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Education

- Ph.D. in Computer Science, Harvard University, March 2003,
Advisors: Steven J. Gortler and Shing-Tung Yau
Dissertation title: "Parameterization of Surfaces with Arbitrary Topologies."
- M.S. in Computer Science, Harvard University, May 1996.
- B.S. in Computer Science (Minor: Mathematics), Tsinghua University, July 1994.
GPA ranked 1st in the department (more than 300 students).

Employment

- SUNY Empire Innovation Associate Professor, Computer Science, SUNY at Stony Brook, April 1st, 2020 - *present*.
- Affiliate Associate Professor, Center of Mathematical Sciences and Applications, Harvard University, 06/01/2018-present.
- Affiliate Associate Professor, Applied Mathematics, SUNY at Stony Brook, 09/19/2016 - *present*.
- Associate Professor, Computer Science, SUNY at Stony Brook, September, 2009 - *present*.
- Assistant Professor, Computer Science, SUNY at Stony Brook, July, 2004 - August, 2009.
- Assistant Professor, Computer Science, University of Florida, June, 2003 - June, 2004.
- Visiting Professor, Tsinghua University, June - September, Mathematics Science Center, 2010, 2011, 2012, 2013, 2014, 2015, 2016.
- Visiting Professor, Ecole Centrale Lyon, June, 2011.

Affiliations

- Affiliated Faculty, Yau Mathematical Sciences Center, Tsinghua University, 2010-*Present*.
- Visiting Professor, Ecole Centrale Lyon, June, 2011,2013.
- Sky-sea visiting Scholar, Dalian University of Technology, 2011-2016.
- Chief Scientist, Beijing Advanced Innovation Center for Imaging Technology, Capital Normal University, September 2016 - August 2019.

Honors and Awards

- Distinguished Paper Award in Mathematics of 2019 International Congress of Chinese Mathematicians (ICCM 2019)
Xianfeng Gu, Feng Luo, Jian Sun and Tianqi Wu, **A discrete uniformization theorem for polyhedral surfaces.**

- Distinguished Paper Award in Mathematics of 2017 International Congress of Chinese Mathematicians (ICCM 2017)
Rongjie Lai, Zaiwen Wen, Wotao Yin, Xianfeng Gu and Lok-Ming Lui, **Folding-Free Global Conformal Mapping for Genus-0 Surfaces by Harmonic Energy Minimization.**
- Distinguished Paper Award in Mathematics of 2017 International Congress of Chinese Mathematicians (ICCM 2017)
Na Lei, Xiaopeng Zheng, Jian Jiang and Xianfeng Gu, **Quadrilateral and Hexahedral Mesh Generation Based on Surface Foliation Theory I.**
- Distinguished Paper Award in Mathematics of 2017 International Congress of Chinese Mathematicians (ICCM 2017)
Lok-Ming Lui, Ka Chun Lam, Shing-Tung Yau and Xianfeng Gu, **Teichmüller mapping (T-Map) and its applications to landmark matching registrations.**
- Distinguished Paper Award in Mathematics of 2017 International Congress of Chinese Mathematicians (ICCM 2017)
Min Zhang, Ren Guo, Wei Zeng, Feng Luo, Shing-Tung Yau and Xianfeng Gu, **The Unified Discrete Surface Ricci flow.**
- Plenary Talk: **Discrete Surface Ricci Flow and Optimal Mass Transportation**, The 7th International Congress of Chinese Mathematicians, Beijing, August 11, 2016.
- AUTODESK Best Paper Award Symposium on Solid and Physical Modeling (SPM2014)
X. Wang, X. Ying, Y-J Liu, S-Q Xin, W. Wang, X. Gu, W. Mueller-Wittig and Y. He, **Intrinsic Computation of Centroidal Voronoi Tessellation (CVT) on Meshes**, Computer-Aided Design, Volume 58, January 2015, Pages 51-61, Hongkong, Oct 26-28, 2014.
- Gold Medal in Mathematics, The 6th Dong-Run Yau Science Awards, **3D Surface Fabrication Using Conformal Geometry**, Student: Zhang Yuanqi, Mentor: X. Gu, December 16 2013.
- Morningside Gold Medal in Applied Mathematics: International Congress of Chinese Mathematicians (ICCM), July 14th, 2013, Taipei.
- Plenary Talk: **Computational Conformal Geometry, theory, algorithm and application**, The 6th International Congress of Chinese Mathematicians, Taipei, July 15, 2013.
- Research Excellence Award, Computer Science Department, Stony Brook University, 2010.
- Plenary Talk: **Computational Conformal Geometry in Engineering and Medicine Fields**, The 5th International Congress of Chinese Mathematicians, Beijing, December 21, 2010.
- Gaheon Award: The Best Paper in International Journal of CAD/CAM of 2009.
Wei Zeng, Jing Hua and Xianfeng David Gu, **Symmetric Conformal Mapping for Surface Matching and Registration**, International Journal of CAD/CAM (IJCC), 9(1):103-109, 2009. Prize (Korean Won 10,000,000 equivalent to USD 10,000),
- Plenary Talk: **Computational Conformal Geometry, Theories, Algorithms and Applications**, The 4th International Congress of Chinese Mathematicians, Hangzhou, 2007.
- Best Paper Award: The 10th International Conference on Computer Aided Design and Computer Graphics, Beijing 2007.
Xiaotian Yin, Miao Jin and Xianfeng Gu, **Computing Shortest Cycles Using Universal Covering Space**

- Outstanding Overseas Young Scholar, National Science Foundation of China, 2006.
- Media Exposure: *New York Times*, Science Section front page, August 15, 2006.
- Media Exposure: *National Post*, August 21, 2006.
- NSF CAREER: Conformal Geometry Applied to Shape Analysis and Geometric Modeling, 2005.
- Best Paper Award: International Conference on Computer, Communication and Control Technologies , Orlando, Florida, August 1-2th 2003.
Xianfeng Gu, Yalin Wang, and Shing-Tung Yau, **Multiresolution Computation of Conformal Structures of Surfaces**
- Distinction in Teaching Award, Harvard University, 1999-2001.
- Harvard Fellowship, Harvard University, 1995-1996.
- Extraordinary Student Award, Tsinghua University, 1992
(Awarded to 5 out of 10,000 students in Tsinghua University, each year).
- Excellent Graduate, Tsinghua University, 1994.
- Three Merit Student Award, Tsinghua University, 1990-1994.
- National College Students Mathematics Competition Award, 1990.
- National Olympic Mathematic Completion, 2nd in Liaoning Province, 1988.
- 2018 S.-T. Yau High School Sciences Award Grand Prize and Gold Prize in Mathematics, “Group Theory and Megaminx”, Gerald Jiarong Xu, Mentor Xianfeng Gu.
- 2017 S.-T. Yau High School Sciences Award Silver Prize in Mathematics, “Geometric Data Analysis Based on Optimal Mass Transportation”, Simon Kai Hung Lam, Mentor Xianfeng Gu.
- 2016 Dongrun-Yau Science Award (Mathematics) Bronze Award, “Geometric Compression Based on Ricci Flow and Monge-Ampere Equation”, Bella Gu, Mentor Xianfeng Gu.
- 2016 Dongrun-Yau Science Awards (Mathematics) Silver Medal, “ Voronoi Diagram and its Applications on Line Graphs”, Zehan Hu and Zeyu Wang, Mentor Xianfeng Gu and Qingming Yang.
- 2016 9th Dongrun-Yau Science Awards, Brone Medal, “Geometric Compression Based on Ricci Flow and Monge-Ampere Equation”, Zehui Bella Gu, Mentor Xianfeng Gu.
- 6th Shing-Tung Yau High School Mathematics Awards Gold Prize Winner, December, 16th, 2013, “3D Surface Fabrication using Conformal Geometry”, Yuanqi Zhang, Mentor Xianfeng.

Patents

1. Registration of Scanned Organs Acquired from Different Orientations

Inventor: Arie E. Kaufman, Xianfeng Gu and Wei Zeng, Joseph Marino, Krishna C. Gurijala
Pub No.: US20130170726 A1, July 4, 2013

Abstract: Disclosed is a method for registration of scans of an object, such as a biological organ, by obtaining scans of the object that includes a first scan obtained with the object in a first position and a second scan obtained with the object in a second position different from

the first position, extracting landmarks within each of the scans, flattening each of the scans, detecting feature points of each of the flattened scans, matching corresponding feature points of each of the flattened scans, performing a harmonic map registration using the matched corresponding feature points and displaying the registered scans.

2. System and method for context preserving maps of tubular structures

Inventor: Arie E. Kaufman, Joseph Marino, Xianfeng Gu and Wei Zeng

Pub No.: WO2013059807 A1, Apr 25, 2013

Abstract: A computer-based method for generating a context preserving mapping of tubular structures represented by a 3D dataset having the steps of projecting a skeleton of a 3D tubular structure on to a 2D plane, and adjusting the projected skeleton to correct projection imbued distortion in skeleton length. The 2D projected skeleton is processed to remove intersections, and a surface boundary around the 2D skeleton is determined for the map. The 3D surface of the skeleton is mapped to match the 3D boundary to create a 3D map of the tubular structure.

3. System and Method for Computer Aided Polyp Detection

Inventors: Arie E. Kaufman, Wei Hong, Xianfeng Gu, Feng Qiu

Pub No.: US 2010/0215226 A1, Aug 26, 2010; Licensed by Siemens Healthcare Sector of Germany

Abstract: In the present methods, the automatic detection of polyps is converted into a 2D pattern recognition problem using conformal mapping and direct volume rendering. The colon surface is first segmented and extracted from the CT data set of the abdomen, which is then mapped to a 2D plane using conformal mapping. Ray casting is used to determine sub-surface density values and the flattened image is rendered using a volume rendering technique with a translucent electronic biopsy transfer function. Polyp candidates are detected by a clustering method which identifies regions of elevated sub-surface density. The potential for false positives is reduced by analyzing the volumetric shape and texture features of the polyp candidate regions.

4. Method and Apparatus for Absolute-Coordinate Three-Dimensional Surface Imaging

Inventors: Song Zhang, Shing-Tung Yau, Xianfeng Gu, Yalin Wang, Dale Royer

Pub No.: US2009/0238449 A1, Nov 9, 2006

Abstract: A method and associated apparatus for capturing an image of a 3D object which encodes the surface geometry of at least a portion of the object, comprising: 1. projecting a plurality of fringe patterns onto the object; 2. capturing phase alterations in reflections of the fringe patterns from the object; 3. projecting a uniform image onto the object; 4. capturing a reflection of the uniform image from the object; and 5. combining captured phase alterations and captured uniform image reflection on a pixel-by-pixel basis, thereby forming a holoimage representation of the object.

5. Analysis of Geometric Surfaces by Conformal Structure

Inventors: Shing-Tung Yau, Xianfeng Gu, Yalin Wang

Pub No.: US 2006/0013505 A1, Nov 6, 2003

Abstract: A method for analyzing, classifying, and recognizing geometric surfaces is disclosed. Geometric surfaces are treated as Riemann manifolds and the conformal structure corresponding to the surfaces is calculated. The conformal structure of the surface contains the intrinsic geometric information about the surface, but in a much more compact format as compared to other representations. Conformally mapping the surface to a canonical parameter domain, such as a disk, sphere, or plane retains the geometric information of the surface, and renders the calculation of conformal structure much easier. Various applications enabled by such a conformal representation include surface matching, surface cataloging, surface recognition, animation and morphing between surfaces, and other mathematical analysis.

6. Fingerprint Recognition System

Inventor: Shing-Tung Yau, Xianfeng Gu, Zhiwu Zhang

Patent No.: 6876757, Apr 5, 2005

Abstract: A method of analyzing and recognizing fingerprint images that utilizes vector processing of a vector field that is defined as the tangential vector of the fingerprint ridge curves is disclosed. The raw fingerprint image is divided into blocks, filtered to remove noise, and the orientation direction of each block is found. This allows the ridge curves to be enhanced and approximated by piece-wise linear approximations. The piece-wise linear approximations to the ridge curves allow the minutiae to be extracted and classified and a fingerprint minutiae template to be constructed. An enrollment process gathers multiple fingerprint images, creates fingerprint minutiae templates corresponding to the acquired fingerprint images, and stores the templates and other data associated with the respective individual or the enrolled fingerprint in a fingerprint database.

Book Publication

1. Xianfeng Gu and Shing-Tung Yau. **Computational Conformal Geometry**, *Series: Advanced Lectures in Mathematics, Vol 3*, Publisher: International Press and Higher Education Press, ISBN 978-1-57146-171-1, 2007.
2. Feng Luo, Xianfeng Gu and Junfei Dai. **Variational Principles for Discrete Surfaces**, *Series: Advanced Lectures in Mathematics, Vol 4*, Publisher: International Press and Higher Education Press, ISBN 978-1-57146-172-8, 2007.
3. Wei Zeng, Xianfeng Gu, **Ricci Flow for Shape Analysis and Surface Registration - Theories, Algorithms and Applications**, *Series SpringerBriefs in Mathematics*, Publisher: Springer New York, ISBN978-1-4614-8780-7, 2013.
4. Hui Zhao, Xianfeng Gu, Na Lei, **Algorithms for 3D Model: Theory and Realization (C# version)**, Publisher: Publishing House of Electronics Industry, Beijing. ISBN-13: 978-7121316821, 2017.
5. Hui Zhao, Xianfeng Gu, Na Lei, **Deformation Algorithms for 3D Model: Theory and Realization (C# version)**, Publisher: Publishing House of Electronics Industry, Beijing. ISBN-13: 978-7121316784, 2017.
6. Miao Jin, Xianfeng Gu, Ying He and Yalin Wang, **Conformal Geometry: Computational Algorithms and Engineering Applications**, Publisher: Springer International Publishing, Beijing. ISBN978-3-319-75330-0, 2018.
7. Xianfeng Gu and Shing-Tung Yau. **Computational Conformal Geometry**, Publisher: International Press and Higher Education Press, 2020.
8. Na Lei and Xianfeng Gu. **Optimal Transportation Theory, Algorithms and Applications**, Publisher: Springer, 2020.

Book Chapter Publication

9. Xianfeng Gu, Wei Zeng, Lok Ming Lui, Feng Luo and Shing-Tung Yau, **Recent Development of Computational Conformal Geometry** in “Selected Expository Works of Shing-Tung Yau with Commentary”, *Series: Advanced Lectures in Mathematics*, Volume 29, Number 2, Editors: Lizheng Ji, Peter Li, Kefeng Liu and Richard Schoen, Pages 1069-1120, ISBN-13:978-1571462947, Publisher: International Press Boston, 2014.
10. Xianfeng Gu, **Conformal Geometry Applied in Engineering and Medical Imaging** in “Mathematics and Culture: Applications of Mathematics”, Volume 18, Chapter 1, Pages 1-11, Editors: Shing-Tung Yau, Kefeng Liu, Le Yang and Lizhen Ji, ISBN:9787040428315, Publisher: Higher Education Press, 2015.
11. Huafeng Wang, Lihong Li, Hao Han, Yunhong Wang, Weifeng Lv, Xianfeng Gu and Zhenrong Liang, **A Novel Colon Wall Flattening Model for Computed Tomographic Colonography: Method and Validation** in “Bio-Imaging and Visualization for Patient-Customized Simulations”, *Series: Lecture Notes in Computational Vision and Biomechanics*, Volume 13, ISBN:978-3-319-03589-5, Publisher: Springer 2014.
12. Wei Zeng, Rui Shi, Zhengyu Su and Xianfeng Gu, **Colon Surface Registration Using Ricci Flow** in “Abdomen and Thoracic Imaging - An Engineering & Clinical Perspective”, Editors: Ayman S. El-Baz, Luca Saba and Jasjit S. Suri, Pages 389-419, ISBN:978-1-4614-8497-4, Publisher:Springer, 2013.

13. Wei Zeng, Rui Shi, Zhengyu Su and Xianfeng Gu, **Efficient Topological Cleaning for Visual Colon Surface Flattening** in “Abdomen and Thoracic Imaging - An Engineering & Clinical Perspective”, Editors: Ayman S. El-Baz, Luca Saba and Jasjit S. Suri, Pages: 421-441, ISBN:978-1-4614-8497-4, Publisher: Springer 2013.
14. Xianfeng Gu, Wei Zeng, Jian Sun, Ren Guo and Feng Luo, **Metric and Heat Kernel** in “Manifold Learning Theory and Applications”, Editors: Yunqian Ma and Yun Fu, Chapter VIII, ISBN-13: 978-1439871096, Publisher: CRC Press, 2011.
15. Xianfeng Gu, Feng Luo, Wei Zeng and Shing-Tung Yau, **Discrete Ricci flow for Surface and 3-Manifold** in “Manifold Learning Theory and Applications”, Editors: Yunqian Ma and Yun Fu, Chapter VII, ISBN-13: 978-1439871096, Publisher: CRC Press, 2011.
16. Wei Zeng, Feng Luo, Shing-Tung Yau and Xianfeng Gu, **3D Surface Representation Using Ricci Flow** in “Computer Vision: From Surfaces to 3D Objects”, Editor: Christopher W. Tyler, Chapter IV, Pages 65-94, ASIN: B00UV98NJ0, Publisher: Chapman and Hall/CRC Press, 2010.
17. Xiaotian Yin, Miao Jin, Feng Luo and Xianfeng Gu. **Discrete Curvature Flow for Surfaces and 3-Manifolds** in “Emerging Trends in Visual Computing”, *Series:Image Processing, Computer Vision, Pattern Recognition, and Graphics*, ed. Frank Nielsen, Pages 38-74, ISBN-13: 978-3-642-00826-9, Publisher: Springer-Verlag, 2009.
18. Xianfeng Gu, Yalin Wang, Hsiao-Bing Cheng, Li-Tien Cheng and Shing-Tung Yau. **Geometric Methods in Engineering Applications** in “Mathematics and Computation, a Contemporary View”, *Series: Abel Symposia*, Volume3, Editors: Hans Munthe-Kaas and Brynjulf Owren, ISBN:978-3-540-68848-8, Publisher:Springer-Verlag, 2009.
19. Xianfeng Gu. **Yau’s Contributions to Engineering Fields**, in “Geometry and Analysis”, *Series:Advanced Lectures in Mathematics*, Editor: Lizhen Ji, Volume 17, Number 1, Pages: 119–132, ISBN-13: 978-1571462244, Publisher: Higher Education Press, 2011.
20. Jie Gao, Xianfeng Gu and Feng Luo, **Discrete Ricci Flow for Geometric Routing** in “Encyclopedia of Algorithm”, Editor: Ming-Yang Kao, Pages 556–563, ISBN:978-1-4939-2863-7, Publisher: Springer-Verlag New York, 2016.

Refereed Journal Publications

21. Yang Guo, Qian Ye, Xiaopeng Zheng, Shikui Chen, Na Lei, Yuanqi Zhang and Xianfeng Gu, **Computational Generation and Conformal Fabrication of Woven Fabric Structures by Harmonic Foliation**, *Computer Methods in Applied Mechanics and Engineering*, accepted, 2020.
22. Xianfeng Gu, Feng Luo and Tianqi Wu, **Convergence of Discrete Conformal Geometry and Computation of Uniformization Maps**, *Asian Journal of Mathematics (AJM)*, Volume 23, Number 1, Pages 21-34, 2018.
23. Xianfeng Gu, Feng Luo, Jian Sun and Tianqi Wu, **A discrete uniformization theorem for polyhedral surfaces I**, *Journal of Differential Geometry (JDG)*, Volume 109, Number 2, Pages 223-256, 2018.
24. Xianfeng Gu, Ren Guo, Feng Luo, Jian Sun and Tianqi Wu, **A discrete uniformization theorem for polyhedral surfaces II**, *Journal of Differential Geometry (JDG)*, Volume 109, Number 3, Pages 431-466, 2018.

25. Na Lei, Dongsheng An, Yang Guo, Kehua Su, Shixia Liu, Zhongxuan Luo, Shing-Tung Yau and Xianfeng Gu, **Geometric Understanding of Deep Learning**, Journal Engineering, (accepted) 2019.
26. Wei Chen; Xiaopeng Zheng; Jingyao Ke; Na Lei*, Zhongxuan Luo; Xianfeng Gu, **Quadrilateral Mesh Generation I : Metric Based Method**, Computer Methods in Applied Mechanics and Engineering, online 2019.
27. Hui Zhao, Kehua Su, Chenchen Li, Boyu Zhang, Lei Yang, Na Lei, Xiaoling Wang, Steven J. Gortler and Xianfeng Gu, **Mesh Parameterization Driven by Unit Normal Flow**, Computer Graphics Forum, Pages 1-16, April 2019.
28. Hui Zhao, Xuan Li, Wencheng Wang, Xiaoling Wang, Shaodong Wang, Na Lei, Xianfeng Gu, **Polycube Shape Space**, Computer Graphics Forum, Volume 38, Number 7, Pages: 311-322, July 2019.
29. Kehua Su, Chenchen Li, Shifan Zhao, Na Lei, Xianfeng Gu, **Discrete Lie Flow: A Measure Controllable Parameterization Method**, Computer Aided Geometric Design (CAD), Volume 72, Pages 49-68, 2019.
30. Li Cui, Xin Qi, Chengfeng Wen, Na Lei*, Xinyuan Li, Min Zhang, Xianfeng Gu, **Spherical Optimal Transportation**, Computer-Aided Design (CAD), Volume 119, Pages 181-193, October 2019.
31. Kehua Su, Na Lei*, Wei Chen, Li Cui, Hang Si, Shikui Chen, Xianfeng Gu. **Curvature Adaptive Surface Remeshing By Sampling Normal Cycle**, Computer-Aided Design (CAD), Volume 111, Pages:1-12, June 2019.
32. Long Jiang, Yang Guo, Shikui Chen, Peng Wei, Na Lei, Xianfeng Gu. **Concurrent Optimization of Structural Topology and Infill Properties with a CBF-Based Level Set Method**, Frontiers of Mechanical Engineering, Volume 14, Issue 2, Pages:171-189, 2019.
33. Na Lei, Kehua Su, Li Cui, Shing-Tung Yau, Xianfeng Gu. **A Geometric View of Optimal Transportation and Generative Model**, Computer Aided Geometric Design, 68(2019), 1-21.
34. Shi-Kui Chen, Qian Ye, Yang Guo, Na Lei and Xianfeng Gu, **Topology Optimization of Conformal Structures on Manifolds Using Extended Level Set Methods (XLSM) and Conformal Geometry Theory**, Computer Methods in Applied Mechanics and Engineering, 344(2019) 164-185.
35. M.Ma,X. Wang, Y. Duan, S. Frey, X. Gu. **Optimal Mass Transport based Brain Morphometry for Patients with Congenital Hand Deformities**. The Visual Computer 35(9):1311-1325, 2019.
36. Hui Zhao, Na Lei*, Xuan Li, Peng Zeng, Ke Xu and Xianfeng Gu, **Robust edge-preserving surface mesh polycube deformation**, Computational Visual Media 4(1):33-42 (2018).
37. Ming Ma, Joseph Marino, Saad Nadeem, Xianfeng Gu. **Supine to Prone Colon Registration and Visualization Based on Optimal Mass Transport**. Graphical Models, Volume 104, Article 101031, July 2019.
38. P.Vogiatzis,M.Ma,S. Chen*, X. Gu*. **Computational Design and Additive Manufacturing of Periodic Conformal Metasurfaces by Synthesizing Topology Optimization with Conformal Mapping**. Computer Methods in Applied Mechanics and Engineering, 328:477-497, 2018.

39. Hui Zhao, Xuan Li, Huabin Ge, Na Lei*, Min Zhang, Xiaoling Wang and Xianfeng Gu, **Conformal Mesh Parameterization Using Discrete Calabi Flow**, Computer Aided Geometric Design (CAGD), 63(2018), 96-108.
40. Xiaokang Yu, Na Lei*, Xiaopeng Zheng, Xianfeng Gu. **Surface Parameterization Based on Polar Factorization**, J. Comp. Appl. Math., V329, 24-36, Feb. 2018.
41. Kehua Su; Wei Chen; Na Lei*; Junwei Zhang; Kun Qian; Xianfeng Gu, **Volume Preserving Parameterization Based on Optimal Mass Transportation**, Computer-Aided Design, January 2017(82):42-56.
42. Saad Nadeem, Joseph Marino, Xianfeng Gu, Arie Kaufman, **Corresponding Supine and Prone Colon Visualization Using Eigenfunction Analysis and Fold Modeling**, IEEE Transactions on Visualization and Computer Graphics (TVCG), Volume 23, Number 1, Pages:751-760, 2016.
43. Na Lei, Xiaopeng Zheng*, Hang Si, Zhongxuan Luo, David Gu, **Generalized Regular Quadrilateral Mesh Generation based on Surface Foliation**, Procedia Engineering, volume 203, 2017, page 336-348.
44. Hang Si, Yuxue Ren, Na Lei, David Gu, **On Tetrahedralisations Containing Knotted and Linked Line Segments**. Procedia Engineering, volume 203, 2017, page 323-335.
45. Ming Ma*, Na Lei, Wei Chen, Kehua Su, Xianfeng Gu. **Robust surface registration using optimal mass transport and Teichmüller mapping**, Graphical Models 90 March (2017) 13C23.
46. Na Lei, Xiaopeng Zheng*, Zhongxuan Luo, David Xianfeng Gu, **Quadrilateral and hexahedral mesh generation based on surface foliation theory II**. Computer Methods in Applied Mechanics and Engineering. Volume 321, 1 July 2017, Pages 406-426.
47. Na Lei, Xiaopeng Zheng, Jian Jiang, Yu-Yao Lin, David Xianfeng Gu*, **Quadrilateral and hexahedral mesh generation based on surface foliation theory**. Computer Methods in Applied Mechanics and Engineering. Volume 316, 1 April 2017, Pages 758-781.
48. Rui Shi, Wei Zeng, Zhengyu Su, Jian Jiang, Hana Damasio, Zhonglin Lu, Yalin Wang, Shing-Tung Yau and Xianfeng Gu, **Hyperbolic Harmonic Mapping for Surface Registration**, IEEE Transaction on Pattern Analysis and Machine Intelligence (TPAMI), accepted, 2016.
49. Saad Nadeem, Zhengyu Su, Wei Zeng, Arie Kaufman and Xianfeng Gu, **Spherical Parameterization Balancing Angle and Area Distortions**, IEEE Transaction on Visualization and Computer Graphics (TVCG), Volume 23, Issue 6, Pages:1663-1676, 2016.
50. Xiang Zeng, Chao-Hui Wang, Xianfeng Gu, **Higher-order Graph Principles towards Non-rigid Surface Registration**, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), Volume 36, Number 12, Pages 2416-2429, 2016.
51. Kehua Su, Cui Li, Kun Qian, Na Lei, Junwei Zhang, Ming Zhang and Xianfeng Gu, **Area-preserving Mesh Parameterization for Poly-Annulus Surfaces Based on Optimal Mass Transportation**, Journal of Computer Aided Geometric Design (CAD), Volume 46, Pages 76-91, 2016.
52. Xin Fan, Yuyao Feng, Zhi Chai, Xianfeng Gu, Zhongxuan Luo, **Image Morphing with Conformal Welding**, The Visual Computer, Volume 32, Issue 9, Pages 1191-1203, 2016.
53. Kehua Su, Wei Chen, Na Lei, Li Cui, Jian Jiang and Xianfeng Gu, **Measure Controllable Volumetric Mesh Parameterization**, Computer-Aided Geometric Design (CAD), Volume 78, Pages 188-198, 2016.

54. Xianfeng Gu, Feng Luo, Jian Sun and Shing-Tung Yau, **Variational Principles for Minkowski Type Problems, Discrete Optimal Transport, and Discrete Monge-Ampere Equations**, Asian Journal of Mathematics (AJM), Volume 20, Number 2, Pages 383-398, April 2016.
55. Siming Li, Dengpan Zhou, Wei Zeng, Jie Gao, Xianfeng Gu, **Compact Conformal Map for Greedy Routing in Wireless Mobile Sensor Networks**, IEEE Transactions on Mobile Computing, 15(7): 1632-1646 (2016).
56. Wei Chen, Min Zhang, Na Lei*, Xianfeng Gu, **Dynamic Unified Surface Ricci Flow**, Journal of Geometry, Imaging and Computing, 3(1-2), 2016, 31-56.
57. Mayank Goswami, Xianfeng Gu, Vamsi Pritham Pingali and Gaurish Telang, **Computing Teichmüller maps between polygons**, Foundations of Computational Mathematics, Volume 17, Number 2, Pages 497-526, 2017.
58. Xiaoning Wang, Xiang Ying, Yong-Jin Liu, Shi-Qing Xin, Wenping Wang, Xianfeng Gu, Wolfgang Mueller-Wittig and Ying He, **Intrinsic computation of centroidal Voronoi tessellation (CVT) on meshes**, Computer-Aided Design (CAD), Volume 58, Pages 51-61, 2015.
59. Hao Peng, Xu Wang, Ye Duan, Scott H. Frey, Xianfeng Gu: **Brain morphometry on congenital hand deformities based on Teichmüller space theory**. Computer-Aided Design (CAD), Volume 58, Pages 84-91, 2015.
60. Huafeng Wang, Yuexi Chen, Lihong Li, Haixia Pan, Xianfeng Gu, Zhengrong Liang, **A Novel Colon Wall Flattening Model for Computed Tomographic Colonography: Method and Validation**, Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization, 3(4):213-221 (2015).
61. Min Zhang, Wei Zeng, Ren Guo, Feng Luo, Xianfeng David Gu: **Survey on Discrete Surface Ricci Flow**. J. Comput. Sci. Technol. 30(3): 598-613 (2015)
62. Ka Chun Lam, Xianfeng Gu, Lok Ming Lui: **Landmark constrained genus-one surface Teichmüller map applied to surface registration in medical imaging**. Medical Image Analysis 25(1): 45-55 (2015)
63. Lok Ming Lui, Xianfeng Gu, Shing-Tung Yau: **Convergence of an iterative algorithm for Teichmüller maps via harmonic energy optimization**. Math. Comput. 84(296), 2823-2842, (2015)
64. Juncong Lin, Jiazhi Xia, Xing Gao, Minghong Liao, Ying He, Xianfeng Gu: **Interior structure transfer via harmonic 1-forms**. Multimedia Tools Appl, 74(1): 139-158 (2015)
65. Jian Sun, Tianqi Wu, Xianfeng Gu, Feng Luo: **Discrete Conformal Deformation: Algorithm and Experiments**. SIAM J. Imaging Sciences 8(3): 1421-1456 (2015)
66. Minqi Zhang, Feng Li, Ying He, Juncong Lin, Xianfeng Gu, Jun Luo: **GRIP: Greedy Routing through dIstributed Parametrization for guaranteed delivery in WSNs**. Wireless Networks 21(1): 67-80 (2015)
67. Ka Chun Lam, Xianfeng Gu, Lok Ming Lui, **Landmark Constrained Genus-one Surface Teichmüller Map Applied to Surface Registration in Medical Imaging**, Medical Image Analysis 25(1):45-55, (2015)
68. Zhengyu Su, Yalin Wang, Rui Shi, Wei Zeng, Jian Sun, Feng Luo and Xianfeng Gu, **Optimal Mass Transport for Shape Matching and Comparison**, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 37(11), 2246-2259, 2015.

69. Su Xia, Xiaotian Yin, Hongyi Wu, Miao Jin, Xianfeng David Gu **Deterministic Greedy Routing with Guaranteed Delivery in 3D Wireless Sensor Networks**. *Axioms* 3(2): 177-201 (2014)
70. Zhengyu Su, Jian Sun, Xianfeng Gu, Feng Luo, Shing-Tung Yau: **Optimal mass transport for geometric modeling based on variational principles in convex geometry**. *Eng. Comput. (Lond.)* 30(4): 475-486 (2014)
71. Huibin Li, Wei Zeng, Jean-marie Morvan, Limin Chen, **Surface Meshing with Curvature Convergence**, *IEEE Transaction on Visualization and Computer Graphics (TVCG)*, 20(6):919-934, 2014.
72. Zhong-Xuan Luo, Xinchun Zhou, Xianfeng Gu, **From a projective invariant to some new properties of algebraic hypersurfaces**, *Sci China Math*, Volume 57, Pages 2273-2284, 2014.
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309. Miao Jin, Yalin Wang, Shing-Tung Yau and Xianfeng Gu. **Optimal Global Conformal Surface Parameterization for Visualization.** *Proceedings of the IEEE conference on Visualization (IEEE Vis'04)*, Pages:267-274, Austin, TX, USA, October. 2004.
310. Yalin Wang, Xianfeng Gu, Tony F. Chan, Paul M. Thompson and Shing-Tung Yau. **Volumetric Harmonic Brain Mapping using a Variational Method.** *10th Annual Meeting of the Organization for Human Brain Mapping (OHBM)*, Budapest, Hungary, June 13-17, 2004.
311. Yalin Wang, Xianfeng Gu, Tony F. Chan, Paul M. Thompson and Shing-Tung Yau. **Volumetric Harmonic Brain Mapping.** *Proceedings on IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Pages:1275-1278, Washington D.C., USA, April 2004.
312. Yalin Wang, Xianfeng Gu, Tony F. Chan, Paul M. Thompson and Shing-Tung Yau. **Brain Surface Conformal Mapping and Brain Volumetric Harmonic Map with Variational Methods.** *SIAM Conference on Imaging Science*, Salt Lake City, Utah, May 2004.
313. Yalin Wang, Xianfeng Gu, Tony F. Chan, Paul M. Thompson and Shing-Tung Yau. **Intrinsic Brain Surface Conformal Mapping using a Variational Method.** *In SPIE International Symposium on Medical Imaging*, Pages:241-253, 2004.
314. Xianfeng Gu and B. C. Vemuri. **Matching 3D Shapes Using 2D Conformal Representations.** *Proceedings of the 7th International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2004)*, Pages:771-780, Saint-Malo, France, September 26-29, 2004.
315. Xianfeng Gu, Yalin Wang, Tony F. Chan, Paul M. Thompson and Shing-Tung Yau. **Genus Zero Surface Conformal Mapping and Its Application to Brain Surface Mapping.** *Proceedings of the 18th International Conference on Information Processing in Medical Imaging (IPMI 2003)*, Pages:172-184, Ambleside, UK, July 2003.
316. Xianfeng Gu, Yalin Wang, Tony F. Chan, Paul M. Thompson and Shing-Tung Yau. **Brain Surface Conformal Mapping.** *9th Annual Meeting of the Organization from Human Brain Mapping (OHBM)*, New York City, NY, Jun. 18-22, 2003.

317. Xianfeng Gu, Yalin Wang, and Shing-Tung Yau. **Multiresolution Computation of Conformal Structures of Surfaces.** *International Conference on Computer, Communication and Control Technologies (CCCT'03)*, (Best paper),2003.
318. Xianfeng Gu and Shing-Tung Yau. **Global Conformal Surface Parameterization.** *First Eurographics Symposium on Geometry Processing (SGP03)*, Pages:127-137, Aachen, Germany, June 23-25, 2003.
319. Xianfeng Gu and Shing-Tung Yau. **Surface Classification Using Conformal Structures.** *Proceedings of the 9th IEEE International Conference on Computer Vision (ICCV 2003)*, Pages:701-708, Nice, France, 14-17 October 2003.
320. Craig Gotsman, Xianfeng Gu and Alla Sheffer. **Fundamentals of Spherical Parameterization for 3D Meshes.** *Proceedings of ACM SIGGRAPH*, Pages 358-363, 2003.
321. Xianfeng Gu, Steven J. Gortler and Hugues H. Hoppe. **Geometry Images.** *Proceedings of ACM SIGGRAPH*, Pages 355-361, 2002.
322. Pedro V. Sander, Xianfeng Gu, Steven J. Gortler, Hugues H. Hoppe, John Snyder. **Silhouette Clipping.** *Proceedings of ACM SIGGRAPH*, Pages 327-334, 2000.
323. Xianfeng Gu, Steven J. Gortler and Michael F. Cohen. **Polyhedral Geometry and the Two-Plane Parameterization.** *Proceedings of the Eurographics Workshop on Rendering Techniques '97*, Pages:1-12, St. Etienne, France, June 16-18, 1997.

Teaching at Stony Brook

1. CSE/AMS 547 **Discrete Mathematics**, Fall 2019
43 students enrolled.
2. CSE 529/AMS 553 **Simulation and Modeling**, Fall 2019
12 students enrolled.
3. CSE/AMS 547 **Discrete Mathematics**, Spring 2019
17 students enrolled.
4. CSE 215 **Foundations of Computer Science**, Fall 2018
133 students enrolled.
5. CSE 215 **Foundations of Computer Science**, Spring 2018
133 students enrolled.
6. CSE/AMS 547 **Discrete Mathematics**, Fall 2017
41 students enrolled.
7. CSE 325 **Computer and Sculpture**, Fall 2017
39 students enrolled.
8. CSE 591 **Advanced Topics in Computer Science - Computational Conformal Geometry**, Spring 2017
8 students enrolled.
9. CSE 591 **Advanced Topics in Computer Science - Digital Geometry Processing**, Spring 2016
8 students enrolled.
10. CSE 325 **Computers and Sculpture**, Fall 2016
33 students enrolled
11. CSE/AMS 547 **Discrete Mathematics**, Spring 2016 35 students enrolled
12. CSE 325 **Computers and Sculpture**, Fall 2015
35 students enrolled.
13. CSE 590 **Special Topics - Digital Geometry Processing**, Spring 2015
5 students enrolled.
14. CSE 564 **Visualization**, Spring 2015
25 students enrolled.
15. CSE 325 **Computers and Sculpture**, Fall 2014
45 students enrolled.
16. CSE 328 **Fundamental of Computer Graphics**, Spring 2014
74 students enrolled.
17. CSE 564 **Advanced Visualization**, Spring 2014
35 students enrolled.
18. CSE 325 **Computers and Sculpture**, Fall 2013
40 students enrolled.
19. CSE 564 **Advanced Visualization**, Spring 2013
30 students enrolled.

20. CSE 595 **Sculpture and Computer**, Fall 2012
24 students enrolled.
21. CSE 564 **Advanced Visualization**, Spring 2012
12 students enrolled.
22. CSE 595 **Sculpture and Computer**, Fall 2011
24 students enrolled.
23. ISE/CSE 325 **Computers and Sculpture**, Spring 2011
30 students enrolled.
24. CSE 594 **Advanced Topics in Computer Science - Digital Geometry Processing**,
Spring 2011
8 students enrolled.
25. CSE 528 **Advanced Computer Graphics**, Fall 2010
29 students enrolled.
26. CSE 325 **Computers and Sculpture**, Spring 2010
16 students enrolled.
27. CSE 328 **Fundamental of Computer Graphics**, Spring 2010
51 students enrolled.
28. CSE 529/AMS 553 **Simulation and Modeling**, Fall 2009
10 students enrolled.
29. CSE 328 **Fundamentals of Computer Graphics**, Spring 2009
26 students enrolled.
30. CSE 300/ISE300 **Writing in Computer Science and Information Systems**, Spring 2009
32 students enrolled.
31. CSE 594 **Advanced Topics in Computer Science - Digital Geometry Processing**,
Spring 2009
5 students enrolled.
32. CSE 328 **Fundamental of Computer Graphics**, Spring 2009
25 students enrolled.
33. CSE 648 **Seminar in Graphics**, from Fall 2004 to Fall 2008
10-15 students participated each semester.
34. ITS 102 **Graphics in Movies and Games**, Fall 2008
15 students enrolled.
35. CSE 590 **Topics in Computer Science-Digital Geometry Processing**, Fall 2008
5 students enrolled.
36. CSE 328 **Fundamental of Computer Graphics**, Spring 2008
35 students enrolled.
37. ITS 102 **Graphics in Movies and Games**, Fall 2007
20 students enrolled.
38. CSE 528 **Computer Graphics**, Fall 2007
14 students enrolled.

39. CSE 326 **Fundamental of Digital Image Processing**, Spring 2007
10 students enrolled.
40. CSE 528 **Computer Graphics**, Fall 2006
19 students enrolled.
41. CSE 328 **Fundamental of Computer Graphics**, Spring 2006
22 students enrolled.
42. CSE 529AMS 553 **Simulation and Modeling**, Fall 2005
24 students enrolled.
43. CSE 328 **Fundamental of Computer Graphics**, Spring 2005
21 students enrolled.
44. CSE618 **Advanced Computer Graphics**, Fall 2004
10 students enrolled.

Teaching in Other Universities

1. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2019, Tsinghua University, Beijing, China.
2. **Computational Conformal Geometry**, Summer School, Beijing Center of Advanced Innovation and Imaging Technologies, August-September 2019, Capital Normal University, Beijing, China.
3. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2018, Tsinghua University, Beijing, China.
4. **Computational Conformal Geometry**, Summer School, Beijing Center of Advanced Innovation and Imaging Technologies, August-September 2018, Capital Normal University, Beijing, China.
5. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2017, Tsinghua University, Beijing, China.
6. **Computational Conformal Geometry**, Summer School, Beijing Center of Advanced Innovation and Imaging Technologies, August-September 2017, Capital Normal University, Beijing, China.
7. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2016, Tsinghua University, Beijing, China.
8. **Computational Conformal Geometry**, Summer School, Beijing Center of Advanced Innovation and Imaging Technologies, August-September 2016, Capital Normal University, Beijing, China.
9. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2015, Tsinghua University, Beijing, China.
10. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2014, Tsinghua University, Beijing, China.
11. **Computational Conformal Geometry**, Summer Course, 08/18/2014-08/22/2014, Yunnan Normal University, China.

12. **Computational Conformal Geometry**, Summer Course, 08/18/2014-08/23/2014, Kunming University of Science and Technology, China.
13. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2013, Tsinghua University, Beijing, China.
14. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2012, Tsinghua University, Beijing, China.
15. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2011, Tsinghua University, Beijing, China.
16. **Computational Conformal Geometry**, Summer Course, 01/05/2011-01/12/2011, Kunming Technology University, Kunming Yunnan, China.
17. **Computational Conformal Geometry**, Summer School, Yau Mathematical Sciences Center, June-August, 2010, Tsinghua University, Beijing, China.
18. **Geometry, Graphics, Vision, Visualization Seminar**, Fall 2003, Spring 2004
Computer and Information Science and Engineering Department, University of Florida
Approximately 20 students each semester.
19. CAP 5705 **Computer Graphics** , Spring 2004
Computer and Information Science and Engineering Department, University of Florida
Approximately 30 students each semester.
20. CAP 4730 **Computational Structures in Computer Graphics**, Fall 2003
Computer and Information Science and Engineering Department, University of Florida
Approximately 40 students each semester.

NSF Grants

1. CoPI: NSF CMMI-1762287 **Collaborative Research: Computational Framework for Designing Conformal Stretchable Electronics**. Total Amount: 415,301.00. Award Effective: 09/01/2018-08/31/2021.
2. CoPI: Ford URP **Topology Optimization of Cellular Mesostructure's Nonlinear Behaviors for Crash Safety**. Total Amount: 150,000. Award Effective: 01/01/2018-12/31/2018
3. FACE (French American Culture Exchange) PUF, (Partner University Fund) **4D Vision: Computer Vision Using RGB-D Images and their Sequences**. PI Dimitris Samaras, co-PI Xianfeng Gu, Total Amount: 450,000, Award Effective: 01/01/2016-12/31/2018.
4. CoPI: NSF DMS-1737812 **Collaborative Research: ATD: Theory and Algorithms for Discrete Curvatures on Network Data from Human Mobility and Monitoring**. Total Amount: 250,000. Award Effective: 08/15/2017-08/14/2020.
5. AFOSR FA9550-14-1-0193: **Riemannian Geometric and Stochastic Methods for Robust and High Performance Network Communications**. PI Xin Wang, co-PI Xianfeng Gu, Jie Gao, Total Amount: 900,000, Award Effective: 09/30/2014-09/29/2017.
6. PI: NSF DMS-1418255 **Collaborative Research: Geometric Analysis of Computer and Social Networks**. Total Amount: 249,998.00. Award Effective: 09/01/2014-08/31/2017.

7. AFOSR FA9550-10-1-0294: **Discrete Ricci Flow in Higher Dimensions**. Award effective 09/2012-06/2015
8. NSF DMS-1221339 **Collaborative Research: ATD: Algorithmic Aspects of Geometry for Using LIDAR and Wireless Sensor Networks for Combating Chemical Terror Attacks**. Award effective: 09/2012 to 06/2015.
9. CoPI: Nets-1016829 **Small: Large Scale Sensor Network Routing using Conformal Geometry**. Total Amount: 450,000. Gu's portion: 51%, \$230,000. Award effective: 07/01/2010-06/30/2013.
10. PI: IIS: III - 0916286 **Small: Conformal Geometry for Computer Vision**. Total Amount: \$100,000. Gu's portion: 50%, \$50,000. Award effective: 09/01/2009-08/31, 2011.
11. CoPI: NSF CCF-1081424 **NSF CCF: AF: Small: Volumetric Mesh Mapping**. Total Amount: \$500,000. Gu's portion: 100%, \$250,000. Award effective: 07/15/2009-06/30/2012.
12. CoPI: NIH NIH ARRA: **Conformal Geometry for Medical Imaging**. Total Amount: \$375571,000. Gu's portion: 100%, \$250,000. Award effective: 07/15/2009-06/30/2010.
13. PI: ONR N000140910228 **Shape Space and Shape Matching Using Differential and Algebra-geometric Approaches**. Total Amount: \$360,000. Gu's portion: 100%, \$360,000. Award effective: 12/01/2008-11/31/2011.
14. PI: NSF CCF-0841514 **SGER: Discrete Volumetric Curvature Flow for Graphics Applications**. Total amount: \$78,999. Gu's portion: 100%, \$78,999. Award effective: 08/01/2008-07/31/2009.
15. PI: NSF CCF-0830550 **Collaborative Research: CCF-TF: Computing Geometric Structures of 3-Manifolds** (with F.Luo, Rutgers University). Total amount: \$373,734. Gu's portion: 72.89%, \$239,994. Award effective: 07/01/2009-06/30/2012.
16. CoPI: NSF IIS-0713145 **III-CXT: Collaborative Research: Integrated Modeling and Learning of Multimodality Data across Subjects for Brain Disorder Study** (with PI Jing Hua, CoPI Ming Dong, Wayne State University). Total amount: \$341,166. Gu's portion: 36.75%, \$125,362. Award effective 09/01/2007-09/30/2010.
17. CoPI: NSF DMS-0626223 **MSPA-MCS: Discrete Curvature Flows on Graphics and Visualization** (with PI Feng Luo, Rutgers University). Total amount: \$371,984. Gu's portion: 48.39%, \$180,000. Award effective: 08/01/2006-07/31/2009.
18. CoPI: NSF DMS-0528363 **MSPA-MCS: Collaborative Research: Computer Graphics and Visualization Using Conformal Geometry**(with PI Baoquan Chen, CoPI Yousef Saad, University of Minnesota). Total amount: \$499,419. Gu's portion: 37.52%, \$187,372. Award effective: 09/01/2005-08/31/2008.
19. PI: NSF CCF-0448399 **CAREER: Conformal Geometry Applied to Shape Analysis and Geometric Modeling**. Total amount: \$473,468.00. Gu's portion: 100%, \$473,468.00. Award effective: 02/01/2005-01/31/2009.

Other Funding

20. Adobe Gift Fund: **Geometric Methods for Generative Adversarial Networks**. \$7k. Award effective:09/01/2019 to 01/31/2020.
21. Ford University Research Program (URP) Award **Topology Optimization of Cellular Structure for Crashworthiness**(with Shi-Kui Chen). \$150k. Award effective:06/01/2017 to 05/31/2020.

22. CoPI: NRF2008IDM-IDM004-006: **Geometry Videos: Exploring Highly Detailed Motion Data in Co-Space** (with PI Ying He, Chu-Hong Hoi, Nanyang Technology University), Ministry of Education, Singapore. SGD\$1,444,000 (equal to US \$958,068). Award effective:12/15/2008 to 12/14/2011.
23. CoPI: AcRF RG69/07: **Conformal Geometry Images Applied to New Paradigm of Geometric Modeling**(with PI Ying He, Nanyang Technology University, Tian-Tsong Ng, Institute of Infocomm Research), by National Foundation of Research of Singapore (NRF). SGD 172,000 (equal to US \$122,176). Award effective:03/2008 to 02/2011.
24. CoPI: NSFC 61936002 **Fundamental Theory and Architecture of Explainable Deep Learning under Geometric View** (with CoPI Zhong-Xuan Luo, Dalian Technology University), National Science Foundation of China. RMB 970k. Award effective: 01/01/2020-12/30/2024.
25. CoPI: NSFC 61720106005 **Theoretical and Algorithmic Study for Hexahedral Mesh Generation on 3 Manifolds with Complicated Topologies** (with CoPI Zhong-Xuan Luo, Dalian Technology University), National Science Foundation of China. RMB 2200k. Award effective: 01/01/2018-12/30/2022.
26. CoPI: NSFC 61432003 **Efficient Generation of 3D Printing Geometric Models and Contents** (with CoPI Zhong-Xuan Luo, Dalian Technology University), National Science Foundation of China. RMB 3500k. Award effective: 01/01/2015-12/30/2019.
27. CoPI: NSFC 61328206 **Intelligent Processing 3D Digital Content Based on Conformal Geometry and Geometric Invariants** (with CoPI Zhong-Xuan Luo, Dalian Technology University), National Science Foundation of China. RMB 200k. Award effective: 01/01/2014-12/30/2015.
28. PI: NSFC 60628202 **Outstanding Overseas Young Scholars Award: Computational Conformal Geometry** (with CoPI Shi-Min Hu, Tsinghua University), National Science Foundation of China. US \$58,820. Award effective: 07/01/2007-12/30/2009.
29. PI: SUNY Research Support Match Funding. US \$150,000. 2006.
30. CoPI: CEWIT Seed Funding: **Dynamic Geometric Acquisition and Processing** (with PI Peisen Huang, Mechanics Department, Stony Brook University). \$4,000. 2006.

Public Talks

1. 02/12/2020, **A Geometric View to Optimal Transportation for Generative Models**, Engineering School, Stony Brook University.
2. 02/10/2020, **Surface Registration and Comparison Based on Conformal Geometry**, FACAM Workshop 2020, Viterbi School of Engineering, University of South California.
3. 02/10/2020, **A Geometric View to Optimal Transportation for Generative Models**, Imaging Genetics Center, University of South California.
4. 02/05/2020, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANS)**, 2020 Information Theory and Applications Workshop, Pacific Beach, San Diego.
5. 01/05/2020, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Pengcheng Laboratory, Shenzhen.

6. 01/02/2020, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Department of Computer Science and Engineering, University at Buffalo.
7. 01/02/2020, **Modern Geometry Methods for Computer Science**, Department of Computer Science and Engineering, University at Buffalo.
8. 12/11/2019, **Modern Geometry Methods for Computer Science**, Chongqing Post and Telecommunication University, Chongqing.
9. 11/18/2019, **Conformal Geometric Methods for Medical Imaging**, PAII Lab, Bethesda MD.
10. 11/18/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, PAII Lab, Bethesda MD.
11. 10/26/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Statistical Deep Learning in Computer Vision, ICCV 2019, Seoul Korea.
12. 10/17/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Mathematics Department, Syracuse University.
13. 10/16/2019, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Mathematics Department, Syracuse University.
14. 10/15/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Department of Engineering and Computer Science, University at Buffalo.
15. 09/24/2019, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Epstein Department Seminar, Viterbi School of Engineering, University of South California.
16. 09/24/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Epstein Institute Seminar, Viterbi School of Engineering, University of South California.
17. 09/20/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Workshop on Geometric Methods for Analyzing Discrete Shapes, UC Davis, CA.
18. 09/20/2019, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Workshop on Geometric Methods for Analyzing Discrete Shapes, UC Davis, CA.
19. 08/29/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Workshop on Foundations of Computational Science, Harvard University.
20. 08/20/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Workshop on Monge-Ampere Equations, Kiama Austrilia.
21. 08/14/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Science China: Mathematics AI Forum, Manzhouli China.
22. 07/06/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, CSIAM-BDAI 2019, Kunming China.

23. 07/04/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, International Workshop on Recent Advances on Mathematical Imaging and Data Science, Shanghai Jiao Tong University, China.
24. 06/25/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Mathematical Sciences Research Center Chongqing University of Technology, China.
25. 06/24/2019, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Mathematical Sciences Research Center Chongqing University of Technology, China.
26. 06/18/2019, **Abel-Jacobi Condition for Quadrilateral Mesh**, International Geometry Summit, Vancouver.
27. 06/12/2019, **Discrete Optimal Mass Transportation Theory and Applications**, The Institute of Computational Mathematics and Scientific/Engineering Computing of Chinese Academy of Sciences.
28. 06/08/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Workshop on Optimal Transportation and Applications, Capital Normal University.
29. 05/29/2019, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Capital Normal University.
30. 05/24/2019, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Chinese Academy of Science.
31. 05/09/2019, **A Geometric View of Optimal Transportation and Generative Adversarial Networks (GANs)**, Graphics and Mathematical Engineering Sciences (GAMES), Seminar.
32. 04/19/2019, **Shape Analysis Based on Computational Conformal Geometry**, Geometry and Learning from Data in 3D and Beyond Workshop, IPAM, UCLA.
33. 04/04/2019, **An Optimal Transportation (OT) View of Generative Adversarial Networks (GANs)**, NCSU ECE Interdisciplinary Distinguished Seminar Series, North Carolina State University.
34. 04/01/2019, **An Optimal Transportation (OT) View of Generative Adversarial Networks (GANs)**, Brookhaven National Laboratory.
35. 03/23/2019, **An Optimal Transportation (OT) View of Generative Adversarial Networks (GANs)**, Tsinghua AI Summit at Sanya, Sanya Hainan, China.
36. 03/13/2019, **An Optimal Transportation (OT) View of Generative Adversarial Networks (GANs)**, Geometry and Learning from Data Workshop, Institute of Pure and Applied Mathematics UCLA.
37. 03/09/2019, **An Optimal Transportation (OT) View of Generative Adversarial Networks (GANs)**, Tsinghua Data Science and Research Institute.
38. 01/18/2019, **GAN, Optimal Transport and Monge-Ampere Equation**, Geometric Analysis Approach to AI, Center of Mathematical Sciences and Applications Harvard University.

39. 10/11/2018, **Topological Theoretic Aspects of Hexahedral Meshing**, Isogeometric Analysis 2018, Austin Texas.
40. 07/18/2018, **Geometric Understanding of Deep Learning**, Vision and Learning Seminar.
41. 07/14/2018, **A Geometric View of Optimal Transportation and Generative Model**, University of Science and Technology of China.
42. 06/20/2018, **Discrete Surface Ricci Flow**, Workshop on Geometric Computation and Applications, Trinity College, Dublin, Ireland.
43. 06/20/2018, **Discrete Optimal Mass Transportation**, Workshop on Geometric Computation and Applications, Trinity College, Dublin, Ireland.
44. 06/15/2018, **A Geometric View to Optimal Transportation and Generative Model**, ICSA2018 Applied Statistics Symposium, Rutgers, New Jersey.
45. 06/13/2018, **Modern Geometric Applications in Engineering**, Capital Normal University, China.
46. 06/05/2018, **Virtual Colonoscopy**, Center of Mathematical Sciences and Applications, Harvard University.
47. 05/22/2018, **Geometric Understanding of Deep Learning**, Software Institute, Dalian University of Technology, Dalian China.
48. 05/21/2018, **Geometric Understanding of Deep Learning**, Tencent AI Lab, Shenzhen, China.
49. 04/13/2018, **A Geometric View of Optimal Transportation and Generative Model**, Computer Science Department, Stony Brook University.
50. 04/10/2018, **Spherical Parameterization Balancing Angle and Area Distortions**, Geometric Modeling and Processing 2018, Aachen, Germany..
51. 03/23/2018, **A Geometric View of Optimal Transportation and Generative Model**, Workshop on Geometry, Imaging, and Computing, CMSA Harvard University.
52. 03/02/2018, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Mechanics Seminar, Northwestern University, Virginia Tech, Stony Brook University.
53. 02/16/2018, **Computational Conformal Geometry: Theories, Algorithms and Applications**, Engineering Serendipity Seminar, College of Engineering and Applied Sciences, Stony Brook University.
54. 01/15/2018, **A Geometric View of Optimal Transportation and Generative Model**, National Center for Mathematics and Interdisciplinary Sciences, CAS.
55. 01/05/2018, **Geometric Methods for Medical Imaging**, Southern Medical University, Shenzhen China.
56. 12/21/2017, **Computational Conformal Geometry**, Computer and Software Institute, Shenzhen University.
57. 12/15/2017, **Optimal Mass Transportation Theory Applied for Machine Learning**, The 6th ICCM CAM Conference on Geometry and Imaging, Tsinghua University, Beijing China.

58. 12/13/2017, **A Geometric View of Optimal Transportation and Generative Model**, Guotaian, Shenzhen China.
59. 12/07/2017, **3D Face Tracking Based on Differential Geometry**, Ford Motor Company.
60. 12/05/2017, **A Geometric View of Optimal Transportation and Generative Model**, Air Force, Rome New York.
61. 11/13/2017, **Conformal Geometry for Fabrication**, Fashion Institute of Technology, New York City.
62. 11/08/2017, **Geometric Methods for Engineering Applications**, Mechanics Engineering Department, Stony Brook University.
63. 11/06/2017, **Geometric Big Data Analysis**, Columbia University.
64. 10/27/2017, **Optimal Mass Transportation Theory Applied for Machine Learning**, The Second International Conference on Intelligence Science, ICIS2017, Shanghai, China.
65. 10/22/2017, **Technology for Virtual Colonoscopy**, Nantong.
66. 10/20/2017, **A Geometric View of Optimal Transportation and Generative Model** Computer Mathematics 2017 Xiangtan China.
67. 10/07/2017, **Geometric Interpretation to Deep Learning**, Columbia University.
68. 09/29/2017, **Modern Geometric Methods for Engineering Applications**, Stainability Analytics Meeting, Ford Motor Company.
69. 09/23/2017, **Discrete Ricci Flow and Optimal Mass Transportation**, International Symposium on Image Computing and Digital Medicine (ISICDM), Chengdu, China.
70. 09/22/2017, **Geometric Methods for Medical Imaging**, International Symposium on Image Computing and Digital Medicine (ISICDM), Chengdu, China.
71. 07/26/2017, **Computational Conformal Geometry: Theories, Algorithms and Applications**, State Key Lab of Digital Manufacturing Equipment & Technology, Huazhong University of Science and Technology.
72. 07/25/2017, **Computational Conformal Geometry for Pattern Recognition**, Academy of Opto-Electronics, Chinese Academy of Science.
73. 07/10/2017, **Modern Geometry Applied for Engineering and Medical Fields**, Xian University of Architecture and Technology, China.
74. 07/10/2017, **Modern Geometry Applied for Engineering and Medical Fields**, Xian Polytechnic University, China.
75. 07/07/2017, **Modern Geometry Applied for Engineering and Medical Fields**, Shing-Tung Yau Applied Mathematics Center, Southeast University, China.
76. 06/24/2017, **VR/AR Systems based on Differential Geometry**, China (Changchun) Overseas Talents Innovation and Entrepreneurship Competition, Changchun, Jilin, China.
77. 06/19/2017, **Computational Conformal Geometry, Algorithm and Applications**, H. S. Tsien International Distinguished Scientists Lecture Series, Institute of Automation, Chinese Academy of Science, Beijing, China.
78. 06/13/2017, **GAN Model and Optimal Mass Transportation**, International Workshop for Mathematical Imaging and Digital Geometry, Capital Normal University, Beijing, China.

79. 06/08/2017, **GAN Model and Optimal Mass Transportation**, Dalian University of Technology, Dalian, Liaoning, China.
80. 05/13/2017, **Virtual Reality and Augmented Reality Algorithms Based on Differential Geometry**, Center of Mathematical Science and Application, Harvard University.
81. 05/11/2017, **Discrete Surface Ricci Flow and Optimal Mass Transportation**, CUNY-NYU symbolic-numeric computing seminar, New York.
82. 04/24/2017, **Conformal Geometry for Fabrication**, Fashion Institute of Technology, New York.
83. 04/12/2017, **Modern Geometry for Applications in Engineering and Medicine**, Capital Normal University, Beijing.
84. 12/06/2016, **Computational Conformal Geometry for Medical Imaging**, Dean's Lecture Series, School of Dental Medicine, Stony Brook University
85. 11/08/2016, **Discrete Surface Ricci Flow and Optimal Transportation**, School of **Computing**, Informatics, and Decision Systems Engineering, Arizona State University
86. 09/09/2016, **Computational Conformal Geometry - Theory, Algorithm and Applications**, Mathematics Department, Beijing University of Technology
87. 09/09/2016, **Computational Conformal Geometry - Theory, Algorithm and Applications**, Mathematics Department, Beijing Jiaotong University
88. 09/09/2016, **Computational Conformal Geometry - Theory, Algorithm and Applications**, Automation Department, Tsinghua University
89. 08/24/2016, **Geometric Approximation Theory and Algorithm**, 2016 Multimedia Computation and Communication Forum, Dalian
90. 08/14/2016, **Computational Conformal Geometry, Theory, Algorithm and Applications**, The 14th Annual Conference of Chinese Society of Industrial and Applied Mathematics, (CSIAM) Xiangtan 2016
91. 08/11/2016, 45 Minutes Plenary Talk , **Discrete Surface Ricci Flow and Optimal Mass Transportation**, The Seventh International Congress of Chinese Mathematician (ICCM'16), Beijing.
92. 08/04/2016, **Discrete Optimal Mass Transportation Theory and Application**, International Conference on Information and Computational Science, Dalian University of Technology
93. 08/03/2016, **Computational Conformal Geometry, Theory, Algorithm and Applications**, The 2016 Symposium on the Innovative Education of Mathematics in National University and Colleges, Yinchuang, Ningxia
94. 07/19/2016, **Discrete Surface Ricci flow and Optimal Mass Transportation**, Computer Science Department, Tianjin University
95. 07/13/2016, **Discrete Optimal Mass Transportation Theory and Applications**, The Second Visual Computing Summer School, Computer Science Institute, Shandong University
96. 07/11/2016, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Computer Science Institute, University of Science and Technology of China

97. 07/01/2016, **Surface Ricci Flow applied in Networking**, Ubiquitous Networking and Big Data Computation'16, Dalian University of Technology China
98. 06/30/2016, **Geometric Big Data Analysis Using Optimal Mass Transportation**, Ubiquitous Networks and Big Data Computation, Software Institute, Dalian University of Technology
99. 06/16/2016, **Discrete Optimal Mass Transportation Theory**, Annual Symposium on Computational Geometry (SoCG 2016), Medical Center of Tufts University, Boston
100. 06/16/2016, **Discrete Surface Ricci Flow**, Annual Symposium on Computational Geometry (SoCG 2016), Medical Center of Tufts University, Boston
101. 05/04/2016, **Deep Learning in Artificial Intelligence**, Changjiang Business School, Manhattan.
102. 04/25/2016, **Recent Developments and Trends in Artificial Intelligence**, Changjiang Business School, Manhattan.
103. 04/14/2016, **Optimal Mass Transportation for Shape Analysis**, Division of Electrical and Computer Engineering & Center for Computer Engineering, Louisiana State University.
104. 04/04/2016, **A Discrete Approach for Solving Monge-Amperè Equation**, Center of Mathematical Sciences & Applications, Harvard University.
105. 03/24/2016, **Quadrilateral and Hexahedral Meshing based on Foliation Theory**, Computer Science Department , Brigham Young University.
106. 03/01/2016, **Quadrilateral and Hexahedral Meshing based on Foliation Theory**, The Institute for Computational Engineering and Sciences (ICES) , UT Austin.
107. 02/12/2016, **Optimal Mass Transportation for Shape Analysis**, Institute for Pure and Applied Mathematics (IPAM), UCLA.
108. 12/18/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications, Department of Computer Science**, Shenyang Aerospace University
109. 12/18/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, School of Mathematics, Shenyang Normal University
110. 12/10/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Information Science Institute, Peking University
111. 12/09/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Institute of Applied Physics and Computational Mathematics, Chinese Academy of Science
112. 12/08/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Information Technology Community, Tsinghua University
113. 12/06/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, School of Mathematics, Wuhan University
114. 12/06/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Department of Computer Science, Wuhan University
115. 11/06/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, School of Mathematics, Jilin University

116. 11/04/2015, **Discrete Optimal Mass Transportation Theory and Algorithms**, Academy of Mathematics and System Science, Chinese Academy of Sciences
117. 11/03/2015, **A Discrete uniformization theorem for polyhedral surfaces**, Academy of Mathematics and System Science, Chinese Academy of Sciences
118. 11/01/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, School of Mathematics, Hefei University of Technology
119. 09/20/2015, Keynote Speech, **Computational Conformal Geometry, Theory, Algorithm and Applications**, National Conference on Computational Mathematics, Zhongshan University
120. 08/20/2015, **Discrete Uniformization Theorem**, Graphics and Geometry Group, Computer Science Department, Tsinghua University
121. 08/20/2015, **Discrete Optimal Mass Transportation Theorem**, Graphics and Geometry Group, Computer Science Department, Tsinghua University
122. 08/07/2015, **Is Poincaré Conjecture Useful ?**, Tsinghua University
123. 08/14/2015, **Discrete Uniformization Theorem**, The 8th International Congress on Industrial and Applied Mathematics (ICIAM), Beijing.
124. 08/05/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Nanjing University of Aeronautics and Astronautics
125. 07/15/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences
126. 06/29/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Software Institute, Dalian University of Science and Technology
127. 06/27/2015, **Diffeomorphic Registration with Large deformation using Quasi-conformal maps**, Software Institute, Dalian University of Science and Technology
128. 06/26/2015, **Shape Classification/Recognition using Optimal Mass Transportation Theory**, Software Institute, Dalian University of Science and Technology
129. 06/23/2015, **Computational Conformal Geometry, Theory, Algorithm and Applications**, Beijing Normal University
130. 06/16/2015, **Computational Aspects of Differential Geometry**, Mathematics Department, Stonybrook University
131. 12/17/2014, **Computational Conformal Geometry, Methods and Applications**, International Workshop on Mathematical Geometry Processing and Applications, Chinese University of Hong Kong, Hong Kong, China,
132. 12/08/2014, **Computational Conformal Geometry, Methods and Applications**, Jinhua, Zhejiang Normal University, China,
133. 12/05/2014, **Tutorial: Surface and Volume Based Techniques for Shape Modeling and Analysis**, SIGGRAPH 2014, Asia, Shenzhen, China,
134. 11/08/2014, **Computational Conformal Geometric Methods**, AMS Fall Southeastern Sectional Meeting, University of North Carolina at Greensboro, Greensboro, NC.

135. 07/28/2014, **Computational Conformal Geometry, Methods and Applications**, International Congress of Mathematics (ICM 2014) Satellite Conference, Mathematical Foundation of Modern Data Sciences Computing, Logic and Education, Dalian Maritime University, China,
136. 05/12/2014, **Mapping Polar Factorization**, SIAM Conference on Imaging Science, Hongkong.
137. 04/30/2014, **Discrete Surface Ricci Flow Method for Medical Imaging**, Radiology Department, Stony Brook University
138. 06/17/2014, **Methods in Computational Conformal Geometry**, LIRIS, Ecole Centrale Lyon
139. 06/16/2014, **Methods in Computational Conformal Geometry**, LIRIS, Ecole Centrale Paris
140. 06/13/2014, **A Discrete Uniformization Theorem for Polyhedral Surfaces**, the Eighth International Conference "Curves and Surfaces" organized by SMAI-SIGMA, Paris.
141. 08/18/2013, Key Note Speech: **Computational Conformal Geometry, Theory, Algorithms and Applications**, the Fifth National Conference on Computer and Mathematics, ChangChun, 2013
142. 07/31/2013, **Tutorial on Conformal Geometry for Computer Vision, Graduate Summer School: Computer Vision**, IPAM UCLA
143. 07/31/2013, **Tutorial on Surface Ricci Flow for Shape Registration and Analysis**, Graduate Summer School: Computer Vision, IPAM UCLA
144. 07/31/2013, **Tutorial on Optimal Mass Transportation Theory for Computer Vision**, Graduate Summer School: Computer Vision, IPAM UCLA
145. 07/21/2013, **Diffeomorphic registration with Large deformation using Quasi-conformal maps**, International Workshop on Compressive Sensing: Theory and Application, National Defense Science and Technology University, Changsha, 2013
146. 07/19/2013, Key Note Speech, **Optimal Mass Transportation, Theory and Algorithm**, The Sixth CSIAM Geometric Design and Computation of China, July 19-21, 2013, Dalian.
147. 07/15/2013, Plenary Talk, **Computational Conformal Geometry, theory, algorithm and application**, 45 minutes talk, The 6th International Congress of Chinese mathematicians, ICCM 2013, Taipei.
148. 06/20/2013, Plenary talk, **Computational methods in conformal geometry based on Hodge theory and Ricci flow**, AMMP Workshop: Conformal Geometry in Mapping, Imaging and Sensing, Imperial College London.
149. 12/17/2012, **Computational Conformal geometry, Theories and Applications**, Imaging Science, A Conference dedicated to Professor Stanley Osher, Mathematics Science Center, Tsinghua University, Beijing
150. 12/14/2012, **Optimal Transport Map and Teichmüller Map**, International Conference on Imaging Science 2012, in honor of Prof. Stanley Osher's 70th birthday, Hong Kong University of Science and Technology, Hong Kong Baptist University, The Hong Kong Polytechnic University

151. 08/06/2012, **Computational Conformal Geometry, Theory and Applications**, International Conference on Applied Mathematics, Morningside Center of Mathematics, Chinese Academy of Science.
152. 7/21/2012, **Discrete Ricci Flow**, 3D Geometry and Imaging International Conference in Kunming University of Science and Technology, Yunnan, China.
153. 5/23/2012, **Tutorial: Surface-, Flow-, and Volume-Based Techniques for Shape Modeling**, with Giuseppe Patane, Xin Shane Li and Michela Spagnuolo, Shape Modeling International, College State, Texas.
154. 5/21/2012, **Surface Ricci Flow and its Applications**, SIAM conference on Imaging Science, Philadelphia PA.
155. 3/18/2012, **Ricci flow in Wireless Sensor Networks**, AMS Special session on Dynamics of Complex Networks, George Washington University, DC.
156. 12/19/2011, **Discrete Ricci Flow**, Tsinghua Sanya International Mathematics Forum.
157. 9/21/2011, **Applications of Ricci Flow in Engineering Fields**, Mathematics Department, Lehigh University
158. 8/23/2011, **Computational Conformal Geometry**, Electronic Engineering Department, Tsinghua University
159. 8/12/2011, **Computational Conformal Geometry**, University of Science and Technology of China
160. 02/24/2011, **Computational Conformal Geometry: Theories and Applications**, Computer Science Department, Ohio State University, Columbus, Ohio.
161. 02/9/2011, **Conformal Geometry Applied in Medical Imaging**, Center of Excellence Wireless and Information Technology (CEWIT), New York.
162. 01/20/2011, **3D Human Face Tracking and Identification**, Research and Technology Summit, Applied Science Foundation for Homeland Security Headquarters of Long Island.
163. 01/15/2011, **Surface and Volume Parameterization Methods**, Isogeometric Analysis 2011: Integrating Design and Analysis, The University of Texas at Austin.
164. 01/14/2011, **Computational Conformal Geometry, theories and applications**, Science Academy of China.
165. 01/05/2011, **Collaborative Research: Developing, Testing and Validating Brain Alignment Algorithm**, AFOSR 2011 Cognition and Decision Program Review, Dayton, Ohio, USA.
166. 12/21/2010, Plenary Speech, **Computational Conformal Geometry in Engineering and Medicine Fields**, 5th International Congress of Chinese Mathematician, ICCM 2010.
167. 12/24/2010, **Fundamentals for Computational Conformal Geometry**, Software Engineering Institute, Multimedia Laboratory, Dalian Technology University.
168. 12/24/2010, **Fundamentals for Computational Conformal Geometry**, Mathematics Department, Dalian Technology University.
169. 12/15/2010, **Fundamentals for Computational Conformal Geometry**, Brain Computer Interface Laboratory, South China University (Hua Nan University).

170. 10/22/2010, **Fundamentals for Computational Conformal Geometry**, CSE600, Computer Science Department, Stony Brook University.
171. 10/04/2010, **Fundamentals for Computational Conformal Geometry**, School of Computer Science, Kookmin University, Seoul, Korea.
172. 09/29/2010, **Fundamentals for Computational Conformal Geometry**, National Chiao Tung University, Taiwan.
173. 08/18/2010, **Computational Conformal Geometry**, Department of Electrical and Computer Engineering National University of Singapore.
174. 08/07/2010, **Fundamentals of computational conformal Geometry**, Qingdao University.
175. 07/03/2010, **Digital Geometry processing**, Kunming University.
176. 05/20/2010, **Discrete Conformal Geometry**, Barret Memorial Lectures on Discrete Differential Geometry and Applications, the University of Tennessee, May 17-21, 2010.
177. 07/01/2010, **Computational Conformal Geometry Method for Geometric Modeling**, 16th US National Congress of Theoretical and Applied Mechanics, June27-July 2, 2010. State College, PA.
178. 01/21/2010, **Discrete Ricci Flow for Complex Networks**, AFOSR 2010 Complex Networks Program Review, organized by Dr.Bob Bonneau, 19-22 January, 2010, Arlington, VA.
179. 10/09/2009, **Introduction to Conformal Geometry Modeling System (CGMS)**, Digital Technology Lab, Mori Seiki, Davis, California.
180. 10/08/2009, **Discrete Curvature Flow and Conformal Geometry**, 2009 SIAM/ACM Joint Conference on Geometry and Physical Modeling, San Francisco, October 5-8, 2009.
181. 10/6/2009, **Discrete surface Ricci Flow and Teichmüller Space Theory**, Research in Imaging Sciences - ONR PIs Meeting, Guillermo Sapiro and Tristan Nguyen, October 5-7, 2009.
182. 09/08/2009, **Surface Quasi-Conformal Mapping by Solving Beltrami Equations**, Mathematics of Surfaces XIII, York UK.
183. 08/19/2009, **Computational conformal geometric methods**, SUNY Binghamton.
184. 07/16/2009, **Computational conformal geometric methods**, 10th US National Congress on Computational Mechanics.
185. 07/29/2009, **Tutorial to Computational Conformal Geometry**, School of Computer Science and Technology, Sandong University.
186. 06/28/2009, **Canonical homotopy class representative using hyperbolic structure**, IEEE International Conference on Shape Modeling and Applications (SMI), Tsinghua University China.
187. 07/06/2009, **Computational Conformal Geometry**, CAD&CG Lab, Zhejiang University, China.
188. 05/01/2009, **Computing Teichmüller Shape Space**, Courant Institute, New York University.

189. 04/10/2009, **Computational Conformal Geometry, theory and applications**, Computer Science Department, Kent State University.
190. 02/16/2009, **Curvature Flows for Quasi-Conformal Mappings**, Computational Mathematics of Discrete Surfaces, Banff International Research Station, Canada.
191. 02/06/2009, **Discrete Curvature Flows and Their Applications**, Stony Brook University.
192. 01/05/2009, **Discrete Curvature Flows and Their Applications**, Joint Mathematics Meetings, Washington DC.
193. 12/2008, **Conformal Geometry for Computational Topology**, AMS Special Session on Topological Methods in Applied Mathematics, Washington DC.
194. 11/24/2008, **Computational Conformal Geometry**, Computer Science Department, Wayne State University, Detroit Michigan.
195. 11/18/2008, **Discrete Surface Ricci Flow**, Emerging Trends in Visual Computing, Computer Science department of Ecole Polytechnique, France.
196. 10/30/2008, **Ricci flow for Surface Representation**, AFOSR Workshop on Full-cue Surface Representation in Mid-Level Vision, Smith-Kettlewell Eye Research Institute, San Francisco.
197. 08/30/2008, **Digital Geometry Acquisition and Processing**, Geometric Analysis: Present and Future, An International Conference to Celebrate the Birthday of Shing-Tung Yau, Harvard University, Boston.
198. 06/06/2008, **Interaction Between Shape Modeling and Modern Geometry and Topology**, IEEE International Conference on Shape Modeling and Applications (SMI'08), Stony Brook, NY, USA.
199. 04/11/2008, **Manifold Splines**, First International Workshop on Algebraic Geometry and Approximation Theory, Department of Mathematics, Towson University, April 11-12, 2008.
200. 01/28/2008, **Ricci flow for Conformal Brain Mapping and Medical Imaging**, Dana & David Dornsife Cognitive Neuroscience Imaging Center at the University of Southern California.
201. 01/28/2008, **Conformal Geometric Methods for Brain Imaging**, Laboratory of Neuro Imaging, UCLA.
202. 01/31/2008, **Computing Conformal Structures using Discrete Ricci Flow and Holomorphic Forms**, Mathematics Department, Columbia University.
203. 02/04/2008, **Computational Conformal Geometry, Theories and Applications**, Mathematics Department, George Washington University.
204. 04/12/2008, **Discrete Curvature Flows for Manifold Splines**, 1st Workshop on Algebraic geometry and approximation theory, mathematics department, Towson University.
205. 04/08/2008, **Discrete Ricci Flow for Shape Analysis**, IWCIA 2008, the 11th International Workshop on Combinatorial Image Analysis, SUNY Buffalo.
206. 06/06/2008, **Variational Principles for Discrete Surfaces**, IEEE International Conference on Shape Modeling and Applications, SUNY Stony Brook.

207. 05/02/2008, **Discrete Ricci Flow for Computer Vision and Medical Imaging**, Computer Science Department, University of Delaware.
208. 12/20/2007, Plenary Speech, **Computational Conformal Geometry, Theories, Algorithms and Applications**, the 4th International Congress of Chinese Mathematician (IC-CM), Hangzhou, China.
209. 12/05/2007, **Computational Conformal Geometry for Geometric Modeling**, School of Applied Mathematics, University of Texas at Austin.
210. 09/05/2007, Keynote Speech for **Discrete Surface Ricci Flow: Theory and Applications**, 12th IMA International Conference, Mathematics of Surfaces XII, Sheffield, UK.
211. 04/2007, **Discrete Curvature Flow Method**, Courant Institute, New York University.
212. 02/2007, **Affine Structure and Manifold Splines**, Mathematics Department, Drexell University.
213. 02/2007, **Circle Packing and Ricci Flow**, Mathematics Department, UC Irvine.
214. 11/2006, **Discrete Metric Design by Minimizing Ricci Energy**, Computer Science Department, California Institute of Technology.
215. 10/2006, **Conformal Parameterization and Mesh Spline Conversion**, Solid Works, Boston.
216. 10/2006, **Computational Conformal Geometry, theories and Applications**, Mathematics Department, Lehigh University.
217. 09/2006, **Global Surface Parameterizations**, Computer Science Department, University of Washington at St. Louis.
218. 09/2006, **Manifold Splines**, Mathematics Department, Brigham Young University.
219. 07/2006, **Computational Conformal Geometry**, Computer Science Department, Tsinghua University.
220. 07/2006, **Computational Conformal Geometry theories and practices**, Microsoft Research Asia, July 2006.
221. 06/06/2006, **Computing Surface Hyperbolic Structure and Real Projective Structure**, ACM Solid and Physical Modeling 2006, Cardiff University, Wales, UK.
222. 06/07/2006, **Holoimages**, ACM Solid and Physical Modeling 2006, Cardiff University, Wales, UK.
223. 05/10/2006, **New perspectives in Geometric Analysis**, Department of Mathematics of University of Toledo.
224. 07/28/2006, **Manifold T-Splines**, Geometric Modeling and Processing 2006, Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A.
225. 07/26/2006, **Geometric Accuracy Analysis for Discrete Surface Approximation**, Geometric Modeling and Processing 2006, Carnegie Mellon University, Pittsburgh, Pennsylvania, U.S.A.
226. 2006, **Computing Conformal Structures**, Computer Science Department, University of Delaware.

227. 2006, **Manifold Splines using conformal structure**, Mathematics Department, Drexel University.
228. 06/15/2005, **Manifold Splines**, ACM Solid and Physical Modeling 2005, MIT, Cambridge, MA.
229. 07/24/2002, **Geometry Images**, ACM SIGGRAPH 2002, San Antonio, Texas.
230. Talks in Colloquiums at Princeton, UW, UCLA, USC, UCSB, UCSD, UFL etc., 2004-2005.

Professional Services

Journal Editor

1. Chief Editor, **Journal of Geometry, Imaging and Computation**.
2. Associate Editor, **IEEE Transaction on Visualization and Computer Graphics (TVCG)**
3. Associate Editor, **Graphical Models**
4. Associate Editor, **Journal of Engineering**
5. Chief Editor, **Book Series: Mathematics and Culture**, Higher Education Press, China.
6. Guest Editor, **Journal of Mechanical Design**
7. Guest Editor, **Computer Aided Geometric Design**

General Chair or Organizer

1. Neural Architecture Search for Computer Vision + Deep Networks and Beyond for Representation Learning, Workshop in Computer Vision and Pattern Recognition (CVPR 2020), Seattle Washington, June 14th, 2020.
2. Statistical Deep Learning in Computer Vision 2019, Workshop in International Conference in Computer Vision (ICCV2019), Seoul Korea, October 27th, 2019.
3. Workshop on Foundations of Computational Science, Harvard University, August 29-31, 2019, Harvard University, Cambridge MA.
4. Workshop on Optimal Transportation and Applications, June 7-8, 2019, Capital Normal University.
5. Tsinghua AI Summit at Sanya, March 22-24, 2019, Sanya Hainan, China.
6. Workshop on Geometric Analysis Approach to AI, January 18-21, 2019, Harvard University, Cambridge, MA.
7. International Workshop on Isogeometric Analysis and Mesh Generation, August 3-5, 2018, Dalian University of Technology, China.
8. Workshop on Discrete and Computational Geometry and its Applications, July 21-22, 2017, Capital Normal University, Beijing.
9. International workshop for mathematical imaging and digital geometry, June 12-13, 2017, Capital Normal University, Beijing.
10. From Algebraic Geometry to Vision and AI: A Symposium Celebrating the Mathematical Work of David Mumford, June 1-2 2017, Center of Mathematical Sciences and Applications, Harvard University.

11. International Workshop on Computational Geometry and Image Processing, April 12nd, 2017, Capital Normal University, Beijing.
12. 2016 Multimedia Computation and Communication Forum, August 24-25, 2016, Dalian University of Technology.
13. International Conference on Information and Computational Science, August 2-6, 2016, Dalian, China.
14. Ubiquitous Networking and Big Data Computation'16, June 30th-July 1st, 2016, Dalian University of Technology China.
15. International Conference on Imaging Science and Applied Mathematics, A Conference dedicated to Professor Stanley Osher, 1st CAM-ICCM Workshop, Mathematics Science Center, Tsinghua University, Dec 15-18, 2012, Beijing.
16. International Workshop on Mathematical Geometry Processing and Applications, Dec 16-17, 2014, Chinese University of Hong Kong.
17. International Conference on Imaging Science 2012 (in honor of Prof. Stanley Osher at his 70th birthday), December 12-14, 2012, Hong Kong University of Science and Technology, Hong Kong Baptist University, The Hong Kong Polytechnic University.
18. International Conference on Applied Mathematics, August 6-7, 2012, Morningside Center of Mathematics, Chinese Academy of Science.
19. 3D Geometry and Imaging International Conference, July 19-21, 2012, Kunming University of Science and Technology, Yunnan, China.
20. Organizing Chair: International Conference on Imaging Science and Applied Mathematics, Tsinghua Sanya Mathematics Forum, Shanya, China, Dec 15-18, 2012.
21. Tsinghua Sanya International Mathematics Forum, December 18-20, 2011, Sanya China.
22. Organizer: Numerical Ricci flow in Computer Science, Geometry and Physics, July 14-16, University of British Columbia, (Pacific Institute of Mathematics) PIMS' Thematic Program on Applied Mathematics Perspectives. This is one of the official satellite workshops of the International Congress of Industrial and Applied Mathematics (ICIAM 2011). Co-organizers: Charles Doran, University of Alberta; Robert Gulliver, University of Minnesota ; Suneeta Vardarajan, IISER Pune.
23. Computer Graphics International (CGI), June 22-24, 2005, Stony Brook, New York.
24. International Workshop on Volumetric Graphics, June 20-21, 2005, Stony Brook, New York.
25. CVPR Workshop on 3D Face Processing (3DFP) 2008.
26. Program Chair: IEEE International Conference on Shape Modeling and Applications (SMI) 2008.
27. International Workshop on Volume Graphics, 2005.
28. Computer Graphics International, (CGI) 2005.

Program Committee

1. Program Committee, Conference of Association for the Advanced Artificial Intelligence AAAI 2020.

2. International Meshing Roundtable (IMR) 2020.
3. ACM International Convention on Shape, Solid, Structure, & Physical Modeling, (SPM) 2006, 2008, 2009, 2010, 2012, 2014, 2017, 2019, 2020.
4. Pacific Graphics (PG) 2007, 2008, 2009, 2010, 2012, 2016, 2018, 2019.
5. Geometric Modeling and Processing (GMP) 2006, 2008, 2010, 2019.
6. SIAM/ACM Joint Conference on Geometric and Physical Modeling (GPM) 2009.
7. IEEE Shape Modeling International (SMI), 2009, 2010, 2012, 2014.
8. Technical Program Committee, 10th International Conference on Signal Processing Systems (ICSPS) 2018.
9. International Symposium on Visual Computing (ISVC) 2007, 2008, 2009, 2010, 2018.
10. The 13th International Conference on Artificial Intelligence and Symbolic Computation (AISC) 2018.
11. Annual Symposium on Computational Geometry 2016 (SoCG 2016).
12. Symposium of Geometry, Imaging and Computing, SIAM Conference on Imaging Science (SIAM-IS14), May 12-14, 2014, Hong Kong Baptist University, Hongkong.
13. IEEE Visualization (Vis) 2009, 2011.
14. International Conference on Computer Vision (ICCV) 2007, 2009, 2011.
15. IASTED International Conference on Graphics and Virtual Reality (GRVR) 2011.
16. IEEE Conference on Computer Vision and Pattern Recognition, (CVPR) 2011, 2013.
17. The 9th IEEE Conference on Automatic Face and Gesture Recognition 2011.
18. The 20th International Conference on Pattern Recognition (ICPR) 2010.
19. Symposium on Geometry Processing (SGP) 2008.
20. 26th Annual Symposium on Computational Geometry, (SoCG) 2010.
21. IMA Mathematics of Surfaces XIII conference 2009.
22. The Tenth IASTED International Conference on Computer Graphics and Imaging, (CGIM) 2008.
23. International Conference on Computer-Aided Design and Computer Graphics (CAD/Graphics) 2007, 2009, 2013.
24. International Conference on Entertainment Computing (ICEC) 2007, 2008.
25. Computer Graphics International (CGI) 2006.
26. Dongrun-Yau Science Award, 2012-*present*
27. S.-T. Yau College Student Mathematics Contest, 2012-*present*

Journal Reviewer

1. Journal of Complex Networks (JCN)

2. IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)
3. Computer Methods and Programs in Biomedicine
4. IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
5. Computers and Graphics
6. the Notices of the AMS
7. IEEE Signal Processing Letters (IEEE SPL)
8. Graphical Models (GMOD)
9. IEEE Transaction on Visualization and Computer Graphics (TVCG)
10. International Journal of Computer Vision (IJCV)
11. ACM Transaction on Graphics (TOG)
12. IEEE Transaction on Medical Imaging (TMI)
13. IEEE Transaction on Biomedical Engineering (TBME)
14. IEEE Transactions on Automation Science and Engineering(TASE)
15. Visual Computer
16. Computer Aided Design (CAD)
17. Computer Aided Geometric Design (CAGD)
18. Computers and Mathematics with Applications (CAM)
19. Computer Methods in Applied Mechanics and Engineering (CMAME)
20. The Computer Journal (COMPJ)
21. Computers and Mathematics with Applications (CAM)
22. Communications in Information and Systems (CIS)
23. Journal of Computer Science and Technology (JCST)
24. International Journal of Biomedical Imaging (IJBI)
25. Journal of Mathematical Imaging and Vision (JMIV)
26. Computers in Biology and Medicine
27. Advances in Computational Mathematics
28. Computer Methods in Applied Mechanics and Engineering
29. Computers in Biology and Medicine
30. Medical Image Analysis (MEDIA)

Conference Reviewer

1. SIGGRAPH (SIG) 2005-*present*

2. EuroGraphics (EG), 2007-*present*
3. Pacific Graphics (PG), 2006-*present*
4. IEEE Visualization (Vis), 2007-*present*
5. Solid and Physical Modeling (SPM) 2005-*present*
6. Symposium on Geometry Processing (SGP) 2005-*present*
7. IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) 2006-*present*
8. International Conference on Computer Vision (ICCV) 2007-*present*
9. Europe Conference on Computer Vision (ECCV) 2008-*present*
10. Geometric Modeling and Processing (GMP) 2006-*present*
11. ICPR (International Conference on Pattern Recognition), 2010
12. Annual Symposium on Computational Geometry (SoCG), 2010, 2016
13. International Symposium on Visual Computing (ISVC) 2007-2008,
14. Computer Graphics International (CGI) 2005-2006,
15. International Conference on Computer Graphics Theory and Application (GRAPP) 2007-2008

Funding Agency Panelist

1. NSF CGV-Medium-14 (computational photography, computer graphics, visualization, and their applications), March 20-21, 2014
2. NSF panel P121042-Computational Geometry, Mar 13-14, 2012.
3. NSF CCF-FODAVA (Foundations of Data and Visual Analytics), May 16-17, 2011
4. Office of Naval Research (ONR) Computational Mechanics and Signatures Program, April 25-27, 2011.
5. NSF Mathematics Science and Computer Science (MCS) panel of DMS and CCF, April 8, 2009
6. NSF Numeric, Symbolic and Geometric Computation panel, February 2006
7. NSF Computational Geometric panel, February 2005
8. Research Grants Council, Hongkong, 2006-*present*
9. National Science Foundation, China, 2006-*present*
10. Israel Science Foundation, 2016-*present*

Department and University Service

1. Member, SUNY Korea Faculty Hiring Committee, 2015-*present*
2. Member, Graduate Admission Committee of Computer Science Department, 2004-*present*

3. Member, Qualify Committee of Computer Science Department, 2007-*present*
4. Member, Library Committee of Computer Science Department, 2006-*present*
5. Member, CEWIT Building Committee, 2008-*present*
6. Organizer, Graduate Orientation of Computer Science Department, 2007-*present*
7. Organizer, the Open House for Domestic Graduate Candidates Visiting, 2010-*present*
8. Advisor for Honors undergraduate students, 2006-*present*.
9. Member of Organizing Committee, Computer Graphics International, Stony Brook, 2005
10. Member of Organizing Committee, Volume Graphics, Stony Brook, 2005
11. Member of Organizing Committee, ACM Solid and Physical Modeling, Stony Brook, 2008
12. Member of Organizing Committee, IEEE Shape Modeling and Applications, Stony Brook, 2008
13. Instructor for ITS 102, 2007-*present*
14. Research Talks in CSE600, 2004-*present*
15. Graduate Ceremony: 2005-*present*
16. Host faculty candidate Qian-Yi Zhou, March 13 - 17, April 4-6, 2014.
17. Host faculty candidate Xiaojun Bi, April 6-8, 2014.
18. Host visiting professors:
 - Juan Tang *Guangzhou University*, 09/01/2019-08/31/2020
 - Pengsheng Zhang *Northeastern Forest University*, 09/01/2019-08/31/2020
 - Faqiang Wang *Beijing Normal University*, 09/01/2018-02/29/2020
 - Junli Zhao *Qingdao University*, 08/20/2018-10/15/2019
 - Xuan Li *Beijing Institute of Technology*, 08/01/2018-07/31/2019
 - Guanghui Dong *Northeast Forestry University*, 12/10/2018-12/09/2019
 - Wayne Lam *Brown University*, April 17-22, 2017
 - Emil Saucan *Technion University*, September 2008, April 29-May 5th, 2015
 - Kehua Su *Wuhan University*, September 2014-August, 2016
 - Li Cui *Beijing Normal University*, 2015-2016
 - Wei Chen *Kunming University of Science and Technology*, 2014-2015
 - Kun Qian *Kunming University of Science and Technology*, 2014-2015
 - Yuan He *Kunming University of Science and Technology*, 2014-2015
 - Zhibin Chen *Kunming University of Science and Technology*, 2014-2015
 - Yibin Lv *Kunming University of Science and Technology*, 2014-2015
 - Jialing Zhang *Kunming University of Science and Technology*, 2014-2015
 - Na Lei *Jilin University*, 2014-2015
 - Yong Li *Zhejiang Normal University*, 2013-2014
 - Jieli Zhang *Dalian Science and Technology University*, 2012-2013

- Yaping Zhang *Zhejiang University*, 2009-2010
- Xiaokang Yu *Shangdong University*, 2009-2011
- Yu-Kun Lai *Tsinghua University*, 2007-2008
- Xin Pan *Dalian University of Technology*, 2007-2008
- Yong-liang Yang *Tsinghua University*, 2008-2009
- Wei Han *Zhejiang University*, 2008-2009
- Luke Domanski *University of Western Sydney*, 2005-2006

Thesis Committee

- Zhixin Shu, PhD Thesis Defense, 2019, December 6th. *Face Editing with Machine Learning*
- Kin Sum Liu PhD Thesis Defense, 2019, December 4th. *Graph Analysis: Representation, Learning and Optimization*
- Xiaoqiang Xu, Ms Thesis Defense, 2019, December 2nd, *Topology Optimization of Multimaterial Thermoelectric Structures*
- Suwen Zhu, PhD Thesis Defense, 2019, Decemter 2nd, *Model-Based Intelligent Interactions on Touch Surfaces*
- Shashank Sharma, PhD Thesis Defense, 2019, April 25th. *A Unified Framework for Motion and Path Synthesis of Planar and Spherical Mechanisms*
- Ming Ma, PhD Thesis Defense, 2018, December 4th. *Computational Conformal Geometry and Its Applications*
- Shenghui Cheng, PhD Thesis Defense, 2018, April 27
Visual Analytics for Relation Discovery in Multivariate Data
- Bing Wang, PhD Thesis Defense, 2016, June 20
High Dimensional Data Exploration, Representation and Generation
- Gowtham Srinivasan, Master Thesis Defense, 2016, May 17
The Computational Complexity of the Provision-after-Wait Problem in Healthcare
- Purpant Ruchikachorn, PhD Thesis Defense, 2016, May 16
Integrating Visualizations Into the Authoring of Narratives
- Rebecca Conley, PhD Thesis Defense, 2016, April 27
Overcoming Element Quality Dependence of Finite Element Methods: Adaptive Extended Stencil Finite Element Method (AES-FEM)
- Ming Zhong, PhD Thesis Defense, 2016, Feb 11
Novel Spectral Representations and Sparsity-Based Methods for Shape Modeling and Analysis
- Zhengyu Su, PhD Thesis Defense, 2015, Nov 20
Optimal Mass Transport and Its Applications
- Xiaojie Wang, PhD Thesis Defense, 2014, July 1
Uniqueness of Ricci Flow Solution on Non-compact Manifolds and Integral Scalar Curvature Bound
- Min Zhang, PhD Thesis Defense, 2014, May 27
Ricci Flow and Its Applications

- Le Hou, Master Thesis Defense, 2014, May 1
Rat's Orofacial Activity Recognition and Its Applications
- Lei Wang, PhD defense, 2013, May 22
Perception based Volume Rendering for Shape Enhancement
- Ruirui Jiang, PhD defense, 2013, April 26
Applications of Computational Conformal Geometry
- Bo Li, PhD defense, 2012, December 6
A Spline-based Volumetric Data Modeling Framework and Its Applications
- Xiaomeng Ban, PhD defense, 2012, December 5
Exploring Advanced Communication Primitives Using Greedy Routing in Sensor Networks
- Ziyi Zeng, PhD defense, 2012, December 4
Efficient Reconstruction and Visualization of CT Data
- Joseph Marino, PhD defense, 2012, November 14
Improving Cancer Detection Through Visualization
- Duo Wang, PhD Defense 2012, August 21st
Numerical Differential Geometry and Its Applications
- Yinghua Li, PhD defense, 2012, July 25th
Algorithms in Computational Conformal Geometry
- Jun Zeng, PhD Defense, 2012, June 22nd
Coupling Techniques for Dense Surface Registration: A Continuous-Discrete Approach
- Dengpan Zhou, PhD Defense, May 10th, 2012
Distributed Algorithms for Online Coordination in Wireless Sensor Networks
- Phanindra Bhagavatula, Master Defense, May 10th, 2012
Variational Delaunay Triangulation
- Tingbo Hou, PhD Prelim 2011, December 13rd
Dynamic Shape Analysis and Synthesis Based on Heat Diffusion
- Shan Chu, PhD 2011, December 12th, Electronic Engineering Department
Cross-layer Modeling and Algorithm Design for MIMO Ad hoc Networks
- Wenxin Guo, PhD 2011, December 8th, Mathematics Department
Sasakian structures from two perspective
- Xiaohua Huang, MS 2011, December 13rd
Bag of Feature Graphs: A New Method for Non-rigid 3D Shape Retrieval
- Long Lin, PhD 2011, August 25th, Courant Institute, New York University
Adaptive Isotopic Approximation of Nonsingular Curves and Surfaces
- Xiaotian Yin, PhD 2010, August 10th
Discrete Metric Designs and Discrete Tangent Bundles: from Surfaces to 3-Manifolds
- Hao Huang, Ms 2010, May 3rd
Heterogeneous Objects Scalar Modeling and Visualization Using Trivariate T-splines
- Xue Tu, PhD in Electrical Engineering, July 20th, 2009
Thesis: Image based 3D Sensing and Modeling Technology for High-end Digital Cameras

- Jihun Yu, PhD Courant Institute, NYU, August 10th, 2009
Thesis Proposal: Adaptive Simulation of Particle Based Fluid
- Wei Zhang, PhD 2008
Thesis: Feature Representation for Generic Object Detection and Recognition: Computer Vision and Human Vision
- Sen Wang, PhD 2008
Thesis: Shape Registration and Analysis Framework for Computer Vision and Graphics
- Guangyu, Zou, PhD 2008
Thesis: Multiscale Geometry Constrained Shape Diffeomorphism
- Zhe Fan, PhD 2008
Thesis: Flow Simulation and Visualization on GPU Clusters
- Shengying Li, PhD 2008
Thesis: Refraction in Graphics and Medical Imaging
- Lei Zhang, Ms 2008
Thesis: Analysis and Visualization of Facial Expression Subtlety Using Dynamic High Resolution Data
- Kexiang Wang, 2008
A Variational Framework of Multivariate Splines and Its Applications
- Xin Li, PhD 2008
Thesis: Shape Mapping and Its Applications
- Hong Wei, PhD 2007
Thesis: Computer Aided Diagnosis for Virtual Endoscopy
- Lujin Wang, PhD 2007
Thesis: Feature-Driven Illustrative Visualization and Graphics
- Haodu Hu, PhD 2006
Thesis: Cache Oblivious Data Structures for Massive Data Sets
- Fuxiang Yu, PhD 2007
Thesis: Computational complexity of real and complex functions defined on a two-dimensional domain
- Ye Zhao, PhD 2006
Thesis: Modeling Natural Phenomena with Lattice Boltzmann Method
- Ying He, PhD 2006
Thesis: Manifold Splines
- Yang Wang, PhD 2006
Thesis: Facial Modeling on High Resolution Geometry and Appearance Data
- Song Zhang, PhD 2005, Mechanical Engineering Department
High-resolution, Real-time 3-D Shape Measurement
- Xiaohu Guo, PhD 2005
Thesis: Point-Based Graphics: A Modeling, Animation, and Simulation Paradigm
- Francesco Gallarotti, Ms 2005
Thesis: CLAYSKETCH-3D Shape Sculptor Using 2D Freehand Sketches

External Thesis Examiner

- Le Tien Hung, School of Computer Science and Engineering, *PhD Thesis: Parallel Computation of Discrete Geodesics and Its Applications*, Nanyang Technological University, April, 2017.
- Hangfan Li, Mathematics Department, *PhD Thesis: Quasi-conformal Based Statistical Shape Analysis*, Chinese University of Hong Kong, August, 2015.
- Kin-Tat Ho, Mathematics Department, *PhD Thesis: Iterative Scheme for Quasi-conformal Parameterization of Multiply-connected Surface*, Chinese University of Hong Kong, August, 2015.
- Chi-Po Choi, Mathematics Department, *PhD Thesis: Geometry Processing Using Computational Differential Geometry*, Chinese University of Hong Kong, 2014.
- Tsz-Ching Ng, Mathematics Department, *Master Thesis: Solving Diffeomorphism Optimization Problems via Beltrami Holomorphic Flow*, Chinese University of Hong Kong, 2014.
- Ka-Chun Lam, Mathematics Department, *Master Thesis: Surface Registration Using Quasi-conformal Teichmüller Theory and Its Application to Texture Mapping*, Chinese University of Hong Kong, August, 2013.
- Luke Domanski, Mathematics Department, *PhD Thesis: Creation and Spatial Partitioning of Mip-mappable Geometry Images*, University of Western Sydney.
- Ka Chun Lam, Mathematics Department, *Thesis: Medical Imaging and Computer Graphics Using Quasi-Conformal Teichmüller Theory*, Chinese University of Hong Kong, 2013.
- Chengfeng, Wen, Mathematics Department, *Master Thesis: Geometric Processing Using Computational Riemannian Geometry*, Chinese University of Hong Kong, 2013.
- Do Thi Phuong Quynh, School of Computer Science and Engineering, *PhD Thesis: Robust Discrete Geodesic and Its Applications in Digital Geometry Processing*, Nanyang Technological University, September, 2012.

RPE/Prelim Committee

- Zhe Yan, December 12th, 2019.
Connecting and Deploying Robots and Wireless Sensor Nodes with Control and Communications. PhD Dissertation proposal. Department of Electrical Engineering.
- Qian Ye, December 5th, 2019.
Topology Optimization on Surface: an Extended Level Set (X-LS) Approach. PhD Dissertation proposal. Department of Mechanical Engineering.
- Yu-Chin Chan, October 22nd, 2019.
Data-Driven 3D Metamaterials Design with Multi-Class Generative Deep Learning. PhD Dissertation Proposal. Department of Mechanical Engineering, Northwestern University.
- Chengfeng Wen, October 2nd, 2019
Computational Conformal Geometry and Its Applications (Prelim)
- Ziqiao Guan, September 18th, 2019
Analysis and Reconstruction of Coherent Diffractive Imaging Using Physics Aware Deep Learning (Prelim).

- Yu-Hao Lin, September 6th, 2019
2D Vector Graphics and Their Applications with a Focus on Authoring Color Gradients (RPE).
- Suwen Zhu, June 13, 2019
Model-Based Intelligent Interactions on Touch Surfaces (Prelim).
- Zhixin Shu, June 10th, 2019
Face Editing with Machine Learning (Prelim)
- Dongsheng An, May 4th, 2018
Quasi-conformal Mapping and its application in image augmentation (RPE)
- Yang Guo, February 3rd, 2017
Surface Foliation Theory and its Applications (RPE)
- Shenghui Cheng, May 9th, 2017
Contextual Visualization of Multivariate Data (Prelim)
- Jiaxin Ding, April 4th, 2018
Geometric Algorithms for Trajectory Sensing Analysis and Anonymity (Prelim)
- Ming Ma, January 27, 2018
Computational Conformal Geometry and Its Applications (Prelim)
- Junwei Zhang, September 13rd, 2016
Optimal Mass Transportation - Theory and Applications (Prelim)
- Chengfeng Wen, September 2nd, 2016
Optimal Mass Transportation - Theory and Applications (RPE)
- Xin Qi, September 2nd, 2016
Optimal Mass Transportation - Theory and Applications (RPE)
- Heyi Li, January 28th, 2016
An Novel Forward Projection Model Using One-Side Area Look-up Table (RPE)
- Zhixin Shu, September 2nd, 2015
Learning for Example-driven Image Editing
- Bing Wang, May 13th, 2015
Subspace Exploration and Data Generation in High-dimensional Space (Prelim)
- Ming Zhong, May 7th, 2015
Novel Spectral Representations and Sparsity-Based Methods for Shape Modeling and Analysis (Prelim)
- Jiaxin Ding, July 8th, 2014
Understanding Information Dissemination Characteristics on Vehicle-to-Vehicle Networks (RPE)
- Koosha Mirhosseini, May 22nd, 2014
Visualization on Large High Resolution Displays (RPE)
- Ming Ma, May 2nd, 2014
Discrete Surface Ricci Flow and Its Applications (RPE)

- Chien-Chun Ni, August 6th, 2013
Capacitated Wireless Base Station Allocation in Mobile Networks by Optimal Transportation Theory (Prelim)
- Kaloian Petkov, March 8th, 2013
Lattice-Based Immersive Visualization (Prelim)
- Hao Peng, February 6th, 2013
Colonoscopy Biomedical Metrics (RPE)
- Lei Wang, September 25th
Visual Perception Enhancement in Volume Rendering (Prelim)
- Saad Nadeem, September 5th, 2012
Augmented Colonoscopy (RPE)
- Zhengyu Su, September 5th, 2012
Volumetric Parameterization by Computational Conformal Geometry (RPE)
- Xiaomeng Ban, April 26th, 2012
Exploring Advanced Communication Primitives Using Greedy Routing in Sensor Networks and Other Complex Networks (Prelim)
- Ziyi Zheng, April 18th, 2012
Efficient Reconstruction and Visualization of CT Data (Prelim)
- Joseph Marino, December 13rd, 2011
Improving Cancer Detection Through Visualization (Prelim)
- Yang Zhao, September 12nd, 2011
A Survey On Surface Mapping Methods and Its Application In Medical Imaging (RPE)
- Min Zhang, September 8th, 2011
A Survey on Computational Conformal Geometry (RPE)
- Rui Shi, September 8th, 2011
Computational Conformal Geometry and it's Applications in Medical Image, Graphics and Wireless Sensor Network (RPE)
- Siming Li, September 8th, 2011
A Survey on Triangulation Schemes for Moving Points in the Plane and their Applications (RPE)
- Krishna Chaitanya Gurijala, February 5th, 2010
Detection and Representation of 3D Geometric Features in Geometric Scale-Space (RPE)
- Lei Wang, Jan 29, 2010
Medical Image Registration of CT and MRI data (RPE)
- Xin Zhao, Jan 22, 2010
Segmentation and Computer Aided Detection of MR Prostate Images (RPE)
- Lei Wang, Jan 29, 2010
Medical Image Registration in CT and MR Images (RPE)
- Ruirui Jiang, September 14, 2009
Conformal Geometry (RPE)

- Ziyi Zeng, September 1, 2009
Imaging across the Electromagnetic Spectrum: A Survey (RPE)
- Bo Li, May 18, 2009
A Survey on Volumetric Modeling and Analysis (RPE)
- Tingbo Hou, May 13, 2009
A Survey on Model Representation, Registration and Completion (RPE)
- Yun Zeng, May 13, 2009
A Survey on Geometric Surface Mapping and Its Applications in Computer Vision (RPE)
- Kaloian Petkov, 2007
Lattice-based Simulations and Their Applications on Graphics Hardware (RPE)
- Joe Marino, 2007
Virtual Colonoscopy (RPE)
- Lei Zhang, 2007
Automatic Spatial-Temporal Analysis of Facial Expression (RPE)
- Xiaotian Yin, 2007
Discrete Curvature Flow (RPE)
- Alex Panagopoulos , 2007
Surface Reflectance Estimation from a Single or Multiple Views (RPE)
- Yunfan Bao, 2005
Surface Parameterizations (RPE)

- Hongyu Wang, 2006
Manifold Splines (RPE)
- Xin Li, 2005
Parameterization based Shape Comparison (RPE)
- Miao Jin, 2005
Computational Conformal Geometry (RPE)
- Jin Zhou, 2005
GPU based Graphics (RPE)

Advised Students

Current PhD Students

1. Dongseng An, PhD Expected Graduation: 2020
Dynamic Shape Analysis Based on Teichmüller Theory
2. Xinyuan Li, PhD Expected Graduation: 2020
Geometric Reconstruction based on Conformal Geometry
3. Tsz-Ching Ng, PhD Expected Graduation: 2020
Discrete Ricci flow for 3-Manifolds
4. Yang Guo, PhD Expected Graduation: 2019
Surface Foliation for Meshing

5. Xin Qi, PhD Expected Graduation: 2018
Surface Deformation
6. Chengfeng Wen, PhD Expected Graduation: 2019
Surface Registration and Tracking

Current MS Students

1. Ahmed Syed Abrar, MS Expected Graduation: 2020
Optimal Transportation for Deep Learning
2. Aman Agarwal, PhD Expected Graduation: 2020
Reinforcement Learning using Group Theory

Graduated PhD Students

1. Yu-yao Lin, PhD 2018
Surface Foliation and Graph Ricci Flow: Computational Methods and Applications Research fellow, Intel Research Lab.
2. Ming Ma, PhD 2017
Computational Conformal Geometry and Its Applications Postdoc research fellow, medical school of Stanford University
3. Xiaopeng Zheng, (Co-advised with Na Lei), PhD 2017
Foliations on Riemann Surfaces and Applications in Mesh Generation
Assistant Professor, Dalian University of Technology
4. Zhengyu Su, PhD 2015
Optimal Mass Transport and Its Applications (Facebook)
5. Rui Shi, PhD 2014
Computational Conformal Geometry and Its Applications (Google)
6. Min Zhang, PhD 2014
Ricci Flow and Its Applications Postdoc Research Fellow, Harvard Medical School
7. Mayank Goswami, (Co-advised with Jie Gao), PhD 2013
Computing Teichmüller Maps and Applications of Conformal Geometry to Sensor Networks
Assistant Professor, Queens college at City University of New York
8. Ruirui Jiang, PhD 2013
Perception based Volume Rendering for Shape Enhancement
Software engineer, Google Inc.
9. Yinghua Li, PhD 2013
Generalized Delaunay Refinement Algorithms on the Hyperbolic Plane
Assistant Professor, Kunming University of Science and Technology
10. Yun Zeng, PhD 2012
Conformal Geometry and Markov Random Field Method for Non-rigid Surface Tracking
Postdoc Researcher, Harvard University
11. Wei Zeng, (Co-advised with Harry Shum), PhD 2009
Computational Conformal Geometry for Shape Analysis
Associate Professor, Computer Science Department, Florida International University

12. Xiaotian Yin, PhD 2010
Discrete Metric Designs and Discrete Tangent Bundles: from Surfaces to 3-Manifolds
Postdoc Researcher, Harvard University
13. Guangyu Zou (with Jing Hua in Wayne State University), PhD (Wayne State University)
Graduation: December 30, 2008
Multiscale Geometry Constrained Shape Diffeomorphism
Researcher, General Motor
14. Yongliang Yang, PhD (Tsinghua University) 2009 (with Shimin Hu in Tsinghua University)
Thesis: Inverse Curvature Map
Assistant Professor, Computer Science Department, University of Bath, UK
15. Miao Jin, PhD 2008
Thesis: General Surface Geometric Structures and Their Applications
Associate professor in Computer Science Department, University of Louisiana at Lafayette.
16. Xin Li (with H. Qin), PhD 2008
Thesis: Shape Matching and its Applications
Associate professor in Computer Science Department, Louisiana State University.
17. Junho Kim, Postdoc Researcher 2008
Associate professor in Computer Science Department, Dong-Eui University, Korea.
18. Ying He (with H. Qin), PhD 2006
Manifold Splines
Associate professor in Computer Science Department, Nanyang Technological University.
19. Yang Wang (with D. Samaras), PhD 2006
Facial Modeling on High Resolution Geometry and Appearance Data
Research Scientist, Siemens of Corporate Research.
20. Alexandre Gouillard (with R. Prost, National Institute of Applied Sciences, France), PhD (NIAS, France) 2005
Wavelet-Based Bi-Multiresolution Framework For Active Contour Models
CTO, Temasys Communications Pte Ltd

Graduated MS Students

1. Xuan Li, MS 2019 (John Hopkins)
2. Junwei Zhang, MS 2018 (Amazon)
3. Jian Jerome Jiang, MS 2016 (Google)
4. Xiao Cui, MS 2016
5. Yisuo Wang, MS 2015 (Amazon)
6. Duo Xu, MS 2013
7. Xin Xu, MS 2013
8. Lei Fan, MS 2013 (Amazon)
9. Yueying Cui, MS 2013

10. Phanindra Bhagavatula, MS 2012 (Mathworks)
11. Ibtisam Ul Haque, MS 2012
12. Hao Peng, MS 2012
13. Peng Chen, MS 2011
14. Min Zhang, MS 2010
15. Peng Chen, MS 2009
16. Yang Zhao, MS 2010
17. Dapeng Ding, MS 2006 *Shape Analysis, Medical Imaging*
18. Yunfan Bao (with H.Qin), MS 2006 (Renaissance Inc.)
19. Huayi Zeng, MS 2006

Undergraduate Alumni

1. Yisuo Wang, BS 2015
2. Xixi Huang, BS 2014
3. Nam Wook Kim, BS 2008 *Digital geometric processing*, Stanford University.
4. Johnathan Huang, BS 2007
Efficient Rendering, Pixar Inc.
5. Joe Marino, BS 2006 *Real time Rendering*, Stony Brook University.

Mentor for High School Students

- Jesse Yang, *An Integrated Conformal Geometry and Machine Learning Approach for Image-based Lung Cancer Detection*. Admitted by MIT in 2019.
- Gerald Jiarong Xu, Deerfield Academy, Grand Prize and Gold Medal in Mathematics, 2018 S.-T. Yau High School Sciences Award, December 17th, 2018, *Group Theory and Megaminx*.
- Simon Kai Hung Lam, Deerfield Academy, Silver Medal in Mathematics, 2017 S.-T. Yau High School Sciences Award, December 16th, 2017 *Geometric Data Analysis Based on Optimal Mass Transportation*.
- Zehui Bella Gu, International School of Boston, Bronze Medal in Mathematics, The 9th Dongrun-Yau Science Awards, December 17th, 2016, *Geometric Compression Based on Ricci Flow and Monge-Ampere Equation*. Admitted by Harvard University in 2017.
- Zehan Hu and Zeyu Wang, Tsinghua High School, Silver Medal in Mathematics, The 9th Dongrun-Yau Science Awards, December 17th, 2016, *Voronoi Diagram and its Applications on Line Graphs*.
- Yuanqi Kelly Zhang, St. Gregory College Preparatory School, Gold Medal in Mathematics, The 6th Dong-Run Yau Science Awards, December, 16th, 2013, *3D Surface Fabrication using Conformal Geometry*. Arizona Junior Science and Humanities Symposium First Place Winner, March 22nd, 2014. Admitted by Harvard University in 2014.
- Wayne Li, Smithtown High School-East, Siemens Competition, Math:Science:Technology, *Applying Optimal Mass Transportation Theory for Human 3D Facial Expression Recognition*, 2014. Admitted by University of Pennsylvania in 2014.

