

## Stina Bridgeman

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## Education

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- 2002 Ph.D. in Computer Science, Brown University, Providence, RI  
Advisor: Roberto Tamassia  
thesis title: "Techniques and Tools for Graph Drawing"
- 1999 Sc.M. in Computer Science, Brown University, Providence, RI
- 1995 B.A. with Highest Honors in Computer Science, Williams College,  
Williamstown MA  
thesis title: "Finding Hamiltonian Cycles in Grid Graphs Without Holes"

## Teaching

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- fall 2010 – present Associate Professor of Computer Science  
Hobart & William Smith Colleges, Geneva, NY
- fall 2011 Adjunct Instructor in Information Technology, 4002-571-40 (Application  
Programming)  
American College of Management and Technology, Dubrovnik, Croatia
- fall 2004 – spring 2010 Assistant Professor of Computer Science  
Hobart & William Smith Colleges, Geneva, NY
- fall 2001 – spring 2004 Assistant Professor of Computer Science  
Colgate University, Hamilton, NY
- spring 2001 Visiting Lecturer in Computer Science, CX 214 (Data Structures)  
Middlebury College, Middlebury, VT
- spring 1999 Graduate Teaching Assistant, CS 16 (Algorithms and Data Structures)  
Brown University, Providence, RI
- summer 1996 Instructor, CPS1 (Theoretical Foundations of Computer Science)  
summer 1995 Teaching Assistant, CPS1  
Center for Talented Youth (CTY), Lancaster, PA  
(One three-week session as instructor, two three-week sessions as TA.)
- spring 1995 Teaching Assistant, CS 108 (Artificial Intelligence: Image and Reality)  
fall 1994 Teaching Assistant, CS 134 (Introduction to Computer Science)  
Williams College, Williamstown, MA

## Courses Taught

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### Hobart & William Smith Colleges

- CPSC 120: Principles of Computer Science
- CPSC 124: Introduction to Programming
- CPSC 225: Intermediate Programming
- CPSC 327: Data Structures and Algorithms
- CPSC 329: Software Development
- CPSC 331: Operating Systems
- CPSC 343: Database Theory and Practice
- CPSC 371: Topics in Computer Science
  - Visualization and Data Mining
  - Exploring Data with Visualization
- CPSC 424: Fundamentals of Computer Graphics (formerly CPSC 324)
- CPSC 444: Artificial Intelligence
- CPSC 450: Independent Study
  - Analysis and Design of Algorithms
  - Game AI
  - Handwriting Recognition
  - Information Visualization
  - Introduction to Video Game Design
  - Programming I
  - Software Development
- FSEM 092: Code Making and Code Breaking

### Other Courses

- Computers in the Arts and Sciences  
Non-majors course on Internet history, how the Internet works, HTML and web page design, and data analysis in Excel.
- Methods and Issues in Cryptology  
Non-majors course on techniques for cryptography and cryptanalysis, the history of cryptology, and social and political implications.
- Introduction to Computer Programming I and II  
Introductory sequence for majors, in C++.
- Data Structures  
Second-semester introductory course for majors, in Java.
- Computer Graphics  
Upper-division elective, in Java.
- Application Programming  
Upper-division elective, in Java.
- Independent Study: Advanced Computer Graphics and Maya  
Supervised two senior students learning about the Maya modeling and animation package.

## Research Interests

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Information visualization  
Graph drawing  
Computational geometry  
Internet computing  
Computer science education  
Human-computer interaction

## Student Research Projects

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- summer 2010 Max Beckett '11, "Making Sense of a Lake of Data"  
Design and implementation of visualization tools for data gathered by a network of monitoring equipment in Seneca Lake. Interdisciplinary project with faculty in Biology and Geoscience.
- summer 2009 Joshua Davis '10, "Making Sense of a Lake of Data"  
Design and implementation of a web-based interface for entering, editing, retrieving, and visualizing data gathered by a network of monitoring equipment in Seneca Lake. Interdisciplinary project with faculty in Biology and Geoscience.
- summer 2008 William Van Steen '09, "The Seneca Lake Buoy Project"  
Design and implementation of a graphical web-based interface for data gathered by water quality and meteorological monitoring equipment in Seneca Lake. Interdisciplinary project with faculty in Geoscience.
- summer 2007 Keenan Simons '09, "Graphical Interface Design and Development: A Tool for Visualizing the Results of Chemical Computations"  
Design and implementation of a GUI to visualize the results of quantum chemical calculations. Co-supervised with faculty in Chemistry.

## Grants and Awards

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- 2008-2010 M. Brown, T. Curtin, N. Laird, and S. Bridgeman. Acquisition of an instrument network to investigate zooplankton dormancy in the Finger Lakes of New York. NSF MRI DBI-0818206, \$418,430.
- 2000-2001 Brown Dissertation Fellowship
- 1995-1998 NSF Graduate Fellowship

## Consulting and Other Projects

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- summer 2010 and ongoing    Finger Lakes Regional Stream Monitoring Program  
Finger Lakes Institute, Geneva, NY  
Developed database and website to support a field-based science program for middle- and high school students.
- fall 2008 and ongoing    Science on Seneca  
Finger Lakes Institute, Geneva, NY  
Supervised an undergraduate student who developed a database and website for a field-based science program for high school students. Have done additional maintenance and updates.
- fall 2000    Digital Image Design, Inc., New York, NY  
Consulted on graph drawing for a visualization project.

## Non-Conference and Invited Talks

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- December 2011    "A Picture is Worth a Thousand Words: The Why, What, and How of InfoVis"  
American College of Management and Technology, Dubrovnik, Croatia
- November 2009    Faculty Lunch (with Neil Laird, Geoscience)  
Hobart & William Smith Colleges, Geneva, NY
- November 2004    Faculty Lunch  
Hobart & William Smith Colleges, Geneva, NY
- December 2003    Science Colloquium  
Colgate University, Hamilton, NY
- October 2000    Middlebury College, Middlebury, VT
- April 1999    Williams College, Williamstown, MA

## Publications

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(\* denotes undergraduate co-authors)

### Book Chapters

1. S. Bridgeman. Graph Drawing in Education. In R. Tamassia, editor, *Handbook of Graph Drawing and Visualization*, Discrete Mathematics and Its Applications. Chapman and Hall/CRC, to appear 2013.
2. S. Bridgeman and R. Tamassia. GDS – A graph drawing server on the Internet. In M. Jünger and P. Mutzel, editors, *Graph Drawing Software*, Mathematics and Visualization, pages 193-213. Springer-Verlag, 2004.

## Journal Articles

3. S. Bridgeman and R. Tamassia. Difference metrics for interactive orthogonal graph drawing algorithms. *Journal of Graph Algorithms and Applications*, 4(3):47-74, 2000.
4. S. Bridgeman, G. Di Battista, W. Didimo, G. Liotta, R. Tamassia, and L. Vismara. Turn-regularity and optimal area drawings of orthogonal representations. *Computational Geometry: Theory and Applications*, 16(1):53-93, 2000.
5. G. Barequet, S. Bridgeman, C. A. Duncan, M. T. Goodrich, and R. Tamassia. Geometric computing over the Internet. *IEEE Internet Computing*, 3(2):21-29, 1999.
6. S. Bridgeman, A. Garg, and R. Tamassia. A graph drawing and translation service on the WWW. *International Journal of Computational Geometry and Applications*, 9(4/5):419-446, 1999.

## Refereed Conferences

7. S. Bridgeman. Using high dimensions to compare drawings of graphs. In *Graph Drawing (Proceedings of GD '09)*, volume 5849 of *Lecture Notes in Computer Science*, pages 408-410. Springer-Verlag, 2010. (poster)
8. S. Bridgeman. IceXplorer: Studying Great Lakes Ice Cover. Poster presented at *IEEE Visual Analytics Science and Technology Symposium (VAST '09)*.
9. S. Bridgeman. GraphEx: An improved graph translation service. In *Graph Drawing (Proceedings of GD '03)*, volume 2912 of *Lecture Notes in Computer Science*, pages 307-313. Springer-Verlag, 2003.
10. S. Bridgeman and R. Tamassia. A user study in similarity measures for graph drawing. In J. Marks, editor, *Graph Drawing (Proceedings of GD '00)*, volume 1984 of *Lecture Notes in Computer Science*, pages 19-30. Springer-Verlag, 2001.
11. S. Bridgeman, M. T. Goodrich, S. G. Kobourov, and R. Tamassia. PILOT: An interactive tool for learning and grading. In *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, pages 139-143, 2000.
12. S. G. Kobourov, R. Tamassia, S. Bridgeman, M. T. Goodrich. SAIL: A system for generating, archiving, and retrieving specialized assignments using LaTeX. In *Proceedings of the ACM Technical Symposium on Computer Science Education (SIGCSE)*, pages 300-304, 2000.
13. S. Bridgeman, G. Di Battista, W. Didimo, G. Liotta, R. Tamassia, and L. Vismara. Turn-regularity and planar orthogonal drawings. In *Graph Drawing (Proceedings of GD '99)*, volume 1731 of *Lecture Notes in Computer Science*, pages 8-26. Springer-Verlag, 1999.
14. S. Bridgeman and R. Tamassia. Difference metrics for interactive orthogonal graph drawing algorithms. In *Graph Drawing (Proceedings of GD '98)*, volume 1547 of *Lecture Notes in Computer Science*, pages 57-71. Springer-Verlag, 1998.
15. S. Bridgeman, J. Fanto\*, A. Garg, R. Tamassia, and L. Vismara. InteractiveGiotto: An algorithm for interactive orthogonal graph drawing. In *Graph Drawing (Proceedings of GD '97)*, volume 1353 of *Lecture Notes in Computer Science*, pages 303-308. Springer-Verlag, 1997.
16. G. Barequet, S. Bridgeman, C. A. Duncan, M. T. Goodrich, and R. Tamassia. Classical computational geometry in GeomNet. In *Proceedings of the 13th Annual ACM Symposium on Computational Geometry*, pages 412-414, 1997.
17. S. Bridgeman, A. Garg, and R. Tamassia. A graph drawing and translation service on the WWW. In *Graph Drawing (Proceedings of GD '96)*, volume 1190 of *Lecture Notes in Computer Science*, pages 45-52. Springer-Verlag, 1997.

## Non-Refereed Conferences and Workshops

18. J. Davis\* and S. Bridgeman. The Seneca Lake instrument network. *5<sup>th</sup> Annual Finger Lakes Research Conference*, 2009. (poster)
19. J. Halfman, K. O'Neill\*, S. Bridgeman, W. Van Steen\*, and M. Brown. Seneca Lake, an ideal natural laboratory for research, education and outreach. In *Geological Society of America Abstracts with Programs*, 41(3): 113, 2009.
20. N. Laird, C. Zarzycki\*, G. Renninger\*, and S. Bridgeman. Rapid variations in Lake Erie ice cover: event characteristics and weather conditions. *33<sup>rd</sup> Annual Northeastern Storm Conference*, 2008.
21. W. Van Steen\* and S. Bridgeman. The Seneca Lake buoy project. *4<sup>th</sup> Annual Finger Lakes Research Conference*, 2008. (poster)
22. S. Bridgeman, G. Di Battista, W. Didimo, G. Liotta, R. Tamassia, and L. Vismara. Turn-regularity and optimal drawings of orthogonal representations. In *Abstracts of the 15th European Workshop on Computational Geometry*, pages 161-164. INRIA Sophia-Antipolis, 1999.
23. S. Bridgeman, G. Di Battista, W. Didimo, G. Liotta, R. Tamassia, and L. Vismara. Optimal compaction of orthogonal representations. In *CGC Workshop on Geometric Computing*, 1998.

## Other

24. S. Bridgeman. *Techniques and Tools for Graph Drawing*. PhD thesis, Brown University, 2002.

## Service Activities

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### Hobart & William Smith Colleges

- 2012-2015 Chair, Department of Mathematics and Computer Science
- 2011 Outside member, Geoscience search committee
- 2010 Member, Committee on the Faculty  
Member, Faculty IT Committee
- 2009 Member, Committee on the Faculty  
Member, Faculty IT Committee  
Member, Grievance Board  
Member, department Review I committee  
Taught mini-course for Admissions Open House program  
Faculty advisor for Games 4 Girls teams (a contest in which teams of female college students create computer games for high school girls)
- 2008 Faculty advisor for Games 4 Girls teams
- 2007 Member, Grievance Board  
Member, computer science curriculum committee  
Faculty advisor for Games 4 Girls team
- 2006 Member, department Special Review I committee  
Member, department search committee  
Department representative at fall first-year advising events  
Department representative at April visit days
- 2005 Member, department search committee  
Department representative at fall first-year advising events

### Colgate University

- 2004 and before Faculty advisor for the Women in Computer Science and Math group at Colgate University  
Departmental representative for MentorNet, an online mentoring program targeting female students in the sciences (though it is open to all students regardless of gender)  
Member and mailing list administrator for Colgate's LGBTQ Supporters network  
Member, planning committee for LGBTQ film series, held in Hamilton, NY

### Professional

- August 2005 session chair, Graph Drawing 2005

## **Referee Work**

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### **Conferences**

ACM Symposium on Computational Geometry, 2004  
CGC Workshop on Geometric Computing, 1998

### **Journals**

Computational Geometry: Theory and Applications  
IEEE Transactions on Computers  
Journal of Graph Algorithms and Applications  
Information Visualization  
Computers and Graphics

### **Grants**

Research Grants Council, Hong Kong

## **Professional Societies**

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- 2004- Member, ACM (Association for Computing Machinery)
- 2008-2010 Member, IEEE
- 2000-2002 Full Member, Sigma Xi
- 1995-2000 Associate Member, Sigma Xi