

# Curriculum Vita - Eugene Zhang

## A. Education and Employment Information

### A1. Education

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2004	Ph.D., Computer Science Georgia Institute of Technology <i>Ph.D. advisor: Greg Turk</i> <i>Thesis title: Surface Topological Analysis for Image Synthesis</i>
1995	M.S., Computer Science Ohio State University
1994	M.S., Mathematics Ohio State University

### A2. Professional Experience

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Mar. 2012–Jul. 2012	Guest Professor Max-Planck Institute – Informatics
Aug. 2011–Feb. 2012	Guest Professor Berlin Mathematical School
Sep. 2010–present	Associate Professor School of Electrical Engineering and Computer Science Oregon State University
Sep. 2004–Aug. 2010	Assistant Professor School of Electrical Engineering and Computer Science Oregon State University
Aug. 1999–Jul. 2004	Graduate Teaching and Research Assistant Georgia Institute of Technology
Jun. 1995–Aug. 1999	Software Developer and Team Leader Datastream Systems, Inc.
Aug. 1991–Jun. 1995	Graduate Teaching and Research Assistant Ohio State University

## B. Teaching, Advising, and Other Assignments

### B1. Advising

#### B1.1. Graduate Advisees – Completed

Student	Degree	Thesis	Graduated
1. Ritesh Sharma	MS	<i>Interactive Design and Transition Point Analysis of 3D Symmetric Tensor Fields</i>	Spring 2017
2. Sanaz Golbabaiei	MS	<i>Branched covering space construction and visualization</i>	Spring 2016
3. Manuel Dobusch (*supervisor and co-examiner)	MS	<i>Computational fluid dynamics for simulation of wind-terrain interaction in flight simulation</i>	Spring 2016
4. Jonathan Palacios	PhD	<i>Tensor field design and analysis for applications in computer graphics and scientific visualization</i>	Spring 2015
5. Qingqing Deng	MEng		Spring 2012
6. Vivek Jadye	MEng		Spring 2011
7. Zhongzang Lin	MS	<i>2D second-order asymmetric tensor field analysis and visualization</i>	Fall 2010
8. Darrel Palke	MS	<i>Hybrid visualization of asymmetric tensor fields: glyphs and hyperstreamlines</i>	Spring 2010
9. Guoning Chen	PhD	<i>Topological analysis, visualization, and design of vector fields on surfaces</i>	Summer 2009
10. Jun Zhang	MS	<i>An Implementation of graph cut textures: image and video synthesis using graph cuts</i>	Spring 2009
11. Mizuki Kagaya	MS	<i>Painterly rendering using space-time style parameters</i>	Spring 2009
12. Mathieu Martin (co-advisor)	MS	<i>Numerical study of flow maldistribution in microchannels using fully resolved simulation</i>	Winter 2009
13. Gregory Esch	MS	<i>Visualization and design systems for road infrastructure</i>	Fall 2008
14. Patrick J. Neill	MS	<i>Fluid flow on interacting, deformable surfaces</i>	Spring 2008
15. Philip Maura (*supervisor and co-examiner)	MS	<i>Planar-reflective symmetry in 3D-space</i>	February 2007

\*\* Manuel Dobusch received a Master's degree from University of Applied Sciences, Salzburg, Austria in 2016. His thesis was based on work done at Oregon State University in 2016. I was his supervisor while he was at OSU and the co-examiner of his thesis.

\* Philip Maura received a Master's degree from University of Applied Sciences, Offenburg, Germany in 2007. His thesis was based on work done at Oregon State University in 2006. I was his supervisor while he was at OSU and the co-examiner of his thesis.

#### B1.2. Graduate Advisees – Current

Student	Degree	Expected Graduation
1. Botong Qu	PhD	Spring 2018
2. Prashant Kurma	PhD	Spring 2018
3. Fariba Khan	PhD	Spring 2021
4. Arash Shahbaz	PhD	Spring 2021
5. Lance Roy	PhD	Spring 2021
6. Nasrin Sanati	PHD	Spring 2022
7. JinTa Zheng	PhD	Spring 2022
8. Xiaofei Gao	MS	Spring 2017
9. Mariam Guizani	MS	Spring 2018

### **B1.3. Graduate Thesis or Project Committees**

#### **MEng Advisor:**

##### ***Graduated***

1. Joseph Boyd, M.Eng, 2017 (Mechanical Engineering)
2. Chunyang Zhang, M.Eng, 2017
3. Masayoshi Tamura, M.Eng, 2016
4. Punyapich Limsuwan, M.Eng, 2016
5. Xiaowei Zhang, M.Eng, 2016
6. Kaishuo Wang, M.Eng, 2014
7. Ruidi Sun, M.Eng, 2014

##### ***Current***

#### **Minor Professor or Committee Member:**

##### ***Graduated***

1. Charles Robinson, PhD, Mathematics, 2017
2. Anirban Roy, PhD, 2017
3. David Stuve, MS, 2017
4. Basim Iskandarani, MS, 2017
5. Matt Viedorfer, MS, 2017
6. Chenyu Wang, MS, 2017
7. Behrooz Mahasseni, PhD, 2016
8. William Leslie, MS, 2016
9. Daniel Stephen, MS, Geography, 2016
10. James Schneidereit, MS, 2016
11. Farzad Zafarani, MS, 2016
12. Alexander Clucas, MS, 2016
13. Chris Schultz, M.S. 2016
14. Nicholas Agalzoff, Undergraduate University Honors Thesis, 2016
15. Bryan Pawlowski, MS 2015
16. Shuai Xu, M.Eng, 2014
17. Mohamed Amer, PhD, 2014
18. Amit Bawaskar, MS, 2014
19. Anirban Roy, MS, 2013
20. Yongshuai Chen, PhD, Civil Engineering, 2013
21. Randy Rauwendaal, PhD, 2013
22. Tuan Pham, PhD, 2013
23. David Günther, PhD (Max-Planck-Institute in Informatics), 2013
24. Randy Rauwendaal, MS, 2012

25. Jiajian Chen PhD (Georgia Institute of Technology), 2012
26. Matthias Nieser, Ph.D. Freie Universität Berlin, 2012
27. Anna Harutyunyan, MS, 2012
28. Nick Schultz, MS, 2011
29. Kyle Hatcher, MS, 2011
30. Adam Leibel, MS, 2011
31. William Brendal, PhD, 2010
32. Nicole Czarnomski, PhD, 2010
33. Nirut Chalaini, MS, 2010
34. Tian Liu, MS, 2010
35. Charles Evans, MS, 2009
36. Vikram Iyer, MS, 2009
37. Ramkumar Sevenan, MS, 2009
38. Mathieu Martin, MS, 2009
39. Daniel Morse, PhD, 2008
40. Stephan Snider, MS, 2008
41. Stephanie Deutschman, MS, 2007
42. Dwayne Robinson, MS, 2007
43. Zhi Wu, MS, 2007
44. Vasumathi Lakshmanan, MS, 2006
45. David Hunt, MS, 2006
46. Haris Gunadi, MS, 2006
47. Ben Hermens, MS, 2006
48. Stanislav Trubin, MS, 2006
49. Shyh-Sen Huang, MS, 2006
50. Shusaku Hanamoto, MS, 2006
51. Yang Li, MS, 2005
52. Jessica McGregor, Undergraduate University Honors Thesis, 2006

***Current***

1. Jane Darbyshire, PhD (Geography)
2. Marjan Adeli, PhD
3. Kenneth Schultz, PhD (Civil Engineering)
4. Alexander Way, MS
5. Hanzhong Xu, PhD
6. Jeffery Knowles, PhD (Civil Engineering)
7. Harrison Ko, PhD (Civil Engineering)
8. Paris Kalathas, PhD
9. Hung Viet Le, PhD
10. Anahita Sanandaji, PhD

**Graduate Council Representative:**

1. Joe Umhoefer, PhD, (Mathematics)
2. Sarah Hagen, PhD (Mathematics)
3. Will Mayfield, PhD (Mathematics)
4. Lucas Thompson, MS (Civil Engineering)
5. Stephen Krughoff, PhD, 2016 (Mathematics)
6. Jason Anderson, MS, 2016 (Civil Engineering)
7. Syed Hussain, MS, 2016 (Civil Engineering)
8. Joe Umhoefer, MS, 2016 (Mathematics)

9. Trevor Carey, MS, 2014 (Civil Engineering)
10. Duncan McGregor, MS, 2014 (Mathematics)
11. Kailash C. Ghimire, PhD, 2007 (Mathematics)
12. Tad Schwager, MS, 2005 (COAS)

**Undergraduate Research Assistants:**

1. Francis Williams (Fall 2015)
2. Victoria Nelson (Summer 2015)
3. Christian Brewton (Summer 2015)
4. Marquis Hackett (Summer 2015)
5. Jaden Diefenbaugh (Summer 2015)
6. Francis Williams (Spring 2014)
7. Blaine Eakes (Summer, Fall, and Winter 2011)
8. Heather Shrewsberry (Summer 2010)
9. Yun Miao (Summer 2010)
10. Danielle Bell (Summer 2009)
11. Stephanie Gulley (Summer 2009)
12. Ian South-Dickinson (Spring 2006 - Spring 2007)
13. Victoria Bailey (Fall 2006 – Spring 2007)
14. Karena Dokken (Summer 2006)

**B1.4. Other Advising**

**CS Senior design project:** 2006, Bryan Beck and Dan Keenan, Painterly Rendering from Images. Featured in Corvallis Gazette-Times

[http://www.gtconnect.com/articles/2006/05/20/news/top\\_story/sat01.txt](http://www.gtconnect.com/articles/2006/05/20/news/top_story/sat01.txt).

**CS Senior design project:** 2007, Ian McDowell and Michael Munn, Tidal Power (co-advised with Prof. Annette von Jouanne).

**Eco-Information Summer Institute:** 2007, Jennifer Hill, Visualization of Forest System.

**Eco-Information Summer Institute:** 2008, Linda Sato and Quincey Blanchard, EcoHydrology: Relationships and Processes Driving Fluctuations in Streamflow (co-advised with Cody Hale and Prof. Julia Jones).

**Eco-Information Summer Institute:** 2009, Alexandra Neagele, Raymundo Navarrete, and Andrew Zdyrski, Storm Analysis using Tensor Field Visualization (co-advised with Prof. Julia Jones, Jonathan Palacios, and Chris Daly).

**CEOAS Summer Institute:** 2015, Victoria Nelson (co-advised by Prof. Bernhard Jenny, Prof. Andreas Schmittener, and Ritesh Sharma).

**High School Summer Interns:**

1. Jessica Li (2017) – Evenly-spaced streamlines on surfaces (co-advised with Arash Shahbaz)
2. Pragyna Naik (2017) – Geometry remeshing of surfaces (co-advised with Fariba Khan)
3. Sheena Huang (2017) – Physical simulation of snow (co-advised with Paris Kalathas)
4. Aldo Magana (2017) – Rendering of snow (co-advised with Paris Kalathas)

5. Ivy Ding (2016) – Unfolding polygons (co-advised with Botong Qu)
6. Benjamin Allen (2016) – Cancer imaging processing (co-advised with Yi-Fan Shen)
7. Lucas Stella (2016) – Snowflake visualization (co-advised with Paris Kalathas)
8. Lance Roy (2015) – 3D tensor field topology
9. Rachel Helman (2015) - Example-based texture synthesis (co-advised with Botong Qu)
10. Kevin Kincaid (2015) - Painterly rendering from images (co-advised with Sanaz Golbabaei)
11. Caroline Lerner (2011) – Interactive watercolor rendering with abstraction (co-advised with Qingqing Deng)
12. Spencer Lazaoff (2011) – Painterly rendering from images (co-advised with Qingqing Deng)
13. Amanda Dunn (2010) – Painterly rendering from images (co-advised with Qingqing Deng)
14. Preksha Naik (2010) – 3D tensor field topology (co-advised with Vivek Jadye)
15. Kushal Agarwal (2010) – QuadCover parameterization for quadrangular remeshing (co-advised with Zhongzang Lin)
16. Garrett Egan (2009) – Example-based texture synthesis (co-advised with Qingqing Deng)
17. Shannon Williams (2009) – Shape morphing using implicit surfaces (co-advised with Jonathan Palacios)
18. Abigail Gregory (2009) – Stable fluid simulation (co-advised with Zhongzang Lin)
19. Evan Wu (2008) – Streamline-based flow visualization (co-advised with Zhongzang Lin)
20. Alex Turpin (2007) – Example-based texture synthesis (co-advised with Jonathan Palacios)
21. Steven Milligan (2007) – Stable fluid simulation (co-advised with Guoning Chen)
22. Ian Hovander (2006) – Example-based texture synthesis (co-advised with Jonathan Palacios)

## C. Scholarship and Creative Activity

### C1. Publications

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#### C1.1. Refereed Books & Book Chapters

1. Y. Zhang, X. Gao, and **E. Zhang**, “Some Observations of the Physical Meanings of 2D Tensor Field Topology”, in *Visualization and Processing of Higher Order Descriptors for Multi-Valued Data*, 2017 (to appear).
2. Y. Zhang, Yu-J. Tzeng and **E. Zhang**, “Maximum Number of Degenerate Curves in 3D Linear Tensor Fields”, in *Topological Methods in Data Analysis and Visualization IV*, 2017 (to appear).
3. Y. Zhang, J. Palacios, and **E. Zhang**, “Topology of 3D Linear Symmetric Tensor Fields” in *Visualization and Processing of Higher Order Descriptors for Multi-Valued Data*, 2015, pp. 73-91, Springer International Publishing.
4. **E. Zhang** and Y. Zhang, “3D Symmetric Tensor Fields: What We Know and Where to Go Next” in *Topological and Statistical Methods for Complex Data*, 2015, pp. 111-124, Springer Berlin Heidelberg.
5. **E. Zhang** and V. Natarajan, “Derived Fields” in *Scientific Visualization*, 2014, pp. 139-159, Springer London.
6. R.S. Laramée, H. Carr, M. Chen, H. Hauser, L. Linsen, K. Mueller, V. Natarajan, H. Obermaier, R. Peikert, and **E. Zhang**, “Future Challenges and Unsolved Problems in Multi-Field Visualization” in *Scientific Visualization*, 2014, pp. 205-211, Springer London.
7. M. Hlawitschka, I. Hotz, A. Kratz, G.E. Marai, R. Moreno, G. Scheuermann, M. Stommel, A. Wiebel, and **E. Zhang**, “Top Challenges in the Visualization of Engineering Tensor Fields” in *Visualization and Processing of Tensor Fields and Higher-Order Descriptors for Multi-Valued Data*, 2014, pp. 3-15, Springer Berlin Heidelberg.
8. **E. Zhang**, “Tensors in Geometry Processing” in *Visualization and Processing of Tensor Fields and Higher-Order Descriptors for Multi-Valued Data*, 2014, pp. 295-311, Springer Berlin Heidelberg.
9. **E. Zhang**, “NPR for Traditional Genres” in *Image and Video-Based Artistic Stylisation*, 2013, pp. 103-124, Springer London.
10. Z. Lin, H. Yeh, R.S. Laramée, and **E. Zhang**, “2D Asymmetric Tensor Field Topology” in *Topology-Based Methods in Visualization IV (Mathematics and Visualization)*, 2012, pp. 191-204, Springer Berlin Heidelberg.
11. **E. Zhang**, “Tensor Field Design: Algorithms and Applications”, in *New Developments in the Visualization and Processing of Tensor Fields*, 2012, pp. 111-133, Springer Berlin Heidelberg.
12. R.S. Laramée, G. Chen, M. Jankun-Kelly, **E. Zhang**, and D. Thompson, “Bringing Topology-Based Flow Visualization to the Application Domain.” in *Topology-Based Methods in Visualization II (Mathematics and Visualization)*, 2008, pp. 161-176, Springer Berlin Heidelberg.

#### C1.2. Refereed Journal Publications

1. J. Palacios, L. Roy, P. Kumar, C. Ma, L.-Y. Wei, and **E. Zhang**, “Tensor Field Design in Volumes”, *ACM Transactions on Graphics*, to appear.

2. K. Xu, L. Zheng, **E. Zhang**, M. Niessener, O. Deussen, D. Cohen-Or, H. Huang, “Autonomous Reconstruction of Unknown Indoor Scenes Guided by Time-varying Tensor Fields”, *ACM Transaction on Graphics*, to appear.
3. L. Roy, P. Kumar, S. Golbabaei, Y. Zhang, and **E. Zhang**, “Interactive Design and Visualization of Branched Covering Spaces”, *IEEE Transactions on Visualization and Computer Graphics*, to appear.
4. Y.C. Lai, B.A. Chen, K.W. Chen, W.L. Si, C.Y. Yao, and **E. Zhang**, “Data-Driven NPR Illustrations of Natural Flows in Chinese Painting”, *IEEE Transactions on Visualization and Computer Graphics*, to appear.
5. B. Jenny, D. Stephen, I. Muehlenhaus, B. Marston, R. Sharma, **E. Zhang**, and H. Jenny, “Force-Directed Layout of Origin-Destination Flow Maps”, *International Journal of Geographical Information Science*, 2017, pp. 1-20.
6. B. Jenny, D. Stephen, I. Muehlenhaus, B. Marston, R. Sharma, **E. Zhang**, and H. Jenny, “Design Principles for Origin-Destination Flow Maps”, *Cartography and Geographic Information Science*, 2016, pp. 1-15.
7. J. Palacios, H. Yeh, W. Wang, Y. Zhang, R.S. Laramée, R. Sharma, T. Schultz, and **E. Zhang**, “Feature Surfaces in Symmetric Tensor Fields Based on Eigenvalue Manifold”, *IEEE Transactions on Visualization and Computer Graphics*, 22(3), 2016, pp. 1248-1260.
8. M.H. Ngyuen, B. Wünsche, P. Delmas, C. Lutteroth, and **E. Zhang**, “A Robust Hybrid Image-Based Modeling System”, *The Visual Computer*, 32(5), 2016, pp. 1-16.
9. Y. Chen, **E. Zhang**, and H. Yeh, “Laboratory Experiment on Counter-Propagating Collisions of Solitary Waves, Part 2, Flow Field”, *Journal of Fluid Mechanics*, 755, 2014, pp. 463-484.
10. M.T. Chi, C.Y. Yao, **E. Zhang** and T.Y. Lee, “Optical Illusion Shape Texturing Using Repeated Asymmetric Patterns”, *The Visual Computer*, 30(6-8), 2014, pp. 809-819.
11. Y. Zheng, C.-L. Tai, and **E. Zhang**, “Pairwise Harmonics for Shape Analysis”, *IEEE Transactions on Visualization and Computer Graphics*, 19(7), 2013, pp. 1172-1184.
12. G. Chen, V. Kwatra, L.Y. Wei, C. Hansen, and **E. Zhang**, “Design of 2D Time-Varying Vector Fields”, *IEEE Transactions on Visualization and Computer Graphics*, 18 (10), 2012, pp. 1717-1730.
13. M. Edmunds, R.S. Laramée, G. Chen, N. Max, **E. Zhang**, and C. Ware, “Surface-Based Flow Visualization”, *Computer and Graphics*, 36 (8), 2012, pp. 974-990.
14. M. Edmunds, R.S. Laramée, R. Malki, I. Masters, T.N. Croft, G. Chen, and **E. Zhang**, “Automatic Stream Surface Seeding: A Feature-Centered Approach”, *Computer Graphics Forum*, 31 (3), 2012, pp. 1095-1104.
15. A. Szymczak and **E. Zhang**, “Robust Morse Decompositions of Piecewise Constant Vector Fields on Surfaces”, *IEEE Transactions on Visualization and Computer Graphics*, 18 (6), 2012, pp. 938-951.
16. M. Nieser, J. Palacios, K. Polthier, and **E. Zhang**, “Hexagonal Global Parameterization of Arbitrary Surfaces”, *IEEE Transactions on Visualization and Computer Graphics*, 18 (6), 2012, pp. 865-878.
17. G. Chen, Q. Deng, A. Szymczak, R.S. Laramée, and **E. Zhang**, “Morse Set Classification and Hierarchical Refinement Using Conley Index”, *IEEE Transactions on Visualization and Computer Graphics*, 18 (5), 2012, pp. 767-782.
18. C.H. Peng, **E. Zhang**, Y. Kobayashi, and P. Wonka, “Connectivity Editing for Quadrilateral Meshes”, *ACM Transactions on Graphics*, 30 (6), 2011, pp. 141:1-141:12.
19. G. Chen, D. Palke, Z. Lin, H. Yeh, P. Vincent, R.S. Laramée, and **E. Zhang**, “Asymmetric Tensor Field Visualization for Surfaces”, *IEEE Transactions on Visualization and Computer Graphics*, 17 (6), 2011, pp. 1979-1988.



20. J. Gregson, A. Sheffer, and **E. Zhang**, "All-Hex Mesh Generation via Volumetric PolyCube Parameterization", *Computer Graphics Forum*, 30 (5), 2011, pp. 1407-1416.
21. J. Palacios and **E. Zhang**, "Interactive Visualization of Rotational Symmetry Fields on Surfaces", *In IEEE Transactions on Visualization and Computer Graphics*, 17 (3), 2011, pp. 947-955.
22. Y. Li, F. Bao, **E. Zhang**, Y. Kobayashi, P. Wonka, "Geometry Synthesis on Surfaces Using Field-Guided Shape Grammars", *In IEEE Transactions on Visualization and Computer Graphics*, 17 (2), 2011, pp. 231-243.
23. M. Kagaya, W. Brendel, Q. Deng, T. Kesterson, S. Todorovic, P.J. Neill, and **E. Zhang**, "Video Painting with Space-Time-Varying Style Parameters." *In IEEE Transactions on Visualization and Computer Graphics*, 17 (1), 2011, pp. 74-87.
24. Y. Li, **E. Zhang**, Y. Kobayashi, and P. Wonka, "Editing Operations for Irregular Vertices in Triangle Meshes", *ACM Transactions on Graphics*, 29 (6), 2010, pp. 153:1-153:11.
25. T. Pham, R. Hess, C. Ju, **E. Zhang**, and R. Metoyer, "Visualization of Diversity in Large Multivariate Data Sets", *In IEEE Transactions on Visualization and Computer Graphics*, 16 (6), 2010, pp. 1053-1062.
26. Y.-K. Lai, M. Jin, X. Xie, Y. He, J. Palacios, **E. Zhang**, S.-M. Hu, and X. Gu, "Metric-Driven RoSy Field Design and Remeshing." *In IEEE Transactions on Visualization and Computer Graphics*, 16 (1), pp. 95-108.
27. G. Esch, M.H. Scott, and **E. Zhang**, "Graphical 3D Visualization of Highway Bridge Ratings." *In Journal of Computing in Civil Engineering*, 23 (6), 2009, pp. 355-362.
28. B. Spencer, R.S. Laramée, G. Chen, and **E. Zhang**, "Evenly-Spaced Streamlines for Surfaces: An Image-Based Approach." *In Computer Graphics Forum*, vol. 28 (6), 2009, pp. 1618-1631.
29. **E. Zhang**, H. Yeh, Z. Lin, and R.S. Laramée, "Asymmetric Tensor Analysis for Flow Visualization." *In IEEE Transactions on Visualization and Computer Graphics*, 15 (1), 2009, pp. 106-122.
30. G. Chen, Z. Lin, D. Morse, S. Snider, S.V. Apte, J. Liburdy, and **E. Zhang**, "Multiscale Feature Detection in Unsteady Separated Flows." *In International Journal of Numerical Analysis and Modeling*, 5, 2008, pp. 17-35.
31. K. Zhou, **E. Zhang**, J. Bittner, and P. Wonka, "Visibility-Driven Mesh Analysis and Visualization through Graph Cuts." *In IEEE Transactions on Visualization and Computer Graphics*, 14 (6), 2008, pp. 1667-1674.
32. G. Chen, G. Esch, P. Wonka, P. Mueller, and **E. Zhang**, "Interactive Procedural Street Modeling." *In ACM Transactions on Graphics*, 27 (3), 2008, pp. 103:1-103:10.
33. G. Chen, K. Mischaikow, R.S. Laramée, and **E. Zhang**, "Efficient Morse Decompositions of Vector Fields." *In IEEE Transactions on Visualization and Computer Graphics*, 14 (4), 2008, pp. 848-862.
34. J. Palacios and **E. Zhang**, "Rotational Symmetry Field Design on Surfaces." *In ACM Transactions on Graphics*, 26 (3), 2007, pp. 55:1-55:10.
35. G. Chen, K. Mischaikow, R.S. Laramée, P. Pawel, and E. Zhang, "Vector Field Editing and Periodic Orbit Extraction Using Morse Decomposition." *In IEEE Transactions on Visualization and Computer Graphics*, 13 (4), 2007, pp. 769-785.
36. **E. Zhang**, J. Hays, and G. Turk, "Interactive Tensor Field Design and Visualization on Surfaces." *In IEEE Transactions on Visualization and Computer Graphics*, 13 (1), 2007, pp. 94-107.
37. **E. Zhang**, K. Mischaikow, and G. Turk, "Vector Field Design on Surfaces." *In ACM Transactions on Graphics*, 25 (4), 2006, pp. 1294-1326.

38. **E. Zhang**, K. Mischaikow, and G. Turk, "Feature-Based Surface Parameterization and Texture Mapping." *In ACM Transactions on Graphics*, 24 (1), 2005, pp. 1-27.

### **C1.3. Peer-Reviewed Conference Papers**

1. J. Palacios, L. Roy, P. Kumar, C. Ma, L.-Y. Wei, and **E. Zhang**, "Tensor Field Design in Volumes", *SIGGRAPH ASIA 2017*, to appear.
2. K. Xu, L. Zheng, **E. Zhang**, M. Niessener, O. Deussen, D. Cohen-Or, H. Huang, "Autonomous Reconstruction of Unknown Indoor Scenes Guided by Time-varying Tensor Fields", *SIGGRAPH ASIA 2017*, to appear.
3. B. Qu, P. Kumar, **E. Zhang**, P. Jaiswal, L. Cooper, J. Elser, Y. Zhang, "Interactive Design and Visualization of N-ary Relationship", *SIGGRAPH ASIA Symposium on Visualization 2017*, to appear.
4. L. Roy, P. Kumar, S. Golbabaie, Y. Zhang, and **E. Zhang**, "Interactive Design and Visualization of Branched Covering Spaces", *IEEE Visualization Conference 2017, October 2017*, 2017, to appear.
5. D. Rees, R.S. Laramee, D. Nguyen, L. Zhang, G. Chen, H. Yeh, and **E. Zhang**, "A Stream Ribbon Seeding Strategy", *EuroVis 2017 (short paper)*, 2017.
6. Y. Zhang, L. Roy, R. Sharma, and **E. Zhang**, "Maximum Number of Transition Points in 3D Linear Symmetry Tensor Fields", *Topology-Based Methods in Visualization Conference Proceeding 2017*, 2017.
7. **E. Zhang**, V. Jadye, C. Escher, P. Wonka, Y. Zhang, and X. Gao, "Horizon Measures: A Novel View-Independent Shape Descriptor", *SIGGRAPH ASIA 2016 Technical Briefs*, 2016, pp. 20:1-4.
8. J. Palacios, C. Ma, W. Chen, L.Y. Wei, and **E. Zhang**, "Tensor Field Design in Volumes", *SIGGRAPH ASIA 2016 Technical Briefs*, 2016, pp. 18:1-4.
9. F. Williams and **E. Zhang**, "Rendering Kaleidoscopic Scenes Using Orbifold Theory", *SIGGRAPH ASIA 2016 Technical Briefs*, 2016, pp. 17:1-4.
10. S. Golbabaie, L. Roy, P. Kumar, and **E. Zhang**, "Construction and Visualization of Branched Covering Spaces", *SIGGRAPH ASIA 2016 Technical Briefs*, 2016, pp. 16:1-4.
11. L. Cooper, A. Meier, J. Elser, J. Preece, X. Xu, R. Kitchen, B. Qu, **E. Zhang**, S. Todorovic, P. Jaiswal, M.A. Laporte, E. Arnaud, and S. Carbon, C. Mungall, B. Smith, G. Gkoutos, and J. Doonan, "The Planteome Project", *Proceedings of International Conference on Biological Ontology and BioCreative*, 2016.
12. B. Qu, J. Diefenbaugh, **E. Zhang**, J. Elser, P. Jaiswal, S. Carbon. And C. Mungall, "Planteome Gene Annotation Enrichment Analysis", *Proceedings of International Conference on Biological Ontology and BioCreative*, 2016.
13. A. Clucas, P. Sannecy, **E. Zhang**, and Y. Zhang, "Modeling of Tire Rolling on Roads in Wintry Weather with Material Point Method", *National Agency for Finite Element Methods and Standards (NAFEMS) World Congress*, 2015.
14. **Y. Zhang**, Yu-J. Tzeng and E. Zhang, "Maximum Number of Degenerate Curves in 3D Linear Tensor Fields", *Topology-Based Methods in Visualization Conference Proceeding 2015*, 2015.
15. M. Edmunds, R.S. Laramee, R. Malki, I. Masters, Y. Wang, G. Chen, **E. Zhang**, and N. Max, "Interactive Stream Surface Placement: A Hybrid Clustering Approach Supported by Tree Maps", *International Conference on Information Visualization Theory and Applications (IVAPP) 2014*, 2014, pp. 347-355.
16. M.T. Chi, C.Y. Yao, T.Y. Lee, and **E. Zhang**, "Illusory Motions on Surfaces", *Computer-Aided Design and Computer Graphics (CAD/CG) 2013*, 2013, pp. 419-420.

17. M.H. Ngyuen, B. Wünsche, P. Delmas, C. Lutteroth, W. ver der Mark, and **E. Zhang**, “High-Definition Texture Reconstruction for 3D Image-Based Modeling”, *WSCG 2013*, 2013, pp. 39-48.
18. C. Auer, J. Kasten, **E. Zhang**, and I. Hotz, “Automatic Tensor-Guided Illustrative Vector Field Visualization”, *Pacific Vis 2013*, 2013, pp. 265-275.
19. M. Edmunds, R.S. Laramee, G. Chen, **E. Zhang**, and N. Max, “Advanced, Automatic Stream Surface Seeding and Filtering”, *EG UK Theory and Practice of Computer Graphics (TPCG) 2012*, 2012, pp. 53-60.
20. M. Edmunds, R.S. Laramee, R. Malki, I. Masters, T.N. Croft, G. Chen, and **E. Zhang**, “Automatic Stream Surface Seeding: A Feature-Centered Approach”, *EuroVis 2012*, 2012, pp. 1095-1104.
21. C.H. Peng, **E. Zhang**, Y. Kobayashi, and P. Wonka, “Connectivity Editing for Quadrilateral Meshes”, *SIGGRAPH ASIA 2011*, 2011, pp. 141:1-141:12.
22. G. Chen, D. Palke, Z. Lin, H. Yeh, P. Vincent, R.S. Laramee, and **E. Zhang**, “Asymmetric Tensor Field Visualization for Surfaces”, *IEEE Visualization Conference 2011, October 2011*, pp. 1979-1988.
23. H. Yeh, B. Seiffert, and E. Zhang. “Tensor Field Visualization for Wake under Single Pulse Flow”, *2011 IAHR Conference*, Brisbane, Australia. 2011.
24. M. Edmunds, T. McLoughlin, R.S. Laramee, G. Chen, N. Max, and **E. Zhang**, “Automatic Stream Surface Seeding”, *EuroGraphics 2011 Short Papers*, 2011, pp. 53-56.
25. J. Gregson, A. Sheffer, and **E. Zhang**, “All-Hex Mesh Generation via Volumetric PolyCube Parameterization”, *Symposium on Geometry Processing*, 2011, pp. 1407-1416.
26. T. McLoughlin, M. Edmunds, R.S. Laramee, M.W. Jones, G. Chen, and **E. Zhang**, “Using Integral Surfaces to Visualize CFD Simulation Results”, in *NAFEMS World Congress Conference Proceedings, The International Association for the Engineering Analysis Community*, May 2011, pp. 100, Boston, Massachusetts.
27. Y. Li, **E. Zhang**, Y. Kobayashi, and P. Wonka, “Editing Operations for Irregular Vertices in Triangle Meshes”, in *SIGGRAPH ASIA*, 2010, pp. 153:1-153:11.
28. M. Nieser, J. Palacios, K. Polthier, and **E. Zhang**, “Hexagonal Global Parameterization of Arbitrary Surfaces”, *SIGGRAPH ASIA Sketch*, 2010.
29. T. Pham, R. Hess, C. Ju, **E. Zhang**, and R. Metoyer, “Visualization of Diversity in Large Multivariate Data Sets”, *Proceedings of IEEE Visualization, October 2010*, pp. 1053-1062.
30. T. McLoughlin, R.S. Laramee, and **E. Zhang**, Constructing Streak Surfaces for 3D Unsteady Vector Fields, *Proceeding of Spring Conference on Computer Graphics (SCCG 2010)*, 2010, pp. 25-32.
31. H.Q. Dinh, L.Xu, Z. Lin, **E. Zhang**, and R.S. Laramee, “A Distribution-Based Approach to Tracking Points in Velocity Vector Fields”, in *Proceeding of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2009, pp. 2663-2670, Miami.
32. Z. Peng, R.S. Laramee, G. Chen, and **E. Zhang**, “Glyph and Streamline Placement Algorithms for CFD Simulation Data”, in *NAFEMS World Congress Conference Proceedings, The International Association for the Engineering Analysis Community*, June 2009, pp. 66, Crete, Greece.
33. T. McLoughlin, R.S. Laramee, and **E. Zhang**, “Easy Integral Surfaces: A Fast, Quad-Based Stream and Path Surface Algorithm”, in *Proceeding of Computer Graphics International (CGI)*, May 2009, Victoria, Canada.
34. K. Zhou, **E. Zhang**, J. Bittner, and P. Wonka, “Visibility-Driven Mesh Analysis and Visualization through Graph Cuts.” In *IEEE Visualization Conference 2008*, 2008, pp. 1667-1674.

35. G. Chen, G. Esch, P. Wonka, P. Mueller, and **E. Zhang**, “Interactive Procedural Street Modeling”, *In ACM SIGGRAPH*, 2008, pp. 103:1-103:10.
36. S. Snider, D. Morse, G. Chen, S. Apte, J. Liburdy, and **E. Zhang**, “Detection and Analysis of Separated Flow Induced Vortical Structures”, *4<sup>th</sup> AIAA Aerospace Sciences Meetings and Exhibit*, January 2008, AIAA 2008-361.
37. J. Palacios and **E. Zhang**, “Rotational Symmetry Field Design on Surfaces.” *In ACM SIGGRAPH*, 2007, pp. 55:1-55:10.
38. G. Esch, P. Wonka, P. Mueller, and **E. Zhang**, “Interactive Procedural Street Modeling”, *SIGGRAPH Sketech*, 2007.
39. P.J. Neill, R. Metoyer, and **E. Zhang**, “Fluid Flow on Interacting Deformable Surfaces”, *SIGGRAPH Poster*, 2007.
40. G. Chen, R.S. Laramée, and **E. Zhang**, “Advanced Visualization of Engine Simulation Data Using Texture Synthesis and Topological Analysis”, *in NAFEMS World Congress Conference Proceedings, The International Association for the Engineering Analysis Community*, June 2007, pp. 15, Vancouver, Canada.
41. **E. Zhang**, J. Hays, and G. Turk, “Interactive Design and Visualization of Tensor Fields on Surfaces”, *SIGGRAPH Sketech*, 2005.
42. **E. Zhang** and G. Turk, “Visibility-Guided Simplification”, *Proceedings of IEEE Visualization, Boston, MA, October 2002*, pp. 267-274.
43. J. Stasko and **E. Zhang**, “Focus+Context Display and Navigation Techniques for Enhancing Radial, Space-Filling Hierarchy Visualizations”, *Proceedings of IEEE Symposium on Information Visualization, Salt Lake City, UT, October 2000*, pp. 57-65.

#### **C1.4. Other Peer-Reviewed Publications**

1. V. Nelson, R. Sharma, **E. Zhang**, A. Schmittener, and B. Jenny, “3D Visualization of Global Ocean Circulation”, a Poster at American Geography Union’s Fall Meeting, 2015.
2. L. Cooper, J. Elser, J. Preece, E. Arnaud, D. Stevenson, S. Tororovic, **E. Zhang**, C. Mungall, B. Smith, and P. Jaiswal, “Common Reference Ontologies for Plant Biology (cROP), A Platform for Integrative Plant Genomics”, a Poster at Plant and Animal Genome XXII, 2014.
3. A.P. Zdyrski, A.C. Naegele, R. Navarrete, J.A. Jones, **E. Zhang**, and J. Palacios, “Visualization of Eastern Pacific Atmospheric Dynamics During the Record Flood of 1996 in Oregon Using Global Reconstructed Datasets”, a Poster at American Geography Union’s Fall Meeting, 2012.
4. J. Palacios and **E. Zhang**, “Rotational Symmetry Field Design on Surfaces”, a Poster at NSF IGERT Project Meeting, 2008.
5. P.J. Neill, R. Metoyer, and **E. Zhang**, “Fluid Flow on Interacting Deformable Surfaces”, *SIGGRAPH Poster*, 2007.

#### **C1.5. Papers Currently under Review and in Preparation**

1. Y. Zhang, L. Roy, R. Sharma, and E. Zhang, “Maximum Number of Transition Points in 3D Linear Symmetry Tensor Fields”, *in Topological Methods in Data Analysis and Visualization V*, 2017 (minor revision).
2. F. Williams, B. Qu, and **E. Zhang**, “A Covering Space Approach for Rendering Kaleidoscopic Scenes”, *IEEE Transaction on Visualization and Computer Graphics* (under review).
3. **E. Zhang**, “Topology in Graphics: Shapes, Fields, and Beyond”, *SIGGRAPH ASIA 2017 Course* (under review).

4. B. Qu, Y. Zhang, and **E. Zhang**, “Interactive Multi-Style Pen-and-Ink Stylization of Images”, *SIGGRAPH ASIA Technical Brief* (under review).

### **C1.6. Patents**

1. J. Gregson, A. Sheffer, and **E. Zhang**, “Methods and Systems for Generating Polycubes and All-Hexahedral Meshes of an Object”, US-13/948,016, 2013.

## **C2. Professional Meetings, Symposia, and Conferences**

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### **C2.1. Presentations to Professional Groups** (includes presentations of papers cited in C1.3)

- Contributed Talk, SIAM Conference on Industrial and Applied Geometry, Minisymposium on Discrete Vector Field Analysis and Applications, “Vector Field Visualization with Gradient Tensor Analysis”, July 12, 2017.
- Invited Talk, Applied Mathematics and Computation Seminar, Department of Mathematics, Oregon State University, “Construction and Visualization of Branched Covering Spaces”, March 3, 2017.
- Contributed Talk, SIGGRAPH ASIA 2016 Technical Brief, “Horizon Measures: A Novel View-Independent Shape Descriptor”, December 6, 2016.
- Contributed Talk, SIGGRAPH ASIA 2016 Technical Brief, “Tensor Field Design in Volumes”, December 6, 2016.
- Contributed Talk, SIGGRAPH ASIA 2016 Technical Brief, “Rendering Kaleidoscopic Scenes Using Orbifold Theory”, December 6, 2016.
- Contributed Talk, SIGGRAPH ASIA 2016 Technical Brief, “Construction and Visualization of Branched Covering Spaces”, December 6, 2016.
- Contributed Talk, SIGGRAPH ASIA 2016, TVCG session, “Feature Surfaces in Symmetric Tensor Fields Based on Eigenvalue Manifold”, December 6, 2016.
- Course Lecture, SIGGRAPH ASIA 2016, “Rotational Symmetries on Surfaces: Theory, Algorithms, and Applications”, December 6, 2016.
- Contributed Talk, IEEE Visualization Conference 2016, TVCG session, “Feature Surfaces in Symmetric Tensor Fields Based on Eigenvalue Manifold”, October 27, 2016.
- Keynote Speech, Computer Graphics Taiwan 2016, “Tensor Field Topology: Past, Present, and Future”, July 11, 2016.
- Invited Talk, Visualization and Processing of Higher Order Descriptors for Multi-Valued Data, Schloss Dagstuhl Seminar, “Upper and Lower Bounds on the Number of Transition Points in a Linear Tensor Field”, April 7, 2016.
- Invited Talk, Applied Mathematics and Computation Seminar, Department of Mathematics, Oregon State University, “Horizon Measures: a Novel View-Independent Shape Descriptor”, April 10, 2015.
- Course Lecture, IEEE Visualization Conference 2014, “Introduction to Tensor Field Visualization: Concepts, Processing, and Visualization”, November 10, 2014.
- Invited Talk, Workshop on Structured Meshing: Theory, Applications, and Evaluation, “The Topology of 3D Frame Fields: What It Might Look Like and What We Might Be Able to Do with IT”, May 26, 2014.

- Invited Talk, Topology and Geometry Seminar, Department of Mathematics, Oregon State University, “The Topology of 3D Symmetric Tensor Fields”, April 5, 2014.
- Invited Talk, Visualization and Processing of Higher Order Descriptors for Multi-Valued Data, Schloss Dagstuhl Seminar, “Tensor Field Analysis: Some Open Problems”, February 19, 2014.
- Invited Talk, Applied Mathematics and Computation Seminar, Department of Mathematics, Oregon State University, “Hexagonal Global Parameterization of Arbitrary Surfaces,” April 5, 2013.
- Invited Talk, Visualization Seminar, University of Stuttgart, “Topological Analysis and Visualization of 2D Asymmetric Tensor Fields”, July 8, 2013.
- Invited Talk, Computer Graphics Seminar, Trinity College Dublin, “Video Painting with Space-Time-Varying Style Parameters”, April 10, 2012.
- Invited Talk, Computer Graphics Seminar, University of Leeds, “Orientation Field Design and Visualization on Surfaces”, April 5, 2012.
- Invited Talk, Computer Graphics Seminar, University College London, “Rotational Symmetries and Applications in Graphics”, March 30, 2012.
- Invited Talk, CGLunch Seminar, Max-Planck-Institute Informatics, “Vector and Tensor Field Design and Processing”, March 15, 2012.
- Invited Talk, Computer Graphics Seminar, TU Dresden, “Orientation Field Design and Visualization on Surfaces”, February 17, 2012.
- Invited Talk, Forschungsseminar Computergrafik, Bildverarbeitung und Visualisierung, Universität Leipzig, “Topological Analysis and Visualization of 2D Asymmetric Tensor Fields”, January 25, 2012.
- Invited Talk, Oberseminar Nonlinear Dynamics, WIAS Berlin, “Efficient Morse Decomposition of Vector Fields”, January 24, 2012.
- Invited Talk, Computer Graphics Seminar, National Chiao-Tung University, “Directional Field Generation on Surfaces”, December 26, 2011.
- Invited Talk, 2011 International Workshop on Computational Conformal Geometry and Its Applications, Taiwan, “Conformal Geometry and Tensor Fields”, December 24, 2011.
- Invited Talk, Visualization and Processing of Tensors and Higher Order Descriptors for Multi-Valued Data, Schloss Dagstuhl Seminar, “Tensor Field Analysis for Geometry Processing”, December 13, 2011.
- Invited Talk, Seminar Numerische Mathematik, WIAS Berlin, “Topological Analysis and Visualization of 2D Asymmetric Tensor Fields”, December 6, 2011.
- Invited Talk, Visual Computing Research Seminar, University of Magdeburg, “Topological Analysis and Visualization of 2D Asymmetric Tensor Fields”, November 11, 2011.
- Invited Talk, Berliner Kolloquium für wissenschaftliche Visualisierung, Berlin Mathematical School and Konrad-Zeus-Zentrum Für Informationstechnik Berlin, “Topological Analysis and Visualization of 2D Asymmetric Tensor Fields”, November 7, 2011.
- Invited Talk, Scientific Visualization, Schloss Dagstuhl Seminar, “Asymmetric Tensor Field Visualization from a Multi-Field Viewpoint”, June 9, 2011.
- Invited Talk, Microsoft Research Asia, “Rotational Symmetries on Surfaces: Design, Visualization, and Applications”, December 20, 2010.
- Contributed Talk, SIGGRAPH ASIA 2010, “Editing Operations for Irregular Vertices in Triangle Meshes”, December 17, 2010.

- Contributed Talk, SIGGRAPH ASIA Sketch 2010, “Hexagonal Global Parameterization of Arbitrary Surfaces”, December 16, 2010.
- Invited Talk, Tsinghua University, “Video Painting with Space-Time-Varying Style Parameters”, December 14, 2010.
- Course Lecture, IEEE VisWeek 2010, “2D Asymmetric Tensor Field Analysis and Visualization”, October 26, 2010.
- Invited Talk, Lawrence Livermore Visualization Group, “Asymmetric Tensor Analysis for Flow Visualization”, July 23, 2010.
- Invited Talk, NASA Ames, “Asymmetric Tensor Analysis for Flow Visualization”, July 22, 2010.
- Invited Talk, Applied Mathematics and Computation Seminar, Department of Mathematics, Oregon State University, “Asymmetric Tensor Analysis for Flow Visualization,” March 5, 2010.
- Invited Talk, New Development in the Visualization and Processing of Tensor Fields, Schloss Dagstuhl Seminar, “2D Asymmetric Tensor Field Analysis and Visualization”, July 22, 2009.
- Invited Talk, Applied Mathematics and Computation Seminar, Department of Mathematics, Oregon State University, “Discrete Morse Decompositions of Vector Fields,” April 3, 2009.
- Invited Talk, Computational Mathematics of Discrete Surfaces, Banff International Research Station, “Efficient Morse Decomposition of Vector Fields,” February 17, 2009.
- Invited Talk, Computer Graphics Group, University of British Columbia, “Vector and Tensor Field Design on Surfaces,” March 28, 2008.
- Invited Talk, Eco-Information IGERT Colloquium, Oregon State University, “Asymmetric Tensor Analysis for Flow Visualization,” February 13, 2008.
- Contributed Talk, SIGGRAPH 2007, “Rotational Symmetry Field Design on Surfaces”, August 8, 2007.
- Invited Talk, Dept. of Computer and Information Science, “Vector and Tensor Field Design on Surfaces,” University of Oregon, November 15, 2006.
- Invited Talk, Dept. Mathematics, “Vector Field Simplification and Periodic Orbit Extraction on Surfaces,” Rutgers University, October 31, 2006.
- Invited Talk, Computer Graphics Group, Princeton University, “Vector and Tensor Field Design on Surfaces,” October 30, 2006.
- Invited Talk, Graphics and Visualization Group, Arizona State University, “Vector Field Simplification and Periodic Orbit Extraction on Surfaces,” October 19, 2006.
- Invited Talk, Applied Mathematics and Computation Seminar, Department of Mathematics, Oregon State University, “Vector Field Simplification and Periodic Orbit Extraction on Surfaces,” October 6, 2006.
- Contributed Talk, SIGGRAPH Sketch 2005, “Interactive Design and Visualization of Tensor Fields on Surfaces”, August 2, 2005.
- Invited Talk, Department of Mathematics, Oregon State University, “Vector Field Design on Surfaces,” February 8, 2005.
- Invited Talk, Algebraic Topological Methods in Computer Science, “Vector Field Design on Surfaces,” July 20, 2004.
- Invited Talk, School of Electrical Engineering and Computer Science, Oregon State University, “Vector Field Design on Surfaces”, April 14, 2004.

- Invited Talk, Computer Science, Stony Brook University, “Vector Field Design on Surfaces,” February 6, 2004.
- Invited Talk, School of Mathematics, Georgia Institute of Technology, “Feature-Based Surface Parameterization and Texture Mapping,” January 30, 2003.
- Contributed Talk, IEEE Visualization, “Visibility-Guided Simplification,” October, 2002.

### **C2.2. Participation at Invitational Workshops**

- Keynote Speaker, Computer Graphics Taiwan 2016, July 11, 2016.
- Keynote Speaker, Workshop on Structured Meshing: Theory, Applications, and Evaluation, May 26, 2014.
- Visualization and Processing of Higher Order Descriptors of Multi-Valued Data, Schloss Dagstuhl Seminar, Saarbrücken, Germany, February 2014
- Workshop on Algebraic Topology in Dynamics, Differential Equations, and Experimental Data, the Institute of Mathematics and its Applications (IMA), Minneapolis, Minnesota, February 2014
- 2011 International Workshop on Computational Conformal Geometry and Its Applications, Hsinchu, Taiwan, December, 2011
- Visualization and Processing of Tensors and Higher Order Descriptors of Multi-Valued Data, Schloss Dagstuhl Seminar, Saarbrücken, Germany, December 2011
- Scientific Visualization, Schloss Dagstuhl Seminar, Saarbrücken, Germany, June 2011
- New Development in the Visualization and Processing of Tensor Fields, Schloss Dagstuhl Seminar, Saarbrücken, Germany, July 2009
- Computational Mathematics of Discrete Surfaces, Banff International Research Station, Banff, Canada, February 2009
- Review Meeting of the NSF/DARPA Computational and Algorithmic Representation of Geometric Objects (CARGO) initiative, Santa Fe, New Mexico, USA, May 2005
- Algebraic Topological Methods in Computer Science, II, London, Ontario, Canada, July 2004

### **C3. Grant and Contract Support**

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Total value: \$6,236,145

My share: \$1,940,959

1. E. Zhang (PI) and Y. Zhang, “Team Building: Visualization for MRI Improvement”, OHSU/OSU seed funds, July 2017-June 2018, \$10,000 (my share: \$5,000).
2. E. Zhang, “III: Small: Three-Dimensional Visualization and Analysis of Complex Dynamic Physical Phenomena”, NSF, September 2016-August 2019, \$341,798 (including REU supplements).
3. P. Jaiswal (PI), E. Arnaud, C. Mungall, S. Todorovic, and E. Zhang, “Common Reference Ontologies and Applications for Plant Biology”, NSF, October 1, 2013-September 30, 2018, \$4,044,134, (my share: \$350,000).



4. B. Jenny (PI), H. Jenny, E. Zhang, “Collaborative Research: Digital Generation and Cognitive Evaluation of Flow Maps for Movement Visualization”, NSF, August 01, 2014-Jan. 31, 2017, \$156,630, (my share: \$35,360).
5. Y. Di (PI), S. Emerson, E. Zhang, and J. Chang, “Negative Binomial Regression and Higher-Order Asymptotic Inference for RNA-Seq Gene Expression Analysis”, NIH, May 2012-April 2015, \$599,611 (my share: \$120,329)
6. E. Zhang, “HCC: Small: Collaborative Research: Graph and Pattern Design on Surfaces”, NSF, August 2009-July 2012, \$264,976 (including REU supplements).
7. E. Zhang, “Geometric and Topological Analysis of Higher-Order Tensor Fields on Surfaces”, NSF, September 2008-August 2011, \$404,996 (including REU supplements).
8. E. Zhang, “CAREER: Vector and Tensor Field Design for Graphics and Visualization”, NSF CAREER award, February 2006-January 2011, \$430,000 (including REU supplements).

### **C3.1. Pending Proposals**

## **D. Service**

### **D1. University Service**

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- School Graduate Admission Committee, 2004-present
- School Dossier Committee, 2010-2011, 2013-2014
- School Graduate Curriculum Committee, 2012-2013, 2013-2014
- School Hiring Committee, 2007-2008, 2008-2009, 2010-2011, 2015-2016
- External member, Hiring Committee of Mathematics, 2010-2011
- External member, Hiring Committee of Geography, 2015-2016
- University Research Council, AY 07/08, 13/14, 14/15, 15/16
- University Committee on Committees, AY 08/09, 09/10, 10/11

### **D2. Service to the Profession**

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#### **D2.1. Conference and Workshop Organization**

- Core Committee, IEEE Visualization 2017.
- Co-Chair, Community, IEEE Visualization 2017.
- Associate Editor, Computer Graphics Forum.
- Associate Editor, Journal of Geometry Modeling.
- Chair, Workshop on Novel Approaches to Visualizing Big Data Sets, August, 2016, Corvallis, OR.
- Co-Chair, Technical Papers, CAD/Graphics 2013, Hong Kong
- Co-Chair, Doctoral Colloquium, co-located with IEEE Visualization 2011.
- Co-Chair, Doctoral Colloquium, co-located with IEEE Visualization 2010.

#### **D2.2. Conference Program Committees**

- ACM SIGGRAPH, 2011, 2012.
- Session Chair, ACM SIGGRAPH, 2012 (Maps, Surfaces, and Shapes).
- Session Chair, ACM SIGGRAPH, 2011 (Surfaces).
- ACM SIGGRAPH ASIA, 2009, 2016, 2017.
- Session Chair, ACM SIGGRAPH ASIA, 2016 (Parameterization and Remeshing).
- Session Chair, ACM SIGGRAPH ASIA 2016 Symposium on Visualization (Vectors and Tensors).
- Session Chair, ACM SIGGRAPH ASIA, 2009 (3D is fun).
- EuroGraphics, 2011, 2012, 2013, 2014, 2015, 2016, 2017.
- Session Chair, EuroGraphics, 2013 (Shape Correspondence).
- Session Chair, EuroGraphics, 2012 (Computational Geometry and Geometry Processing).
- IEEE Visualization Conference 2007, 2008, 2009, 2012, 2013, 2014.
- Session Chair, IEEE Visualization Conference, 2013 (Vector and Flow Visualization).
- Session Chair, IEEE Visualization Conference, 2012 (Flow and Turbulence).
- Session Chair, IEEE Visualization Conference, 2009 (Particle Systems and Flow Visualization).
- Session Chair, IEEE Visualization Conference, 2008 (Flow Visualization).

- EuroVis 2011, 2012, 2013, 2016, 2017.
- Session Chair, EuroVis, 2013 (Graphs).
- Pacific Graphics, 2008, 2009, 2010, 2011, 2014, 2015, 2016, 2017.
- Pacific Visualization, 2010, 2011, 2015, 2016, 2017.
- Symposium on Geometry Processing, 2008, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017.
- International Symposium on Non-Photorealistic Animation and Rendering, 2008, 2010, 2013.
- IEEE Shape Modeling International, 2007, 2008, 2010, 2011, 2012, 2013, 2014, 2015, 2017.
- International Symposium on Visual Computing, 2008, 2009, 2010.
- International Conference on Geometry Modeling and Processing, 2015, 2016, 2017.
- International Conference on Computer Animation and Social Agents, 2008.
- ACM SIGGRAPH ASIA Briefs and Posters, 2013, 2014, 2015.
- ACM SIGGRAPH ASIA Sketches and Posters, 2008.
- ACM SIGGRAPH Sketches and Posters, 2007.
- EuroGraphics Short Papers, 2014.
- Workshop on Topological Methods in Data Analysis and Visualization, 2009, 2011, 2013, 2015, 2017.
- Workshop on Knowledge-assisted Visualization, 2008.
- International Workshop on Super Visualization, 2008.

### **D2.3. Reviewing**

- NSF Grant Review Panels
- *ACM Transaction on Graphics*
- *ACM SIGGRAPH*
- *ACM SIGGRAPH ASIA*
- *Eurographics*
- *IEEE Visualization Conference*
- *IEEE Transactions on Visualization and Computer Graphics*
- *EuroVis*
- *Computer Graphics Forum*
- *Computers and Graphics*
- *International Journal of Human and Computer Studies*
- *IEEE Transactions on Circuits and Systems for Video Technology*
- *Visual Computer*
- *Computer Graphics and Applications*
- *Graphics Interfaces*
- *Journal of Zhejiang University Science A*
- *International Symposium on Computer and Information Sciences*
- *International Symposium on Visual Computing*
- *Pacific Graphics*
- *Pacific Visualization*
- *Symposium on Computer Animation*
- *IEEE Transactions on Multimedia*
- *European Journal of Applied Mathematics*

- *SIGCHI/UIST*

### **D3. Service to the Public**

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- Career Day Demonstration at Waldport High School in April 2008
- Camp Consular, Visualization Summer Camp for Junior Faculty Members, 2016
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## **E. Awards**

- National Science Foundation Faculty Early Career Development (CAREER) Award, 2006
- ACM Senior Member, since 2011
- IEEE Senior Member, since 2011
- Keynote Speaker, Computer Graphics Taiwan, 2016