Steven J. Gortler

Robert I. Goldman Professor of Computer Science
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RESEARCH INTERESTS

Computer Graphics, Computer Vision, Rigidity Theory.

EDUCATION

January 1995	Ph.D. Computer Science	Princeton University
	Thesis: Wavelet Methods for Computer Graphics	
	Advisor: Michael Cohen	
Spring 1991	M.A. Computer Science	Princeton University
Spring 1989	B.A. Computer Science and Applied Math	Queens College/CUNY

PROFESSIONAL EXPERIENCE

7/03 – **Robert I. Goldman Professor of Computer Science**, Harvard University, School of Engineering and Applied Sciences.

9/98 – 6/10 **Director of Undergraduate Studies, Computer Science**, Harvard University, School of Engineering and Applied Sciences.

7/00 –6/03 **Associate Professor of Computer Science**, Harvard University, School of Engineering and Applied Sciences.

9/96 – 6/00 **Assistant Professor of Computer Science**, Harvard University, School of Engineering and Applied Sciences.

9/98 – 6/04 **Research Affiliate**, MIT, Laboratory for Computer Science

6/98 – 8/98 **Visiting Scientist**, MIT, Laboratory for Computer Science

9/94 – 8/96 **Post Doctoral Researcher**, Microsoft Research

9/94 – 8/96 **Visiting Scholar** , University of Washington.

AWARDS

Joseph R. Levenson Memorial Teaching Prize, Nominee, 2003

SIGGRAPH Significant New Researcher Award 2002

Sloan Fellowship Award, 1998

NSF Career Award,1997

FUNDING

NSF Grant, 2016
"FRG: Collaborative Research: Stability of Structures Large and Small"

BSF Grant, 2007
"Geometric Algorithms for Routing in Sensor Networks"

NSF Grant, 2002
"Irregular and Optimized Representations for Image Based Rendering"

Microsoft Research Gift, 1999, 2000, 2001, 2002
"Mesh Computation"

IBM Partnership award, 1997
"Lumigraph Compression"

TEXTBOOK

Foundations of 3D Computer Graphics
S.J. Gortler
MIT Press, 2012

SELECTED PUBLICATIONS

Universal Rigidity of Complete Bipartite Graphs
R. Connelly and S.J. Gortler
In *Discrete and Computational Geometry (2017)*

Affine Rigidity and Conics at Infinity
R. Connelly , S.J. Gortler and L. Theran
To Appear in *IMNR*

Generic Global and Universal Rigidity
R. Connelly , S.J. Gortler and L. Theran
In *arXiv:1604.07475*

Focal Flow: Measuring Distance and Velocity with Defocus and Differential Motion.
E. Alexander, Q. Guo, S. Koppal S.J. Gortler, and T. Zickler
In *Proc. ECCV 2016*

Low-level Vision by Consensus in a Spatial Hierarchy of Regions
A. Chakrabarti, Y. Xiong, S.J. Gortler, and T. Zickler
In *Proc. CVPR 2015*

From Shading to Local Shape
Y. Xiong, A. Chakrabarti, R. Basri, S.J. Gortler, D. W. Jacobs and T. Zickler
In *IEEE PAMI, 37(1), 2015*

Prestress Stability of Triangulated Convex Polytopes and Universal Second Order Rigidity
R. Connelly and S.J. Gortler
To Appear in *SIDMA*

Iterative Universal Rigidity
R. Connelly and S.J. Gortler
In *Discrete and Computational Geometry (2015), 53(4), 847-877*

Generic Global Rigidity in Complex and Pseudo-Euclidean Spaces
S.J. Gortler and D. Thurston
In *The Fields Institute Conference Proceedings, 2014*

Characterizing the Universal Rigidity of Generic Frameworks
S.J. Gortler and D. Thurston
In *Discrete Comput Geom (2014) 51(4), 1017-1036*

On Affine Rigidity
S.J. Gortler, C. Gotsman, L. Liu and D. Thurston
In *Journal of Computational Geometry, 2013*

A Geometrical Approach to Computing Free Energy Landscapes From Short-ranged Potentials
M. Holmes-Cerfon, S.J. Gortler and M. Brenner
In *Proceedings of the National Academy of Sciences 110.1 (2013): E5-E14*

Measurement Isomorphism of Graphs
S.J. Gortler and D. Thurston
In *arXiv:1212.6551*

Duals of Orphan-Free Anisotropic Voronoi Diagrams are Triangulations
G.D. Canas and S.J. Gortler
In *Proceedings SOCG 2012*

Shape from specular flow: Is one flow enough?
Y. Vasilyev, T.Zickler, S.J. Gortler and O. Ben-Shahar
In *Proceedings CVPR, 2011*

Orphan-Free Anisotropic Voronoi Diagrams
G.D. Canas and S.J. Gortler
In *Discrete Comput Geom (2011) 46:526*

Sensor Network Localization Using Sensor Perturbation
Y. Zhu, S.J. Gortler and D. Thurston
In *ACM Trans. Sensor Networks 2011*

Characterizing Generic Global Rigidity
S.J. Gortler, A. Healy, and D. Thurston
In *American Journal of Math 2010*

An As-Rigid-As-Possible Approach to Sensor Network Localization
L. Zhang, L. Liu, C. Gotsman and S.J. Gortler
In *ACM Trans. Sensor Networks 2010*

Shape Operator Metric for Surface Normal Approximation
G.D. Canas and S.J. Gortler
In *Proceedings 18th International Meshing Roundtable 2009*

A Linear Formulation of Shape from Specular Flow
G.D. Canas, Y. Vasilyev, Y. Adato, T. Zickler, S.J. Gortler, and O. Ben-Shahar
In *Proceedings ICCV 2009*

A Perception-Based Color Space for Illumination-Invariant Image Processing
H. Chong, S.J. Gortler and T. Zickler
In *Proceedings SIGGRAPH, 2008*

A Local/Global Approach to Mesh Parameterization
L. Liu, L. Zhang, Y. Xu, C. Gotsman and S.J. Gortler
In *Proceedings SGP, 2008*

The von-Kries Hypothesis and a Basis for Color Constancy
H. Chong, S.J. Gortler and T. Zickler
In *Proceedings ICCV, 2007*

Focal Surfaces of Discrete Geometry
J. Yu, X Yin, X. Gu, L. McMillan and S.J. Gortler
In *Proceedings SGP, 2007*

On Asymptototically Optimal Meshes by Coordinate Transformation"
G.D. Canas and S.J. Gortler
In *Proceedings International Meshing Roundtable, 2006*

Surface Remeshing in Arbitrary Codimensions
G. D. Canas and S.J. Gortler
In *Proceedings Pacific Graphics, 2006*

Routing with Guaranteed Delivery on Virtual Coordinates
M Ben-Chen, C. Gotsman and S.J. Gortler
In *Proceedings CCCG, 2006*

Discrete One-Forms on Meshes and Applications to 3D Mesh Parameterization
S.J. Gortler, C. Gotsman and D. Thurston
In *Computer Aided Geometric Design 33(2), 2006*

Meshing Genus-1 Point Clouds Using Discrete One-Forms
G Tewari, C Gotsman and S.J. Gortler
In *Computers and Graphics 30(6), 2006*

Fast Exact and Approximate Geodesics on Meshes
V. Surazhsky, T. Surazhsky, D. Kirsanov, S.J. Gortler and H. Hoppe
In *Proceedings SIGGRAPH, 2005*

Free-Boundary Linear Parameterization of 3D Meshes in the Presence of Constraints
Z. Karni, C. Gotsman and S.J. Gortler
In *Proceedings Shape Modeling International, 2005*

A Lixel for Every Pixel
H. Chong and S.J. Gortler
In *Proceedings Fifteenth Eurographic Workshop on Rendering, 2004*

Signal-Specialized Parameterization for Piecewise Linear Reconstruction
G. Tewari, J. Snyder, P.Sander, S.J. Gortler, and H. Hoppe
In *Proceedings SGP, 2004*

A New Reconstruction Filter for Undersampled Light Fields
J. Stewart, J. Yu, S.J. Gortler and L. McMillan
In *Proceedings Fourteenth Eurographic Workshop on Rendering, 2003* :150-156

Multi-chart Geometry Images
P. Sander, Z. Wood, S.J. Gortler, J. Snyder and H. Hoppe
In *Proceedings SGP, 2003* :157-166

Simple Silhouettes for Complex Surfaces
D. Kirsanov, P. Sander and S.J. Gortler
In *Proceedings SGP, 2003* :107-112

Geometry Videos
H. Bricen, P. Sander, L. McMillan, S.J. Gortler and H. Hoppe
In *Proceedings ACM Symposium on Computer Animation, 2003*

Generalized Mulit-camera Scene Reconstruction Using Graph Cuts
V. Kolmogorov, R. Zabih, and S.J. Gortler
In *Proceedings Fourth International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition 2003.*

Signal-Specialized Parametrization
P. Sander, S.J. Gortler, J. Snyder and H. Hoppe
In *Proceedings Thirteenth Eurographic Workshop on Rendering, 2002* :87-100

Geometry Images
X. Gu, S.J. Gortler and H. Hoppe
In *Proceedings SIGGRAPH, 2002*

Minimal Surfaces for Stereo Vision
C. Buehler, S.J. Gortler, M. Cohen and L. McMillan
In Proceeedings ECCV 2002:III 885-899

Unstructured Lumigraph Rendering
C. Buehler, M. Bosse, L. McMillan, S.J. Gortler and M. Cohen
In *Proceedings SIGGRAPH, 2001*

Texture Mapping Progressive Meshes
P. Sander, J. Snyder, S.J. Gortler and H. Hoppe
In *Proceedings SIGGRAPH, 2001*

Feature-Based Cellular Texturing for Architectural Models
J. Legakis, J. Dorsey and S.J. Gortler
In *Proceedings SIGGRAPH, 2001*

Quantum versus Classical Learnability
R. Servedio and S.J. Gortler
In *IEEE 2001 Conference on Computational Complexity*:138-148

Rendering Techniques 2001 (Proc. EGRW)
Editors S.J. Gortler and K. Myszkowski
Springer Verlag

Discontinuity Edge Overdraw
P. Sander, H. Hoppe, J. Snyder and S.J. Gortler
In *Proceedings 2001 Symposium on Interactive 3D Graphics*:167-174

Silhouette Clipping
P. Sander, S.J. Gortler, H. Hoppe and J. Snyder
In *Proceedings SIGGRAPH, 2000*

Image Based Visual Hulls
W. Matusik, C. Buehler, S.J. Gortler, R. Raskar and L. McMillan
In *Proceedings SIGGRAPH, 2000*

Dynamically Reparameterized Light Fields.
A. Isaksen, L. McMillan and S.J. Gortler
In *Proceedings SIGGRAPH, 2000*

Image Based Rendering: A New Interface Between Computer Vision and Computer Graphics
L. McMillan and S.J. Gortler
In *Computer Graphics* 33(4), Nov 1999:57-63.

Network Aware Internet Video Encoding
H. Briceno, S.J. Gortler and L. McMillan
In *Proceedings ACM Multimedia 1999*:251-26.

Layered Depth Images
J. Shade, S.J. Gortler, L. He and R. Szeliski
In *Proceedings SIGGRAPH, 1998*

Polyhedral Geometry and the Two-Plane Parmameterization
X. Gu, S.J. Gortler and M. Cohen
In *Proceedings Eighth Eurographics Workshop on Rendering, 1997*:1-12

Time Critical Lumigraph Rendering
P.J. Sloan, M. Cohen and S.J. Gortler
In *Proceedings 1997 Symposium on Interactive 3D Graphics*:17-23

The Lumigraph
S.J. Gortler, R. Grzeszczuk, R. Szeliski and M. Cohen
In *Proceedings SIGGRAPH, 1996*

Variational Modeling with Wavelets
S.J. Gortler and M. Cohen
In *Proc. 1995 Symposium on Interactive 3D Graphics*:35-42.

Radiosity and Relaxation Methods
S.J. Gortler, M. Cohen and P. Slusallek
In *IEEE Computer Graphics and Applications* 14(6):48-58, Nov 1994.

Hiearchical Spacetime Control
Z. Liu, S.J. Gortler and M. Cohen
In *Proceedings SIGGRAPH, 1994*

Wavelet Radiosity
S.J. Gortler, P. Schroder, M. Cohen and P. Hanrahan
In *Proceedings SIGGRAPH, 1993*

Wavelet Projections for Radiosity
P. Schroder, S.J. Gortler, M. Cohen and P. Hanrahan
In *Proc. Fourth Eurographics Workshop on Rendering, 1993*:105-114.
Journal version appears in *Computer Graphics Forum 13(2)*:141-152, June 1994.

EDITORIAL
ACM TOG, Assoicate Editor, 2010-2015

CO-CHAIR
Cornell Workshop on Rigidty 2017
Advances in Combinatorial and Geometric Rigidity, BIRS 2015
Global Rigidity, BIRS 2015
11th Eurographics Workshop on Rendering, 2001

PROGRAM COMMITTEE
SIGGRAPH 2000
SIGGRAPH 2001
SIGGRAPH 2005
SIGGRAPH 2006
SIGGRAPH 2008
SIGGRAPH 2009
8th Eurographics Workshop on Rendering, 1998
9th Eurographics Workshop on Rendering, 1999
12th Eurographics Workshop on Rendering, 2002
CVPR 2003
1st Symposium on Geometry Processing, 2003
2nd Symposium on Geometry Processing, 2004
6nd Symposium on Geometry Processing, 2008
7nd Symposium on Geometry Processing, 2009
8nd Symposium on Geometry Processing, 2010
9nd Symposium on Geometry Processing, 2011
12th Symposium on Geometry Processing, 2014
13th Symposium on Geometry Processing, 2015

ADVISED PHDs
Chris Buehler, (co-advisee) MIT, 2002
Xianfeng Gu, Harvard, 2003
Pedro Sander, Harvard 2003
Danil Kirsanov, Harvard 2004
Geetika Tewari, Harvard 2007
Hamilton Chong, Harvard 2008
Guillermo D. Canas, Harvard 2010