

Central to this marriage between fields is an effective collaboration among different people with different backgrounds. In particular, my recent artistic and scientific work is joint with my son, Erik Demaine, whose original background is in mathematics, while my original background is in visual arts. We have taught each other about the practice and beauty of both sides, and now work extensively together where they meet. We find that collaboration brings together more ways of thinking and more tools than any one person could possess, making for more balanced and less pretentious work. We enjoy collaborating with over 300 other artists and scientists.

Another type of collaboration is between different media. While our folded paper sculpture and blown glass sculpture continue to evolve, our most recent work aims to marry these two materials together. Complementary video documenting the creation of the work further enriches the viewer's experience, showing not only the finished work but also the process that brought it to be. We envision a future renaissance where the cooperation between multiple disciplines, people, and media is an essential way of life at all levels.

PERMANENT COLLECTIONS AND INSTALLATIONS

1. "Natural Cycles", "Hugging Circles", "Green Balance" (3 paper sculptures, joint work with Erik Demaine), Renwick Gallery, Smithsonian American Art Museum, Washington, DC, acquired 2011.
2. "Floating glass ceiling" (waterjet-cut glass, joint work with Erik Demaine and Jo Ann Fleischhauer), part of *Leonardo Dialogo*, an installation at UT Health Science Center, MD Anderson Cancer Center, Houston, Texas, installed 2010.
3. "Computational Origami" (3 paper sculptures, joint work with Erik Demaine), Museum of Modern Art (MoMA), New York, acquired 2008.

My glass work is represented in private and public collections internationally. Commissions include a set of goblets for Queen Elizabeth.

4. Hand-blown glass, South Australian Museum, Adelaide, Australia
5. Hand-blown glass, National Gallery of Canada, Ottawa, Canada
6. Hand-blown glass, Montreal Museum of Fine Arts, Montreal, Canada
7. Hand-blown glass, Canadian Museum of Civilization, Gatineau, Québec, Canada
8. Hand-blown glass, Canadian Clay & Glass Museum, Waterloo, Canada
9. Hand-blown glass, Nova Scotia Museum, Halifax, Canada
10. Hand-blown glass, New Brunswick Museum, St. John

EXHIBITIONS SINCE AT MIT

July 2012– Feb. 2013	Renwick Gallery, Smithsonian American Art Museum, Washington, DC	“40 under 40: Craft Futures” (invitational), curated by Nicholas R. Bell	paper sculptures (joint work with Erik D. Demaine)
May–July 2012	Dorsky Gallery Curatorial Programs, Long Island City, NY	“(Un)folding Patterns” (invitational), curated by Ombretta Agrò Andruff	paper sculptures (joint work with Erik D. Demaine)
Apr. 2012	Mary Porter Sesnon Gallery, University of California, Santa Cruz	“Origami Exhibition” (invitational), curated by Linda Pope	paper sculptures (joint work with Erik D. Demaine)
Jan.–Apr. 2014	Peoria Riverfront Museum, Peoria, IL	“Folding Paper: The Infinite Possibilities of Origami” (invitational), curated by Meher McArthur (traveling show)	“Splash II” and “Three Waves Meeting II” (paper sculptures, joint work with Erik D. Demaine)
June–Sept. 2013	Crocker Art Museum, Sacramento, CA		
Jan.–Apr. 2013	Leigh Yawkey Woodson Art Museum, Wausau, WI		
Oct.–Dec. 2012	Thorne-Sagendorph Art Gallery, Keene, New Hampshire		
Mar.–Aug. 2012	Japanese American National Museum, Los Angeles, CA		
Feb.–Apr. 2012	Fuller Craft Museum, Brockton, MA	“Mens et Manus” (juried), curated by Perry Price	paper sculptures (joint work with Erik D. Demaine)
Jan.–Mar. 2012	Moreau Center for the Arts, Saint Mary’s College, Notre Dame, IN	“Math+Art Collaborative” (invitational), curated by Steven Broad	paper and glass sculptures (joint work with Erik D. Demaine)
Jan.–Feb. 2012	Guided By Invoices, Chelsea, New York City	Solo show, curated by Chris Byrne	paper and glass sculptures (joint work with Erik D. Demaine)
Jan. 2012	Joint Mathematics Meetings, Boston, MA	“Exhibition of Mathematical Art” (juried), curated by Robert Fathauer	“Science/Art” (limited-edition poster, joint work with Erik D. Demaine)
Oct.–Nov. 2011	Sarah Silberman Art Gallery, Montgomery College, Rockville, MD	“Art and Science Exhibition” (invitational), curated by Kay McCrohan and Percy North	paper and glass sculptures and video (joint work with Erik D. Demaine)

Oct.–Nov. 2011	Galerie Elena Lee, Montréal, Canada	“35 Years of Glass Art in Canada” (invitational)	hand-blown glass
Feb.–Apr. 2011	Central Booking, Brooklyn, NY	“Measure for Measure” (invitational), curated by Maddy Rosenberg	“The Circle” series (paper sculptures, joint work with Erik D. Demaine) “Yes/No” (limited-edition poster, joint work with Erik D. Demaine and Sarah Stengle)
Jan. 2010	Joint Mathematics Meetings, San Francisco, CA	“Exhibition of Mathematical Art” (juried), curated by Robert Fathauer	“Natural Cycles” (paper sculpture, joint work with Erik D. Demaine)
Nov. 2009– Jan. 2010	Peel Gallery, Houston, TX	“paper: torn twisted & cut” (invitational), curated by Steven Hempel	“Pushing Curves to the Limit” (paper sculptures, joint work with Erik D. Demaine)
Mar. 2009	Art C�ezar, Rotselaar, Belgium	“Papier, Vergankelijke materie, Blijvende indrukken (Paper, Transient matter, Lasting impressions)” (invitational), curated by Isabel De Craene	“Waves” (paper sculptures, joint work with Erik D. Demaine)
Nov. 2008– Oct. 2009	Museum of Modern Art (MoMA), New York City	“Rough Cut: Design Takes a Sharp Edge” (invitational), curated by Paola Antonelli	“Computational Origami” (paper sculptures, joint work with Erik D. Demaine)
Feb.–May 2008	Museum of Modern Art (MoMA), New York City	“Design and the Elastic Mind” (invitational), curated by Paola Antonelli	“Computational Origami” (paper sculptures, joint work with Erik D. Demaine)
Feb.–Mar. 2007	Andrew and Laura McCain Gallery, Florenceville, Canada	Solo show, curated by Mandy Ginson	“Fluency” (glass sculptures, joint work with Erik D. Demaine)
Oct. 2006– Aug. 2007	Canadian Museum of Civilization, Gatineau, Canada	“Unique! 30 Years of Outstanding Crafts” (invitational)	hand-blown glass
2006	MIT Museum, Cambridge, MA	(invitational)	“Elephant goblets” (glass sculptures, joint work with Erik D. Demaine)
Feb. 2005	Massachusetts Institute of Technology, Cambridge, MA		“Junkyard Art: The Art of Recycling” (mixed-media sculpture, joint show with students)
Apr.–June 2004	Boston Public Library, Boston, MA	(traveling show)	“Building with Books: A Bibliophile’s Bedroom” (mixed-media sculpture, joint show with students)
Feb.–Mar. 2004	Massachusetts Institute of Technology, Cambridge, MA		

FILM SHOWINGS

Lino Tagliapietra: Glass Magician (joint work with Erik D. Demaine)

- Dec. 2011 Creative Arts Film Festival
 Nov. 2011 30th Three Rivers Film Festival, Competitive Shorts Program, Pittsburgh, PA
 Nov. 2011 7th River's Edge International Film Festival, Paducah, KY
 May–Aug. 2011 Hallwylska museet, “Samtida konstglas från Murano — ur Fondazione di Venezias samlingar”, Stockholm, Sweden
 Apr. 2011 MIT150: Under the Dome, Cambridge, MA
 Apr. 2011 Mobilia Gallery Glass Quake Symposium, Boston, MA
 Apr. 2011 The Entertainment Gathering, Monterey, CA
 Mar. 2011 CraftBoston, Boston, MA
 Feb.–May 2011 Istituto Veneto di Scienze, Lettere ed Arti, Palazzo Cavilli-Franchetti, “Lino Tagliapietra, da Murano allo Studio Glass, opere 1954–2011”, Venice, Italy

POSITIONS HELD

- 2008–2009 Visiting Professor, Ecole Polytechnique de Louvain, Université Catholique de Louvain, Belgium
 2005–present Angelika and Barton Weller Artist-in-Residence, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology
 2002–present Technical Instructor, Glass Lab, Department of Materials Science and Engineering, Massachusetts Institute of Technology
 2001–present Visiting Scientist, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology
 1997–2001 Visiting Scholar, Department of Computer Science, University of Waterloo

TEACHING

- Summer 2012 Folding Glass, cotaught class during 3-week artist-in-residence, Pilchuck Glass School, Stanwood, Washington.
 Fall 2011 MIT Glass Lab, Glass Sculpture Installations.
 Spring 2011 MIT Glass Lab, Surface Design Techniques.
 Fall 2010 MIT 6.849, Geometric Folding Algorithms: Linkages, Origami, Polyhedra (co-instructor). 39 MIT students.
 Spring 2008 MIT 6.100, Experimental Glass Musical Instruments, with Erik Demaine.
 IAP 2007 MIT 6.096, Knot Language: Recreating Inca Quipu/Khipu, with Erik Demaine and Jean-Jacques Quisquater. 23 credit MIT students, 20 listeners.
 IAP 2005 MIT IAP 6451, Junkyard Art: The Art of Recycling, with Jeff Smith, Justin Adams, and Erik Demaine.
 Fall 2004 MIT 4.491, Form-Finding and Structural Optimization, with Barb Cutler, Erik Demaine, Simon Greenwold, Axel Kilian, and John Ochsendorf.
 Spring 2004 MIT 4.493, 3-D Design Tools for Equilibrium: Exploring Gaudi's World, with Barb Cutler, Erik Demaine, Axel Kilian, and John Ochsendorf.
 IAP 2004 MIT IAP 5804, Building with Books, with Erik Demaine, Chris Dewart, Stephanie Hartman, Wendy Jacob, and John Ochsendorf.
 Spring 2003–present MIT Glass Lab, Beginner Class.

PUBLICATIONS

Published two co-edited books, over 35 refereed journal papers, and over 40 other conference papers, jointly with over 130 co-authors. For details, see <http://martindemaine.org/cv.pdf>. Listed here are art-related publications.

1. “Balloon Polyhedra” (joint work with Erik D. Demaine and Vi Hart), in *Shaping Space: A Polyhedral Approach*, M. Senechal and G. Fleck, eds., Second Edition, to appear.

2. “Reconstructing David Huffman’s Legacy in Curved-Crease Folding” (joint work with Erik D. Demaine and Duks Koschitz), in *Origami⁵: Proceedings of the 5th International Conference on Origami in Science, Mathematics and Education*, pages 39–52, Singapore, July 2010, A K Peters.
3. “Conveyer-Belt Alphabet” (joint work with Erik D. Demaine and Belén Palop), in *Findings in Elasticity*, H. Aardse and A. van Baalen, eds., pages 86–89, Apr. 2010, Pars Foundation, Lars Müller Publishers.
4. “Conveyer Belt Puzzle Font” (joint work with Erik D. Demaine and Belén Palop), in *Proceedings of the 9th Gathering for Gardner*, to appear, Atlanta, GA, Mar. 2010.
5. “Origami Maze Puzzle Font” (joint work with Erik D. Demaine and Jason Ku), in *Proceedings of the 9th Gathering for Gardner*, to appear, Atlanta, GA, Mar. 2010.
6. “Mathematics Is Art” (joint work with Erik D. Demaine), in *Proceedings of 12th Annual Conference of BRIDGES: Mathematics, Music, Art, Architecture, Culture*, pages 1–10, Banff, Canada, July 2009.
7. “Curved Crease Origami” (joint work with Duks Koschitz and Erik D. Demaine), in *Abstracts from Advances in Architectural Geometry*, pages 29–32, Vienna, Austria, Sept. 2008.
8. “Computational Balloon Twisting: The Theory of Balloon Polyhedra” (joint work with Erik D. Demaine and Vi Hart), in *Proceedings of the 20th Canadian Conference on Computational Geometry*, Montréal, Canada, Aug. 2008. Invited to special issue of *Computational Geometry: Theory and Applications*.
9. “Sand Drawings and Gaussian Graphs” (joint work with Erik D. Demaine, Perouz Taslakian, and Godfried T. Toussaint), *Journal of Mathematics and the Arts*, volume 1, number 2, pages 125–132, June 2007.
10. “Curves in the Sand: Algorithmic Drawing” (joint work with Mirela Damian, Erik D. Demaine, Vida Dujmović, Dania El-Khechen, Robin Flatland, John Iacono, Stefan Langerman, Henk Meijer, Suneeta Ramaswami, Diane L. Souvaine, Perouz Taslakian, and Godfried T. Toussaint), in *Proceedings of the 18th Canadian Conference on Computational Geometry*, pages 11–14, Aug. 2006.
11. “Puzzles, Art, and Magic with Algorithms” (joint work with Erik D. Demaine), *Theory of Computing Systems*, volume 39, number 3, pages 473–481, June 2006. Special issue of selected papers from FUN 2004.
12. “The Helium Stockpile: A Collaboration in Mathematical Folding Sculpture” (joint work with Erik D. Demaine and A. Laurie Palmer), *Leonardo*, volume 39, number 3, pages 233–235, June 2006.
13. “Puzzles, Art, and Magic with Algorithms” (joint work with Erik D. Demaine), in *Proceedings of the 15th Annual International Symposium on Algorithms and Computation*, Lecture Notes in Computer Science 3341, pages 1, Hong Kong, China, 2004.
14. “Hinged Dissection of the Alphabet” (joint work with Erik D. Demaine), *Journal of Recreational Mathematics*, volume 31, number 3, pages 204–207, 2003.
15. “The CCCG 2001 Logo” (joint work with Erik D. Demaine and Anna Lubiw), in *Proceedings of the 13th Canadian Conference on Computational Geometry*, pages iv–v, Waterloo, Canada, Aug. 2001.
16. “Polyhedral Sculptures with Hyperbolic Paraboloids” (joint work with Erik D. Demaine and Anna Lubiw), in *Proceedings of the 2nd Annual Conference of BRIDGES: Mathematical Connections in Art, Music, and Science*, pages 91–100, Winfield, KS, July–Aug. 1999.
17. “Metamorphosis of the Cube” (joint work with Erik 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.
18. “Planar Drawings of Origami Polyhedra” (joint work with Erik D. Demaine), in *Proceedings of the 6th Symposium on Graph Drawing*, Lecture Notes in Computer Science 1547, pages 438–440, Montréal, Canada, Aug. 1998.
19. “Planar Drawings of Origami Polyhedra” (joint work with Erik D. Demaine), Technical Report CS-98-17, Department of Computer Science, University of Waterloo, Aug. 1998.

INVITED TALKS

- Jan. 2010 Plenary talk, The Entertainment Gathering, Monterey, California.
 July 2008 “Art Meets Technology at MIT”, Women’s Technology Program, MIT
 Nov. 2007 “Mathematics Is Art”, Plenary talk, 17th Annual Fall Workshop on Computational Geometry, Hawthorne, New York.

MEDIA COVERAGE

Video:

Featured on Belgian talk show *De Laatste Show*, Mar. 2009.

Featured in 56-minute documentary *Between the Folds* about origami, 2008.

Featured on *Chronicle*, WCVB TV Boston, May 2005.

Radio:

Shift, CBC Radio, Feb. 2007.

Books:

2010 Joint Mathematics Meetings Exhibition of Mathematical Art, edited by Robert Fathauer and Anne Burns, mathartfun, 2010. Catalog featuring our Natural Cycles sculpture (including on the cover).

Folded: Paper in Design, Art, Architecture and Industry by Petra Schmidt and Nicola Stattmann, Birkhäuser, 2009, pp. 240–241. Features our Computational Origami sculptures.

Design and the Elastic Mind by Paola Antonelli, The Museum of Modern Art, New York, 2008. Features our Computational Origami sculptures.

Fragments of Infinity by Ivars Peterson, John Wiley and Sons, Inc., 2001, pp. 79–80. Features our Hyparhedra sculptures.

AWARDS

Platinum Reel Award Winner (Nevada Film Festival, 2011) and Honorable Mention Award, Experimental Film Category (Los Angeles New Wave International Film Festival, 2011) for our 13-minute video “Lino Tagliapietra: Glass Magician” (2011)