

SATYAN L. DEVADOSS

devadoss@sandiego.edu
satyandevadoss.org
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CURRICULUM VITAE

APPOINTMENTS

Fletcher Jones Chair of Applied Math, *University of San Diego*, 2016 – present.

Assistant/Associate/Full Professor, *Williams College*, 2002 – 2016.

Visiting Faculty, *Harvey Mudd College*, 2015 – 2016.

Visiting Faculty, *Stanford University*, 2013 – 2014.

Visiting Faculty, *Université Nice Sophia Antipolis*, Summer 2010.

Visiting Faculty, *University of California, Berkeley*, 2009 – 2010.

Research Member, *Mathematical Sciences Research Institute*, Fall 2009.

Visiting Faculty, *Ohio State University*, 2005 – 2006.

Arnold Ross Assistant Professor, *Ohio State University*, 1999 – 2002.

PROFESSIONAL PREPARATION

Johns Hopkins University, *Mathematics*, Ph.D. 1999 (advisor: Jack Morava).

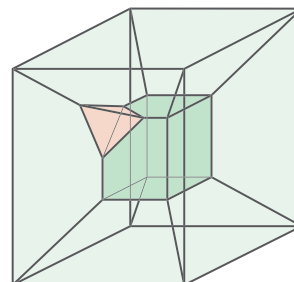
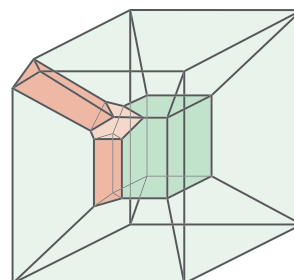
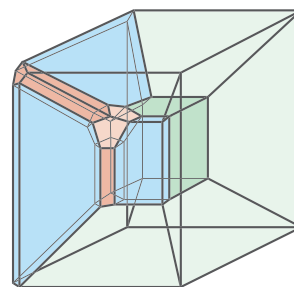
North Central College, *Mathematics*, B.S. 1993 (valedictorian).

SUMMARY

Motivated by computational biology, theoretical physics, and computer science, much of my work revolves around discrete structures and their underlying topology and geometry. I am an inaugural Fellow of the American Mathematical Society, with support over the years from the Mellon Foundation, the National Science Foundation, the Whiting Fellowship, DARPA, and the John Templeton Foundation.

Conveying results with visual clarity, accuracy, and simplicity is as important as the discovery of the ideas themselves. I am a recipient of two Mathematical Association of America's national teaching awards (Haimo and Alder), have been recruited by the Great Courses in creating a 36-lecture DVD series on topology in nature, and have written a textbook on computational geometry. I have been invited to give hundreds of talks, from research universities, to international centers, to design spaces (Pixar, Google, LucasFilm).

A strong proponent of the liberal arts, I believe ideas should be made incarnate, for the physical matters: the space and tools used to create directly affects the creation. Underneath a mathematical framework lies a strong desire for the proper visualization of data, from drawings to graphics to photography. Collaborations have resulted in art gallery openings in Berlin, redesigns of the Williams College course catalog, and the formation of new courses on origami, phylogenetics, design, and visualization. Some works and thoughts have appeared in venues such as NPR, The Times of London, and Forbes.



HONORS

Deborah and Franklin Haimo National Teaching Award, from the MAA 2016.

(Inaugural) *Fellow of the American Mathematical Society*, for members who have made outstanding contributions to the creation, exposition, advancement, communication, and utilization of math, 2013.

Northeastern Sectional Award for Distinguished Teaching, from the MAA 2014.

Henry L. Alder National Teaching Award, from the MAA 2007.

Nelson Bushnell Prize, awarded by Williams College for scholarship and teaching, 2012.

Outstanding Young Alumni Award, given to those who have excelled in their careers and have demonstrated service to the community and to North Central College, 2008.

Research Seminar Award, for creative course design, Ohio State University, 2001.

(Inaugural) *William Kelso Morrill Award*, for excellence in teaching, Johns Hopkins University, 1995.

Outstanding Student of Mathematics, North Central College, 1991, 1992, 1993.

PROJECTS

Reimagining Mathematics, received \$1M in funding from the *Fletcher Jones Foundation*, to transform the math department at USD from its current space into a dynamic, state-of-the-art environment for student collaboration, faculty research, and community gathering, borrowing ideas from manufacturing, art studios and design thinking: www.sandiego.edu/news/detail.php?_focus=64627

Discrete and Computational Geometry, a textbook coauthored with Joseph O'Rourke, published by Princeton University Press, May 2011.

The Shape of Nature, a 36-lecture DVD course on geometry and topology, aimed at the general public, recruited by the Great Courses, May 2010.

Cartography of Tree Space, a collaborative series of paintings and sketches with San Francisco based artist Owen Schuh, based on the topology of phylogenetic trees. *Satellite Berlin* gallery (Spring 2015) and *Williamson* gallery (Fall 2016).

Reimagining the Course Catalog, for the 2015-2016 Williams academic year, to emphasize the courses offered rather than departments and disciplines, resulting in three design outputs: Novel newspaper version, reinterpreted printed version, and highly exploratory online version (satyandevadoss.org/design).

Nulla Dies Sine Linea, part of an exhibit on how artists and scientists create. *Satellite Berlin* galleries, Spring 2016.

CereusData (cofounder) focuses on data visualization, partnering with academic institutions and businesses, to produce clear images of complex relationships (2013 – 2017).

Advisory Board Member for *The Story Locker* movie production company, using computational topology on data from film (2013 – 2016).

Consultant for *Alibris* (www.alibris.com) as algorithm analyst for book distribution (2013 – 2014).

PUBLISHED PAPERS

1. S. Devadoss and M. Smith. Colorful graph associahedra, *preprint*.
2. K. DeSplinter, S. Devadoss, J. Readyhough, B. Wimberly. Ridge unfolding of cubes and Hamiltonian cycles, *preprint*.
3. S. Devadoss and O. Schuh. Cartography of tree space, *Leonardo Journal*, to appear.
4. S. Devadoss and S. Petti. A space of phylogenetic networks, *SIAM Journal on Applied Algebra and Geometry* **1** (2017) 683–705.
5. S. Devadoss, Z. Epstein, D. Smirnov. Visualizing scissors congruence, *Symposium on Computational Geometry: Multimedia* (2016) 66:1–3.
6. S. Devadoss and J. Morava. Navigation in tree spaces, *Advances in Applied Mathematics* **67** (2015) 75–95.
7. S. Devadoss, S. Forcey, S. Reisdorf, P. Showers. Convex polytopes from nested posets, *European Journal of Combinatorics* **43** (2015) 229 – 248.
8. S. Devadoss, D. Huang, D. Spadacene. Polyhedral coverings of tree spaces, *SIAM Journal on Discrete Mathematics* **28** (2014) 1508–1514.
9. H. Cheng, S. Devadoss, B. Li, A. Risteski. Skeletal configurations of ribbon trees, *Discrete Applied Mathematics* **170** (2014) 46–54.
10. S. Devadoss and J. Morava. Diagonalizing the genome II: quadratic forms, at [arxiv:1209.5465](https://arxiv.org/abs/1209.5465).
11. O. Aichholzer, H. Cheng, S. Devadoss, T. Hackl, S. Huber, B. Li, A. Risteski. What makes a tree a straight skeleton, *Proceedings of the 24th Canadian Conference on Computational Geometry* (2012).
12. S. Devadoss. The shape of associativity, *Canadian Mathematical Society Notes* **44** (2012) 12–14.
13. O. Aichholzer, H. Cheng, S. Devadoss, T. Hackl, S. Huber, B. Li, A. Risteski. What makes a tree a straight skeleton, *Proceedings of the European Conference on Computational Geometry* (2012).
14. S. Devadoss, R. Shah, Z. Shao, E. Winston. Visibility graphs and deformations of associahedra, *Contributions to Discrete Mathematics* **7** (2012) 68–81.
15. S. Devadoss, B. Fehrman, T. Heath, A. Vashist. Moduli spaces of punctured Poincaré disks, *Algebra, Combinatorics and Geometry: Tamari Memorial Festschrift* (2012) 99–117.
16. A. Shotz, S. Devadoss, P. Natarajan. Triple Infinity, *Esopus Magazine*, Fall 2011.

17. M. Carr, S. Devadoss, S. Forcey. Pseudograph associahedra, *Journal of Combinatorial Theory, Series A* **118** (2011) 2035–2055.
18. S. Devadoss, T. Heath, W. Vipismakul. Deformations of bordered Riemann surfaces and associahedral polytopes, *Notices of the American Mathematical Society* **58** (2011) 530–541.
19. S. Armstrong, M. Carr, S. Devadoss, E. Engler, A. Leininger, M. Manapat. Particle configurations and Coxeter operads, *Journal of Homotopy and Related Structures*, **4** (2009) 83–109.
20. J. Danciger, S. Devadoss, J. Mugno, D. Sheehy, R. Ward. Shape deformation in continuous map generalization, *GeoInformatica* **13** (2009) 203–221.
21. S. Devadoss. A realization of graph associahedra, *Discrete Mathematics* **309** (2009) 271–276.
22. S. Devadoss and S. Forcey. Marked tubes and the graph multiplihedron, *Algebraic and Geometric Topology* **8** (2008) 2081–2108.
23. S. Devadoss and J. Mugno. Juggling braids and links, *Mathematical Intelligencer* **29** (2007) 15–22.
24. M. Carr and S. Devadoss. Coxeter complexes and graph associahedra, *Topology and its Applications* **153** (2006) 2155–2168.
25. J. Danciger, S. Devadoss, D. Sheehy. Compatible triangulations and series-triangular graphs, *Computational Geometry: Theory and Applications* **34** (2006) 195–202.
26. S. Devadoss. Combinatorial equivalence of real moduli spaces, *Notices of the American Mathematical Society* **51** (2004) 620–628.
27. E. Demaine, S. Devadoss, J.S. Mitchell, J. O’Rourke. Continuous foldability of polygonal paper, *Proceedings of the 16th Canadian Conference on Computational Geometry* (2004) 64–67.
28. S. Devadoss. A space of cyclohedra, *Discrete and Computational Geometry* **29** (2003) 61–75.
29. S. Devadoss and R. Read. Cellular structures determined by polygons and trees, *Annals of Combinatorics* **5** (2001) 71–98.
30. S. Devadoss. Tessellations of moduli spaces and the mosaic operad, in *Homotopy Invariant Algebraic Structures*, Contemporary Mathematics **239** (1999) 91–114.

PUBLICATIONS IN PROGRESS

31. H. Cheng, S. Devadoss, B. Li, A. Risteski. *Unfolding higher-dimensional polytopes.*
32. C. Corsi, S. Devadoss, D. Huang, D. Spadacene. *Compactifications of tree spaces.*
33. S. Devadoss, T. Ueda, E. Winston. *Origami with thick paper.*
34. S. Devadoss and B. Li. *Spaces of planar polygons.*
35. S. Devadoss and R. Shah. *Particle collisions on graphs.*

GRANTS

1. Fletcher Jones Foundation grant of \$1 million, to transform the math department at USD from its current space into a dynamic, state-of-the-art environment, construction summer 2018.
2. John Templeton Foundation, for exploring the foundations of mathematics and the liberal arts, titled *Mathematics, Dualism, and the Renaissance Revival*, 2014 – 2017.
3. AALAC grant for a consortium workshop on *Design Thinking*, 2016.
4. NSF grant DMS-0850577 (senior personnel) for the Williams SMALL REU site, 2009 – 2014.
5. Marion and Jasper Whiting Foundation, fellowship to study moduli spaces and field theories, 2010.
6. Université Nice Sophia Antipolis, fellowship to study algebraic homotopy deformations, 2010.
7. Mellon Foundation, fellowship to study phylogenetics and computational biology, 2009 – 2010.
8. *Math Art Studio and Symposium*, funding from Williams and Smith Colleges, 2008 – 2009.
9. NSF grant DMS-0353634 (senior personnel) for the Williams SMALL REU site, 2004 – 2009.
10. NSF grant DMS-0310354 (PI) from a joint venture between the NSF and DARPA, titled *Geodetic Surfaces: Understanding their geometry and topology*, 2003 – 2007.
11. NSF travel grant to the International Congress of Mathematicians in Beijing, 2002.

ACTIVITIES

1. Faculty advisor for undergraduate research at USD in summer 2017 (Unfolding Polytopes) and at Williams College in summers 2003 (Configuration Spaces), 2004 (Cartography), 2007 (Particle Collisions), 2008 (Discrete Geometry), 2011 (Geometric Origami), and 2012 (Phylogenetics).
2. AMS Mathematics Research Communities (co-organizer) on *Discrete and Computational Geometry*, Snowbird Resort, June 2012.
3. Editor for the book series *Carus Math Monographs* for the MAA (2009 – current) and *Student Mathematics Library* for the AMS (2012 – current).
4. Editorial Board Member, *Frontiers* journal in molecular biosciences, 2014 – present.
5. Referee for the following journals:
Advances in Mathematics, Australasian Journal of Combinatorics, American Math Monthly, Documenta Mathematica, Duke Mathematical Journal, Electronic Journal of Combinatorics, Experimental Mathematics, Graphs and Combinatorics, Homology, Homotopy and Applications, International Mathematics Research Notices, Inventiones, Involve, Journal of Algebraic Combinatorics, Journal of Algebraic and Geometric Topology, Journal of the American Mathematical Society, Journal of Combinatorial Theory (series A), Journal of Digital Earth, Leonardo Journal, SIAM Journal on Discrete Mathematics, Topology and its Applications.

6. MAA Short Course (co-organizer) on *Discrete and Computational Geometry* at the Joint Meetings, January 2012.
7. Reviewer for the NSF, NSA, *Mathematical Reviews* and *Zentralblatt MATH*.
8. Organizer of *Reclaiming da Vinci* math-art symposium at Williams College (2009), and co-organizer of *Math Art Laboratory* at APE Studios (2008).
9. Founded *Faculty Seminar Series* and *Summer Research Teas* at USD.

THESES ADVISED

1. Danielle Latimore, Xiaoye Yang (USD): “*Reimagining Mathematics*” (2017).
2. Lia Hebert, Sophia Raglione (USD): “*Phylogenetics of Beer*” (2017).
3. Mia Smith (Williams): “*Colored graph associahedra*” (2016).
4. Patrick Tierney (Harvey Mudd): “*Quilted polytopes in symplectic topology*” (2016).
5. Samantha Petti (Williams): “*Phylogenetic split network spaces*” (2015).
6. Brian Li (Williams): “*Spaces of planar polygons*” (2012).
7. Rahul Shah (Williams): “*Compactifications of singular varieties*” (2009).
8. Ezra Winston (Bard): “*Stress analysis, origami folds, and curvature*” (2009).
9. Trubee Davison (Williams): “*Sol Le Witt and Coxeter complexes*” (2008).
10. Katie Baldiga (Williams): “*Slicing polyhedra and convex cross-sections*” (2007).
11. Colin Carroll (Williams): “*Weighted blow-ups of the braid arrangement*” (2007).
12. Tomio Ueda (Williams): “*Thick origami*” (2006).
13. John Mugno (Williams): “*Juggling braids, links, and Artin groups*” (2005).
14. Eric Engler (Williams): “*Blow-ups of spherical Coxeter complexes*” (2004).
15. Jacob Tawney (Ohio State): “*Jugglinks*” (2001).

SELECTED INVITED ADDRESSES

129. Topological Data Analysis, Joint Meetings, San Diego CA, January 2018.
128. Interview with Astronaut Scott Kelly, November 2017
127. Architecture Seminar, University of San Diego, October 2017.
126. Geometric and Topological Combinatorics, MSRI Invited Speaker, September 2017.
125. Keynote speaker, University of the Third Age, June 2017.

124. Biology Seminar, University of San Diego, March 2017.
123. USD2U Speaker, Seattle, Washington, March 2017.
122. Lecture Series Speaker, Chulalongkorn University, Bangkok, Thailand, February 2017.
121. ACMS Speaker, Joint Meetings, Atlanta GA, January 2017.
120. Algebraic and Topological Methods in Combinatorics, Joint Meetings, Atlanta GA, January 2017.
119. Conversations with the College, University of San Diego, October 2016.
118. Williams Association speaker, *Ernie Wolfe Gallery*, May 2016.
117. Keynote speaker, MAA Southern California - Nevada Sectional Conference, April 2016.
116. Colloquium, University of Texas, Austin, March 2016.
115. Geometry Seminar, University of Texas, Austin, March 2016.
114. Mathematics Colloquium, University of San Diego, February 2016.
113. Algebraic and Topological Methods in Combinatorics, Joint Meetings, Seattle WA, January 2016.
112. MAA Teaching Award Presentations, Joint Meetings, Seattle WA, January 2016.
111. Applied and Computational Topology, Joint Meetings, Seattle WA, January 2016.
110. Colloquium, Westmont College, January 2016.
109. Principal speaker, *Institute of Environmental Sciences and Technology*, SoCal Meeting, December 2015.
108. Colloquium, Cal State Fullerton, December 2015.
107. Atul Vyas Memorial Lecture, Claremont McKenna College, November 2015.
106. Colloquium, Occidental College, November 2015.
105. Family Weekend Lecture, Williams College, October 2015.
104. Biology Colloquium, Harvey Mudd College, October 2015.
103. *Teach It Forward* Williams Campaign, New York Public Library, October 2015.
102. Algebra-Number Theory-Combinatorics Seminar, Claremont Colleges, October 2015.
101. Colloquium, Loyola Marymount University, October 2015.
100. Topology Seminar, Claremont Colleges, September 2015.
99. Michael Moody Lecture, Harvey Mudd College, September 2015.
98. Plenary speaker, *New American Colleges and Universities* Conference, June 2015.
97. Pi Mu Epsilon Convocation speaker, Williams College, May 2015.
96. X-STEM speaker, Washington DC, April 2015.
95. Prakesh Laboratory Seminar, Stanford, February 2015.
94. Combinatorics Seminar, UCLA, February 2015.
93. Convocation speaker, Gordon College, January 2015.
92. Plenary speaker, *Renaissance Weekend*, Charleston, SC, January 2015.

91. Keynote speaker, MAA Northeastern Sectional Conference, November 2014.
90. Plenary speaker, Fall Workshop on Discrete and Computational Geometry, November 2014.
89. Undergraduate Colloquium, Yale University, October 2014.
88. Colloquium, Taipei National University, July 2014.
87. Minicourse, Prakesh Stanford Research Labs, June 2014.
86. Rall Honors Symposium Keynote Speaker, North Central College, May 2014.
85. Geometry and Topology Seminar, UC Davis, April 2014.
84. Colloquium, Claremont Colleges, April 2014.
83. Colloquium, San Diego State University, April 2014.
82. Plenary speaker, Bay Area Discrete Math Day, April 2014.
81. Geometry and Topology Seminar, Northwestern University, April 2014.
80. Topology Seminar, University of Chicago, April 2014.
79. LucasFilm with Industrial Lights and Magic, March 2014.
78. Algebra and Geometry Seminar, San Francisco State University, March 2014.
77. Combinatorics Seminar, UC Berkeley, March 2014.
76. VIGRE Student Lectures, Louisiana State University, February 2014.
75. Colloquium, Louisiana State University, February 2014.
74. Kaori Kitao Lecture, Swarthmore College, February 2014.
73. Algebra Seminar, University of Southern California, January 2014.
72. Topology Seminar, Stanford University, October 2013.
71. SUMO Seminar, Stanford University, October 2013.
70. Plenary Speaker, ACMS, Bethel University, June 2014.
69. Discrete Geometry of Polytopes, AMS Meeting, Boston MA, April 2013.
68. Daring Change Conference, Williams College, April 2013.
67. Moduli Spaces in Algebraic Geometry, AMS Meeting, Boston MA, April 2013.
66. Computer Science Seminar, University of Utah, March 2013.
65. Martha Davenport Heard Lecture, Wellesley College, October 2012.
64. Keynote speaker, Undergraduate Research conference, Mt.Holyoke College, August 2012.
63. Invited speaker, MBI program on *Combinatorics of Stratified Spaces*, May 2012.
62. Colloquium, Vassar College, April 2012.
61. Plenary speaker, *Renaissance Weekend*, Santa Monica, CA, February 2012.
60. Geometry-Topology-Combinatorics Seminar, Georgia Tech, January 2012.
59. Combinatorial Geometry of Polytopes, Joint Meetings, Boston MA, January 2012.

58. Plenary speaker, *Discrete Math Days* conference, June 2011.
57. Keynote speaker, Pi-Mu-Epsilon induction ceremony, Siena College, April 2011.
56. Martin Lecture Series, Johns Hopkins University, March 2011.
55. Algebra-Number Theory-Combinatorics Seminar, Claremont Colleges, February 2011.
54. Invited speaker, *Renaissance Weekend*, Laguna Niguel, CA, February 2011.
53. Colloquium, Central Connecticut State University, October 2010.
52. Topology and Combinatorics, AMS Meeting, Syracuse NY, October 2010.
51. Topology Minicourse, Université Nice Sophia Antipolis, June 2010.
50. Google Research Seminar, Mountain View, CA, April 2010.
49. Geometry Seminar, San Francisco State University, April 2010.
48. Algebra Seminar, Colorado State University, April 2010.
47. Colloquium, Claremont Colleges, March 2010.
46. Invited speaker, Banff BIRS program on *Volume Inequalities*, March 2010.
45. Pixar Animation Studios, January 2010.
44. Geometry Seminar, National Taiwan University, Taipei, January 2010.
43. Colloquium, San Jose State University, November 2009.
42. Western Algebraic Geometry Seminar, UCLA, October 2009.
41. Computational Biology Group, UC Berkeley, September 2009.
40. Tropical Geometry Seminar, MSRI, September 2009.
39. Combinatorics Seminar, MIT, April 2009.
38. Homotopical Algebra with Applications to Physics, AMS Meeting, Raleigh NC, April 2009.
37. Algebraic and Geometric Combinatorics, AMS Meeting, Raleigh NC, April 2009.
36. Symplectic Geometry Seminar, Columbia University, February 2009.
35. Geometry Seminar, University of Michigan, April 2008.
34. Colloquium, Tennessee State University, March 2008.
33. Faculty Lecture Series, Williams College, February 2008.
32. Plenary speaker, AMS Meeting at Rutgers, October 2007.
31. Colloquium, George Washington University, November 2006.
30. Homotopy Theory of Compactified Moduli Spaces, AMS Meeting, Storrs CT, October 2006.
29. Plenary speaker, Mishner Festival of Arts Symposium, Philadelphia PA, October 2006.
28. Deformation Theory Seminar, University of Pennsylvania, October 2006.
27. Discrete and Convex Geometry, AMS Meeting, Durham NH, April 2006.
26. Arrangements and Configuration spaces, AMS Meeting, Durham NH, April 2006.

25. Invited speaker, Schloss Dagstuhl program on *Spatial Data*, Saarbrücken Germany, March 2006.
24. Combinatorics Seminar, University of Michigan, February 2006.
23. Low-Dimensional Algebraic Topology Seminar, Ohio State University, December 2005.
22. Algebraic Topology of Moduli Spaces, AMS Meeting, Eugene OR, November 2005.
21. Topology Seminar, Ohio State University, October 2005.
20. Combinatorics Seminar, MIT, September 2005.
19. Plenary Speaker, Young Mathematicians Conference, Columbus OH, August 2005.
18. Geometry Seminar, Boston University, March 2005.
17. Midwest Topology Seminar, February 2005.
16. Colloquium, Calvin College, February 2005.
15. Combinatorics Seminar, MIT, November 2004.
14. Sigma Xi lectures, Williams College, October 2004.
13. Homotopy Theory in honor of William Browder, AMS Meeting, Princeton NJ, April 2004.
12. Topology Seminar, Brandeis University, March 2004.
11. Valley Geometry Seminar, University of Massachusetts, Amherst, October 2003.
10. Arrangements in Topology and Algebraic Geometry, AMS Meeting, Baton Rouge LA, March 2003.
9. Homotopy Theory, Joint Meetings, Baltimore MD, January 2003.
8. Quantum Topology, AMS Meeting, Columbus OH, September 2001.
7. Representation Theory Seminar, Northeastern University, January 1999.
6. Geometry Seminar, Boston University, January 1999.
5. Combinatorial Topology, Joint Meetings, San Antonio TX, January 1999.
4. Colloquium, Topology/Combinatorics Seminar, George Washington University, November 1998.
3. Colloquium, University of North Carolina, Chapel-Hill, October 1998.
2. Algebraic Topology Seminar, University of Rutgers, April 1998.
1. Homotopy Theory in honor of J. Michael Boardman, Joint Meetings, Baltimore MD, January 1998.

FORUMS ON THEOLOGY

1. *Conversations of Science and Faith*, La Jolla Presbyterian Church, October 2017
2. *God and the Liberal Arts*, Williams College, March 2017
3. *Vision Pathways Series*, San Diego, January 2017
4. *Evidence for God*, Saratoga Village Forum, October 2016
5. *Science, Ignorance, and the Pursuit of Meaning*, Columbia University, November 2014
6. *God and the Modern Age*, University of California, Davis, April 2014

7. *God, Science, and the Nature of Reality*, University of California, San Diego, April 2014
8. *Knowledge beyond Science*, University of Chicago, April 2014
9. *Role of Faith at a Secular University*, Northwestern, April 2014
10. *God, Science, and the Nature of Reality*, University of California, Berkeley, March 2014
11. *God, Math, Reality*, Claremont Colleges, February 2014
12. *Humanity in Academia*, California Polytechnic, January 2014
13. *Magical Thinking*, University of Southern California, January 2014
14. *Truth, Reality, God*, University of Utah, March 2013
15. *What is the Meaning of Life*, Ohio State University, March 2013
16. *Is Science Enough*, University of Arizona, February 2012
17. *The Nature of Reality*, GeorgiaTech, January 2012
18. *What will make me Happy*, Dartmouth, October 2011
19. *Universal Truths and Personal Proofs*, Williams, April 2011
20. *God, Math, Multiverse*, Caltech, February 2011

TEACHING

University of San Diego:

- Calculus (Fall 2016).
- Discrete Mathematics (Spring 2017).
- Geometry (Fall 2017).
- Senior Projects (Fall 2016, Spring 2017, Fall 2017).

Harvey Mudd College:

- Computational Geometry (Spring 2016).
- Intermediate Linear Algebra (Spring 2016).
- Mathematics Forum (Spring 2016).
- Multivariable Calculus (Fall 2015).
- Probability and Statistics (Fall 2015).

Williams College:

- Calculus (Fall 2006).
- Computational Geometry (Spring 2004, 2007, 2009).
- Design School — *Art History Department* (Winter 2015).
- Differential Equations (Spring 2003, 2005, 2007, 2008).

Discrete Mathematics (Fall 2002, 2003, Spring 2003, 2004, 2005, 2011).

Geometric Group Theory (Fall 2002, Spring 2008).

Knot Theory (Fall 2004).

Lessons in Go — *Asian Studies Department* (Winter 2004).

Linear Algebra (Fall 2004, 2007).

Modeling Geometric Shapes — *Art Department* (Winter 2007).

Multivariable Calculus (Fall 2008, 2010, 2011, 2012, 2014).

Mural — *Art Department* (Winter 2009).

Origami (Spring 2015).

Phylogenetics (Spring 2012).

Visualization (Winter 2012).

Ohio State University:

Computational Geometry (Spring 2006).

Shape of Nature (Spring 2002): self-designed course for first-year undergraduates, involving faculty from Physics, Statistics, Chemistry (under the *Freshman Research Seminar* award).

Honors Accelerated Calculus with Analytic Geometry (Fall 2001).

Differential Equations and their Applications (Fall 1999, 2000, Winter 2000).

Discrete Math Modeling (Spring 2000, 2001): self-designed course for upper-level undergraduates, using *Graph Theory* by D. West.

Topics in Geometry (Summer 2001): self-designed course for first and second year graduate students, using *Differential Geometry of Curves and Surfaces* by M. do Carmo.

Topics in Topology (Summer 2000, 2001): self-designed course for first and second year graduate students, using *Introduction to Knot Theory* by R. Lickorish.

Topics in Mathematics – Geometry (Spring 2000, 2001): self-designed course for in-service high school teachers, using *The Knot Book* by C. Adams.

Topics in Mathematics – Probability (Summer 2000): self-designed course for in-service high school teachers, using *The Pleasures of Counting* by T. Körner.

Johns Hopkins University:

Pre-Calculus (Spring 1999).

Calculus (Summer 1996, 1997, 1998).

Introduction to Knots (Spring 1998): instructor, self-designed course for undergraduates, using *The Knot Book* by C. Adams (under the *Dean's Teaching Fellowship* award).