Henry Segerman   *Artist Resume*

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Employment
- **University of Melbourne**, Department of Mathematics and Statistics: Research Fellow, 2010–present
- **University of Texas at Austin**, Mathematics Department: Lecturer, 2007–2010
- **Stanford University**, Mathematics Department: Graduate student, 2001–2007

Education
- **Stanford University**, Ph.D. in Mathematics under Steven Kerckhoff. Thesis (2007): *Incompressible Surfaces in Hyperbolic Punctured Torus Bundles are Strongly Detected*
- **University of Oxford**, Master of Mathematics (MS), 2001

Math Art Exhibitions
- *Bridges conference[1] 2012*: Dual Half 120- and 600-Cells (won the "Most Effective Use of Mathematics" People's Choice Award, one of four awards given.)
- *Joint Mathematics Meetings 2012*: Round Möbius strip, Round Klein bottle.
- *Bridges conference 2011*: Space filling graph 1, Octahedron fractal graph, Cuboctahedral fractal graph.
- *Bridges conference 2010*: Sphere autologlyph, Torus autologlyph.

Math Art Installations
- *Department of Mathematics and Statistics, The University of Melbourne,* Five large 3D printed sculptures, of surfaces and 4–dimensional polytopes in S^3.

Mathematical Illustration
- Cover image for *Number Theory Through Inquiry*, by David C. Marshall, Edward Odell & Michael Starbird, published December 2007.
- Cover design and some illustrations for *A Mathematical Mosaic: Patterns & Problem Solving (Revised Edition)*, by Ravi Vakil, published October 2007.

Artistic Projects
- *3D printed sculptures* - on mathematical themes. Many of the pieces are procedurally generated.
- *Book Covers* - procedurally generated images used on the covers of text books.
- *Escher's Printgallery at Stanford* - a photographic version of Escher's "Printgallery", with Paul-Olivier Dehaye. Made for a public lecture by Hendrik Lenstra, who discovered the mathematics behind Escher's image.
- *Virtual sculpture within Second Life* - many procedurally generated and/or interactive. Some produced as part of learning experiences (see next section).
- *Colloquium Posters* - for advertising department colloquia.
- *Mathematical T-shirt designs* - for mathematics departments or clubs, and some other designs.
- *Wordlesque* - word clouds, describing word frequency features of a dialogue with position. With Yla Tausczik.
- *"Autologlyphs"* - self referential mathematical typography.

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[1] The Bridges conference is an annual international meeting on connections between art and mathematics, featuring invited speakers, full and short paper presentations, educational workshops, and a juried art exhibition.

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Other Relevant Experience

· I am an Associate Editor for the *Journal of Mathematics and the Arts*.

· Work with the **New Orleans Center for Creative Arts**[2]: I served on the "NOCCA Advisory Council", a group convened to help guide the transition of NOCCA from a half-day arts school to a full-day diploma-granting institution covering all subjects, whilst preserving the creativity and spirit of this highly successful school, April 2009.

· I am currently working with NOCCA on the curriculum framework for their mathematics program, in particular highlighting connections between mathematics and the arts. In addition, I will act as a consultant on these connections, for both students and teachers at NOCCA.

· I created mathematical learning experiences based around mathematical sculptures in the virtual world Second Life, funded by the New Media Consortium[3], September 2006.

Publications & Preprints

· **Mathematical Art**
  – *Developing fractal curves*, with Geoffrey Irving, 2012, 21 pages, 22 figures.
  – *Sculptures in S^3*, with Saul Schleimer, *Proceedings of the Bridges conference 2012*, 9 pages, 9 figures.
  – *Recent 3D printed sculptures*, *Hyperseeing*, 2011 Fall/Winter, 10 pages, 11 figures.
  – *Fractal graphs by iterated substitution*, 20 pages, 20 figures, *Journal of Mathematics and the Arts*, ©Taylor and Francis, Volume 5, Issue 2, 2011, pp. 51–70.
  – *The Sunflower Spiral and the Fibonacci Metric*, 2010, *Proceedings of the Bridges conference 2010*, 4 pages, 4 figures.
  – *Autologlyphs*, with P.-O. Dehaye, in *Math. Intell.* **26** (2004), no. 2, cover art and pp. 37–39.

· **Other publications**
  – 7 papers published in peer reviewed mathematics journals.

Arts Related Talks

· *Sculptures in S^3*, Bridges conference on Mathematics and the Arts, Towson University, MD, July 2012. Video.

· *Some Mathematical Sculptures*, Temple University Geometry-Topology Seminar Special Undergraduate Talk, January 2012; New Orleans Center for Creative Arts, January 2012; Melbourne University Mathematics and Statistics Society, March 2012, Virtual Environments guest lecture, Melbourne School of Design, The University of Melbourne, March 2012 and August 2012; National Youth Science Forum, The University of Melbourne, March 2012.

· *The Sunflower Spiral and the Fibonacci Metric*, Bridges Pécs, Pécs, Hungary, July 2010

· *Autologlyphs: Self Referential Mathematical Typography*, Gathering 4 Gardner 9, Atlanta, March 2010

· *The Mathfest 2009 Poster Image, Mathematical Art, Design and Education in Second Life*, Mathfest 2009, Portland, August 2009

· *Drawing knots using computers*, The Unknot Conference, Denison University, July 2009

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[2]NOCCA, the New Orleans Center for Creative Arts, is a pre-professional arts training center that offers secondary school-age children intensive instruction in dance, media arts, music, theatre arts, visual arts and creative writing.

[3]The New Media Consortium is an international 501(c)3 not-for-profit consortium of nearly 200 leading colleges, universities, museums, corporations, and other learning-focused organizations dedicated to the exploration and use of new media and new technologies.

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