Curriculum Vitae

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Current Position

2018–present	Associate Professor	Department of Computer Science, University of Houston, Houston, TX
2013–present	Founding Director	UH Data Visualization and Modeling (DaViM) Lab, Houston, TX

Research Interests

Data Visualization, Vector and Tensor Field Data Analysis, Computational Topology, Geometric Modeling, Geometry Processing, Physically-based Simulation, and Computer Graphics.

Education

2004–2009	Ph.D. in Computer Science, Oregon State University, Corvallis, OR (Advisor: Eugene Zhang)
1999–2002	M.Sc. in Control Theory and Control Engineering, Guangxi University, Nanning, China (Advisor: Taoshen Li)
1995–1999	B.E. in Information and Communication Engineering, Xi'an Jiaotong University, Xi'an, China

Professional Experience

2018–Present	Associate Professor	Department of Computer Science, University of Houston, Houston, TX
2012–2018	Assistant Professor	Department of Computer Science, University of Houston, Houston, TX
2009–2012	Post-doctoral Research Fellow	Scientific Computing and Imagning (SCI) Institute, University of Utah, Salt Lake City, UT
2005–2009	Graduate Research Assistant	Oregon State University, Corvallis, OR
2004–2005	Graduate Teaching Assistant	Oregon State University, Corvallis, OR
2002–2004	Instructor	Department of Computer Science and Technology, Guangxi University, Nanning, China

Awards and Honors

2021	Outstanding Reviewer of ChinaVis 2021
2019	Honorable Mention Short Paper Award, "Graph-assisted Visualization of Microvascular Networks," IEEE Visualization Conference
2017	Honorable Mention Poster Award, "Correlation Study of Attributes for Unsteady Flow," IEEE Visualization Conference (SciVis)
2016	Junior Faculty Award for Excellence in Research, College of Natural Science and Mathematics, UH
2016	Best Paper Award, "Critical Point Cancellation in 3D Vector Fields: Robustness and Discussion," IEEE Pacific Visualization Symposium
2016	NSF CAREER Award
2015	Faculty Academic Excellence for Teaching Excellence, Department of Computer Science, UH
2014	Best Paper Award, "2D Vector Field Simplification Based on Robustness," IEEE Pacific Visualization Symposium
2013	Honorable Mention Award, "Visual Analysis of Uncertainties in Ocean Forecasts for Planning and Operation of Off-Shore Structures," IEEE Pacific Visualization Symposium
2011	Best Paper Award, "'Edge Maps: Representing Flow with Bounded Error," IEEE Pacific Visualization Symposium
2005	The Third Prize, Guangxi Provincial Scientific and Technological Advances Award, Project: The supporting software of the engineering database for the parallel and distributed CAD system.
2004	The First Prize, Young Instructor Teaching Contest of Guangxi University

Publications

- Notes:
  - My Google Scholar citations are **1686** (as of December 1st, 2021). My H-index is **20**, and my PhD was awarded in 2009, thus, my m-value in 2021 = 20/(2021-2009)=**1.67**.
  - Co-author with $^{(s)}$ denote students under my research supervision at the University of Houston.
  - "J" denotes Journal papers, "C" denotes Conference papers, "A" denotes Abstracts and posters, "M" denotes invited papers, "T" denotes technical reports.

Refereed Publications in Archival Journals

– Published

[J-50] Duong B Nguyen$^{(s)}$, Panruo Wu, Rodolfo Ostilla Monico, and **Guoning Chen**, "Dynamic Mode Decomposition for Large-Scale Coherent Structure Extraction in Shear Flows," IEEE Transactions on Visualization and Computer Graphics, accepted, 2021.
(Impact Factor: **4.579**)

[J-49] Yucheng Lu, Luyu Cheng, Tobias Isenberg, Chi-Wing Fu, **Guoning Chen**, Hui Liu, Oliver Deussen, and Yunhai Wang, "Curve Complexity Heuristic KD-trees for Neighborhood-based Exploration of 3D Curves," Computer Graphics Forum (special issue of EuroGraphics 2021), Vol. 40, No. 2, pp. 461-474, 2021.
(Impact Factor: **2.66**)

[J-48] Duong B. Nguyen$^{(s)}$, Lei Zhang$^{(s)}$, Rodolfo Ostilla Monico, David Thompson, Robert S. Laramee, and **Guoning Chen**, "Physics based Pathline Clustering and Exploration," Computer Graphics Forum, accepted, 2020.
(Impact Factor: **2.66**)

[J-47] Duong B Nguyen$^{(s)}$, Rodolfo Ostilla Monico, and **Guoning Chen**, "A Visualization Framework for Multi-scale Coherent Structures in Taylor-Couette Turbulence," IEEE Transactions on Visualization and Computer Graphics (IEEE Visualization 2020), Vol. 40, No. 2, pp. 902–912, 2021.
(Impact Factor: **4.579**)
(IEEE SciVis 2020 acceptance rate: 25%)

[J-46] Jing Xia, Xuemei Li, **Guoning Chen**, Caiming Zhang, "A New Hybrid Brain MR Image Segmentation Algorithm with Super-Resolution, Spatial Constraint based Clustering and Fine Tuning, " IEEE Access, Vol. 8, pp. 135897 – 135911, 2020.
(Impact Factor: **4.098**)

[J-45] Lieyu Shi$^{(s)}$, Robert S. Laramee, and **Guoning Chen**, "Integral Curve Clustering and Simplification for Flow Visualization: A Comparative Evaluation," IEEE Transactions on Visualization and Computer Graphics, Vol. 27, No. 3, pp. 1967 - 1985, 2021.
(Impact Factor: **4.579**)

[J-44] Pavel Govyadinov$^{(s)}$, Tasha Womack, Jason L. Eriksen, **Guoning Chen**, and David Mayerich, "Robust Tracing and Visualization of Heterogeneous Microvascular Networks," IEEE Transactions on Visualization and Computer Graphics, Vol. 25, No. 4, pp. 1760-1773, 2019.
(Impact Factor: **4.579**)

[J-43] Marzieh Berenjkoub$^{(s)}$, Rodolfo Ostilla Monico, Robert S. Laramee, and **Guoning Chen**, "Visual Analysis of Spatio-temporal Relations of Pairwise Attributes in Unsteady Flow," IEEE Transactions on Visualization and Computer Graphics (IEEE SciVis 2018), Vol. 25, No. 1, pp. 1246–1256, 2019.
(Impact Factor: **4.579**)
(IEEE SciVis 2018 acceptance rate: 25%)

[J-42] Kaoji Xu$^{(s)}$ and **Guoning Chen**, "Hexahedral Mesh Structure Visualization and Evaluation," IEEE Transactions on Visualization and Computer Graphics (IEEE SciVis 2018), Vol. 25, No. 1, pp. 1173–1182, 2019.
(Impact Factor: **4.579**)
(IEEE SciVis 2018 acceptance rate: 25%)

[J-41] Wenting Zhang, Yinqiao Wang, Qiong Zeng, Yunhai Wang, **Guoning Chen**, Tao Niu, and Yi Chen, "Visual Analysis of Haze Evolution and Correlation in Beijing," Journal of Visualization, Springer, Vol. 12, No. 1, 161–176, 2019.
(Impact Factor: **1.331**)

[J-40] Kaoji Xu$^{(s)}$, Xifeng Gao$^{(s)}$, and **Guoning Chen**, "Hexahedral Mesh Quality Improvement via Edge-angle Optimization," Computers & Graphics, Vol. 70 (special issue of CAD/Graphics 2017), pp. 17–27, February 2018.
(Impact Factor: **1.936**)
(CAD/Graphics 2017 acceptance rate: 29%)

[J-39] Lei Zhang$^{(s)}$, Duong Nguyen$^{(s)}$, Robert Laramee, David Thompson, and **Guoning Chen**, "Enhanced Vector Field Visualization via Lagrangian Accumulation," Computers & Graphics (special issue of CAD/Graphics 2017), Vol. 70, pp. 224-234, February 2018.
(Impact Factor: **1.936**)
(CAD/Graphics 2017 acceptance rate: 29%)

[J-38] Xuemei Li, Fan Zhang, **Guoning Chen**, Caiming Zhang, "A Formula for Computing Knots with Minimum stress and Stretching Energies," SCIENCE CHINA Information Sciences, Vol. 61, No. 5, 052104, 2017.
(Impact Factor: **3.304**)

[J-37] Kaoji Xu$^{(s)}$, Xifeng Gao$^{(s)}$, Zhigang Deng, **Guoning Chen**, "Hexahedral Meshing with Varying

Element Sizes," Computer Graphics Forum, Vol. 36, No. 8, pp. 540-553, 2017.
(Impact Factor: **2.66**)

[J-36] Xifeng Gao$^{(s)}$, Daniele Panozzo, Wenping Wang, Zhigang Deng, and **Guoning Chen**, "Robust Structure Simplification for Hex Re-meshing," ACM Transactions on Graphics, Vol. 36, No. 6 (SIGGRAPH Asia 2017), Article No. 185:1-185:13, December 2017.
(Impact Factor: **6.495**)

[J-35] Xifeng Gao$^{(s)}$, Jin Huang, Kaoji Xu$^{(s)}$, Zherong Pang, Zhigang Deng, and **Guoning Chen**, "Evaluating Hex-mesh Quality Metrics via Correlation Analysis," Computer Graphics Forum, Vol. 36, No. 5, (Special issue of SGP 2017), pp. 105-116, 2017.
(Impact Factor: **2.66**)

[J-34] Amirhossein Arzani, Alberto M. Gambaruto, **Guoning Chen**, and Shawn C. Shadden, "Wall Shear Stress Exposure Time: A Lagrangian Measure of Near-Wall Stagnation and Concentration in Cardiovascular Flows," Biomechanics and Modeling in Mechanobiology, Vol. 16, no. 3, pp. 787-803, Springer, 2017.
(Impact Factor: **2.8**)

[J-33] Amirhossein Arzani, Alberto M. Gambaruto, **Guoning Chen**, and Shawn C. Shadden, "Lagrangian Coherent Wall Shear Stress Structures and Near Wall Transport in High Schmidt Aneurysmal Flows," Journal of Fluid Mechanics, 790: pp. 158–172, 2016.
(Impact Factor: **3.627**)

[J-32] Xifeng Gao$^{(s)}$, Tobias Martin, Sai Deng, Elaine Cohen, Zhigang Deng, and **Guoning Chen**, "Structured Volume Decomposition Via Generalized Sweeping," IEEE Transactions on Visualization and Computer Graphics, Vol. 22, No. 7, pp. 1899–1911, 2016.
(Impact Factor: **4.579**)

[J-31] Lei Zhang$^{(s)}$, Robert S. Laramee, David Thompson, Adrian Sescu, and **Guoning Chen**, "An Integral Curve Attribute based Flow Segmentation," Journal of Visualization, Springer, Vol. 19, No. 3, 423–436, 2016.
(Impact Factor: **1.331**)

[J-30] Primoz Skraba, Paul Rosen, Bei Wang, **Guoning Chen**, Harsh Bhatia, and Valerio Pascucci, "Critical Point Cancellation in 3D Vector Fields: Robustness and Discussion", IEEE Transactions on Visualization and Computer Graphics, Vol. 22, No. 6, pp. 1683–1693, 2016 (**Best Paper of PacificVis 2016**).
(Impact Factor: **4.579**)
(PacificVis2016 acceptance rate: 29.9%)

[J-29] Feiran Wu, **Guoning Chen**, Jin Huang, Yubo Tao, and Wei Chen, "EasyXplorer: A Flexible Visual Exploration Approach for Multivariate Spatial Data," Computer Graphics Forum, Vol. 34, No. 7, pp. 163–172, 2015.
(Impact Factor: **2.66**)

[J-28] Primoz Skraba, Bei Wang, **Guoning Chen**, and Paul Rosen, "Robustness-Based Simplification for 2D Steady and Unsteady Flows," IEEE Transactions on Visualization and Computer Graphics, Vol. 21, No. 8, pp. 930–944, 2015.
(Impact Factor: **4.579**)

[J-27] Xifeng Gao$^{(s)}$, Zhigang Deng, and **Guoning Chen**, "Hexahedral Mesh Re-parameterization from Aligned Base-Complex," ACM Transactions on Graphics, Vol. 34, No. 4 (SIGGRAPH 2015), Article no. 142:1–142:10, 2015.
(Impact Factor: **6.495**)
(SIGGRAPH 2015 acceptance rate: 25%)

[J-26] Tony McLoughlin, Matthew Edmunds, Chao Tong, Robert S. Laramee, Ian Masters, **Guoning Chen**, Nelson Max, Harry Yeh, and Eugene Zhang, "Visualization of Input Parameters for Stream and Pathline Seeding, " International Journal of Advanced Computer Science and Applications (IJACSA), Vol. 6, No. 4, pp. 124-135, 2015.

[J-25] Thomas Hollt, Ahmed Magdy, Peng Zhan, **Guoning Chen**, Ganesh Gopalakrishnan, Ibrahim

Hoteit, Charles D. Hansen, Markus Hadwiger, "Ovis, A Framework for Visual Analysis of Ocean Forecast Ensembles," IEEE Transactions on Visualization and Computer Graphics, Vol. 20, No. 8, pp. 1114-1126, 2014.
(Impact Factor: **4.579**)

[J-24] Jin Huang, Zherong Pan, **Guoning Chen**, Wei Chen, and Hujun Bao, "Image-Space Texture-Based Output-Coherent Surface Flow Visualization," IEEE Transactions on Visualization and Computer Graphics, Vol. 19, No. 9, pp. 1476-1487, 2013.
(Impact Factor: **4.579**)

[J-23] **Guoning Chen**, Vivek Kwatra, Li-Yi Wei, Charles D. Hansen, and Eugene Zhang, "Design of 2D Time-varying Vector Fields," IEEE Transactions on Visualization and Computer Graphics, Vol. 18, No. 10, pp. 1717-1730, 2012.
(Impact Factor: **4.579**)

[J-22] Harsh Bhatia, Shreeraj Jadhav, Peer-Timo Bremer, **Guoning Chen**, Joshua A. Levine, Luis Gustavo Nonato, and Valerio Pascucci, "Flow Visualization with Quantified Spatial and Temporal Errors using Edge Maps," IEEE Transactions on Visualization and Computer Graphics, Vol. 18, No. 9, pp. 1383-1396, 2012.
(Impact Factor: **4.579**)

[J-21] Matt Edmunds, Robert S. Laramee, **Guoning Chen**, Nelson Max, Eugene Zhang, and Colin Ware, "Surface-Based Flow Visualization (STAR report)," Computers & Graphics, Vol. 36, No. 8, pp. 974-990, 2012.
(Impact Factor: **1.936**)

[J-20] **Guoning Chen**, Qingqing Deng, Andrzej Szymczak, Robert S. Laramee, and Eugene Zhang, "Morse Set Classification and Hierarchical Refinement using Conley Index," IEEE Transactions on Visualization and Computer Graphics, Vol. 18, No. 5, pp. 767-782, 2012.
(Impact Factor: **4.579**)

[J-19] Zhenmin Peng, Edward Grundy, Robert S. Laramee, **Guoning Chen**, and Nick Croft, "Mesh-Driven Vector Field Clustering and Visualization: An Image-Based Approach," IEEE Transactions on Visualization and Computer Graphics, Vol. 18, No. 2, pp. 283-298, 2012.
(Impact Factor: **4.579**)

[J-18] Matt Edmunds, Robert S. Laramee, R. Malki, I.Masters, T.N. Croft, **Guoning Chen**, and Eugene Zhang, "Automatic Stream Surface Seeding: A Feature Centered Approach," Computer Graphics Forum (EuroVis 2012), Vol. 31, No. 3, pp. 1095-1104, 2012.
(Impact Factor: **2.66**)
(EuroVis 2012 Acceptance rate: 25.74%)

[J-17] Tobias Martin, **Guoning Chen**, Suraj Musuvathy, Elaine Cohen, and Charles Hansen, "Generalized Swept Mid-structure for Polygonal Models," Computer Graphics Forum (special issue of EuroGraphics 2012), Vol. 31, No. 2, pp. 805-814. 2012.
(Impact Factor: **2.66**)
(EuroGraphics 2012 acceptance rate: 25%)

[J-16] **Guoning Chen**, Darrel Palke, Zhongzang Lin, Harry Yeh, Paul Vincent, Robert S. Laramee and Eugene Zhang, "Asymmetric Tensor Field Visualization for Surfaces," IEEE Transactions on Visualization and Computer Graphics (IEEE Visualization 2011), Vol. 17, No. 12, pp. 1979-1988, 2011.
(Impact Factor: **4.579**)
(IEEE SciVis 2011 acceptance rate: 25.26%)

[J-15] Allen R. Sanderson, **Guoning Chen**, Xavier Tricoche, David Pugmire, Scott Kruger, and Joshua Breslau, "Analysis of Recurrent Patterns in Toroidal Magnetic Fields," IEEE Transactions on Visualization and Computer Graphics (IEEE Visualization 2010), Vol. 16, No. 4, pp. 1431-1440, 2010.
(Impact Factor: **4.579**)
(IEEE SciVis 2010 acceptance rate: 26%)

[J-14] Ben Spencer, Robert S. Laramee, **Guoning Chen**, and Eugene Zhang, "Evenly-Spaced Streamlines for Surfaces: An Image-Based Approach," Computer Graphics Forum, Vol. 28, No. 6, pp. 1618-1631, 2009.
(Impact Factor: **2.66**)

[J-13] **Guoning Chen**, Greg Esch, Peter Wonka, Pascal Müller and Eugene Zhang, "Interactive Procedural Street Modeling," ACM Transactions on Graphics (SIGGRAPH), Vol. 27, No. 3, Article no. 103:1-103:10, 2008.
(Impact Factor: **6.495**)
(SIGGRAPH 2008 acceptance rate: 17%)

[J-12] **Guoning Chen**, Konstantin Mischaikow, Robert S. Laramee and Eugene Zhang, "Efficient Morse Decompositions of Vector Fields," IEEE Transactions on Visualization and Computer Graphics, Vol. 14, No. 4, pp. 848-862, 2008.
(Impact Factor: **4.579**)

[J-11] **Guoning Chen**, Zhongzang Lin, Stephen Snider, Daniel Morse, Sourabh V. Apte, James A. Liburdy and Eugene Zhang, "Multiscale Feature Detection in Unsteady Separated Flows," International Journal of Numerical Analysis and Modeling. Vol. 5, Supp, pp. 17-35, 2008.

[J-10] **Guoning Chen**, Konstantin Mischaikow, Robert S. Laramee, Pawel Pilarczyk and Eugene Zhang, "Vector Field Editing and Periodic Orbit Extraction Using Morse Decomposition," IEEE Transactions on Visualization and Computer Graphics, Vol. 13, No. 4, pp. 769-785, 2007.
(Impact Factor: **4.579**)

[J-9] Tao-Shen Li, Ting Han, **Guoning Chen**, "XML Query Based on Ontology," Journal of the IEEE Intelligent Informatics Bulletin, Vol. 6, No. 2, pp. 8-13, 2005.

[J-8] WU Yi-hui, **Chen Guo-ning**, QIU Lu-wen, and LI Zhou-hua, "A Multi-Version Approach to Solve Conflict Problem in Distributed Graphics Collaborative Editing Systems," Journal of Guangxi University (Natural Science Edition), 2005, Special issue 2 (in Chinese).

[J-7] **Chen Guo-ning**, LI Tao-shen, "Correctness Criterion for Execution Transactions in Hierarchical MDBS," Journal of Computer Engineering, Vol. 31, No. 6, pp. 52-55, 2005 (in Chinese).

[J-6] **Chen Guoning**, Li Taoshen, "A Modeling Method for Cooperative Designing Procedure in CSCD Environment and Its Application," Journal of Guangxi Academy of Science, Vol. 20, No. 2, pp. 68-72, 2004 (in Chinese).

[J-5] **Chen Guoning**, Li Taoshen, Liao Guoqiong, "A Recovery Method Based on Savepoint Mechanism and Log for Cooperative Design Transactions," Journal of Computer engineering, Vol. 30, No. 9, pp. 58-60, 2004 (in Chinese).

[J-4] **Chen Guoning**, Li Taoshen, Liao Guoqiong, "A Timeout-trigger Two-Phase Commit Protocol of Engineering Design Transactions," Computer Engineering and Applications, Vol. 40, No. 14: pp. 178-180, 195, 2004 (in Chinese).

[J-3] **Chen Guoning**, Chen Qiulian, Li Taoshen, Wu Heng, and Zhou Dong, "The Design of a Graphic CAD System based on ObjectARX for Supporting System of Deep Excavations," Computer Engineering and Applications, Vol. 38, No. 18, pp. 229-230 and 241, 2002 (in Chinese).

[J-2] Li Taoshen, Liao Guoqiong and **Chen Guoning**, "Research on Technology of Transaction Management mechanism in Distributed Engineering Database," Journal of Guangxi Science, Vol. 8, No. 3, pp. 172-176, 2001 (in Chinese).

[J-1] **Chen Guoning**, Chen Qiulian and Li Taoshen, "The Design of An Expert System of Traditional Chinese Medical diagnosis for Cough," Journal of Guangxi University (Nat Sci Ed), Vol. 26, No. 2, pp. 101-104, 2001 (in Chinese).

Refereed Conference Publications

[C-41] Sikder Tahsin Al-Amin, Mohammad Imtiaz Nur$^{(s)}$, Aisha M. Farooque$^{(s)}$, **Guoning Chen**, and Carlos Ordonez, "A different VIM: Visualizing Incremental Machine Learning, "31st ACM International Conference on Information and Knowledge Management (CIKM) demo paper, 2022.

[C-40] Kishansingh Rajput$^{(s)}$ and **Guoning Chen**, "Probabilistic Envelope Based Visualization for Monitoring Drilling Well Data Logging," proceedings of 13th International Conference on Information Visualization Theory and Applications (IVAPP 2022, part of VISIGRAPP), regular paper (12 pages), February, 2022, virtual event.

[C-39] Muhammad Naeem Akram$^{(s)}$, Lei Si$^{(s)}$, and **Guoning Chen**, "An Embedded Polygon Strategy for Quality Improvement of 2D Quadrilateral Meshes with Boundaries," proceedings of 16th International Conference on Computer Graphics Theory and Applications (GRAPP 2021, part of VISIGRAPP), pp. 177–184, February, 2021, virtual event.

[C-38] Glenn Turner$^{(s)}$, **Guoning Chen**, and Yunpeng Zhang, "A Visual Analytics Approach for Anomaly Detection from a Novel Traffic Light Data," IS&T Electronic Imaging, Visualization and Data Analysis (VDA) 2021, January, 2021, virtual event.

[C-37] Kaoji Xu$^{(s)}$, Muhammad Naeem Akram$^{(s)}$, and **Guoning Chen**, "Semi-global Quad Mesh Structure Simplification via Separatrix Operations," ACM SIGGRAPH ASIA 2020 Technical Communications, 4 pages, December 2020, virtual event.

[C-36] Marzieh Berenjkoub$^{(s)}$, **Guoning Chen**, and Tobias Günther, "Vortex Boundary Identification using Convolutional Neural Network," IEEE Visualization 2020 Short Papers, 5 pages, October, virtual event (IEEE Visualization 2020 short paper acceptance rate: 36%).

[C-35] Pavel Govyadinov$^{(s)}$, Jiaming Guo, Leila Saadatifard, Camille Artur, Jason Eriksen, **Guoning Chen**, and David Mayerich, "Reconstructing the angiome: a new platform for characterizing disease progression and drug efficacy," Proceedings Volume 11231, Design and Quality for Biomedical Technologies XIII, SPIE BiOS, San Francisco, CA, 2020.

[C-34] Duong B. Nguyen$^{(s)}$, Lei Zhang$^{(s)}$, Rodolfo Ostilla Monico, David Thompson, Robert S. Laramee, and **Guoning Chen**, "Unsteady Flow Visualization via Physics based Pathline Exploration," IEEE Visualization 2019 Short Papers, 5 pages, October, Vancouver, Canada (IEEE Visualization 2019 short paper acceptance rate: 31.7%).

[C-33] Pavel Govyadinov$^{(s)}$, Tasha Womack, Jason Eriksen, David Mayerich, and **Guoning Chen**, "Graph-assisted Visualization of Microvascular Networks," IEEE Visualization 2019 Short Papers, 5 pages, October, Vancouver, Canada (IEEE Visualization 2019 short paper acceptance rate: 31.7%).

[C-32] Lieyu Shi$^{(s)}$ and **Guoning Chen**, "Metric-based Curve Clustering and Feature Extraction in Flow Visualization," CAD/Graphics 2017 short papers, 6 pages, August, Zhangjiajie, China.
(CAD/Graphics 2017 short paper acceptance rate: 20%)

[C-31] Dylan Reed, Duong Nguyen$^{(s)}$, Lei Zhang$^{(s)}$, **Guoning Chen**, Eugene Zhang, Harry Yeh and Robert S. Laramee. "A Stream Ribbon Seeding Strategy," EuroVis 2017 (short paper), Barcelona, Spain, June, 2017.

[C-30] Lieyu Shi$^{(s)}$, Lei Zhang$^{(s)}$, Wei Cao$^{(s)}$, and **Guoning Chen**, "Analysis Enhanced Particle-based Flow Visualization," IS&T Visualization and Data Analysis (VDA), Poster Paper, San Francisco, February, 2017.

[C-29] Xifeng Gao$^{(s)}$ and **Guoning Chen**, "A Local Frame based Hexahedral Mesh Optimization, " 25^{th} International Meshing Roundtable and User Forum, Research Note, Washington DC, September, 2016.

[C-28] Marzieh Berenjkoub$^{(s)}$, **Guoning Chen**, "Morse Decompositions of 3D Piecewise Linear Vector Fields," IS&T Visualization and Data Analysis (VDA) 2016.

[C-27] Lei Zhang$^{(s)}$, Robert S. Laramee, David Thompson, Adrian Sescu, and **Guoning Chen**, "Flow Visualization based on A Derived Rotation Field," IS&T Visualization and Data Analysis (VDA) 2016.

[C-26] Lei Zhang$^{(s)}$, Robert S. Laramee, David Thompson, Adrian Sescu, and **Guoning Chen**, "Vector Field Segmentation based on Integral Curve Attributes," ChinaVis 2015, July, Tianjin, China.

[C-25] Lei Zhang$^{(s)}$, Robert S. Laramee, David Thompson, Adrian Sescu, and **Guoning Chen**, "Compute

and Visualize Discontinuity Among Neighboring Integral Curves of 2D Vector Fields," TopoInVis 2015, Germany, May, 2015.

[C-24] **Guoning Chen** and Shuyu Xu$^{(s)}$, "An Image-Space Morse Decomposition of Vector Fields," SPIE Visualization and Data Analysis (VDA) 2015(acceptance rate 60%), February, 2015.

[C-23] Fatih Akdag, Christoph F. Eick and **Guoning Chen**, "Creating Polygon Models for Spatial Clusters," 21st International Symposium on Methodologies for Intelligent Systems (ISMIS) poster paper, Lecture Notes in Computer Science (Springer), Vol. 8502, pp. 493-499, Roskilde, Denmark, June, 2014.

[C-22] Xifeng Gao$^{(s)}$, Jin Huang, Zhigang Deng, and **Guoning Chen**, "An Evaluation of the Quality of Hexahedral Meshes Via Modal Analysis," In the first Workshop on Structured-Meshing: Theory, Applications and Evaluation, 6 pages (in conference USB), Houston, USA, May, 2014.

[C-21] Primoz Skraba, Bei Wang, **Guoning Chen**, and Paul Rosen, "2D Vector Field Simplification based on Robustness," IEEE PacificVis, pp. 49-56, Yokohama, Japan, March, 2014 (**Best Paper**).
(Acceptance rate: 29.3%)

[C-20] Matthew Edumunds, Robert S. Laramee, Rami Malki, Ian Masters, Yunai Wang, **Guoning Chen**, Eugene Zhang, and Nelson Max, "Interactive Stream Surface Placement: A Hybrid Clustering Approach Supported by Treemap," International Conference on Information Visualization Theory and Applications (IVAPP) 2014, pp. 347-355, Lisbon, Portugal, January, 2014.

[C-19] Thomas Hollt, Ahmed Magdy, **Guoning Chen**, Ganesh Gopalakrishnan, Ibrahim Hoteit, Charles D. Hansen, Markus Hadwiger, "Visual Analysis of Uncertainties in Ocean Forecasts for Planning and Operation of Off-Shore Structures," IEEE PacificVis, pp. 169-176, Sydney, Australia, February 26 - March 1, 2013 (**Honorable Mention**).
(Acceptance rate: 28.8%)

[C-18] Thomas Hollt, Markus Hadwige, Charles D. Hansen, and **Guoning Chen**, "Extraction and Visual Analysis of Seismic Horizon Ensembles," Eurographics 2013 (short paper), pp. 69-72, Girona, Spain, May, 2013.

[C-17] Matt Edmunds, Robert S. Laramee, Nelson Max, Eugene Zhang, and **Guoning Chen**, "Advanced, Automatic Stream Surface Seeding and Filtering," Theory and Practice of Computer Graphics 2012 (TPCG12), pp. 53-60, Didcot, Oxfordshire, UK, September, 2012.

[C-16] Mark Kim, **Guoning Chen**, and Charles D. Hansen, "Dynamic Particle System for Mesh Extraction on the GPU," In Proceedings of the Fifth Workshop on General Purpose Processing of Graphics Processing Units (GPGPU5), pp. 38-46, London, UK, March, 2012.

[C-15] Jin Huang, Wenjie Pei, Chunfeng Wen, **Guoning Chen**, Wei Chen, and Hujun Bao, "Output Coherent Image-Space LIC for Surface Flow Visualization," IEEE PacificVis, pp. 137-144, Songdo, Korea, February 28 - March 2, 2012.
(Acceptance rate: 34.09%)

[C-14] Wieland Reich, Dominic Schneider, Christian Heine, Alexander Wiebel, **Guoning Chen**, Gerik Scheuermann, "Combinatorial Vector Field Topology in 3-Dimension," in Proceedings of Topology-Based Methods in Data Analysis and Visualization II, Mathematics and Visualization (Editors: R. Peikert, H. Hauser, H. Carr, and R. Fuchs), pp. 47-59, Springer-Verlag, 2012.

[C-13] Allen Sanderson, **Guoning Chen**, Xavier Tricoche, and Elaine Cohen, "Understanding Quasi-Periodic Fieldlines and Their Topology in Toroidal Magnetic Fields," in Proceedings of Topology-Based Methods in Data Analysis and Visualization II, Mathematics and Visualization (Editors: R. Peikert, H. Hauser, H. Carr, and R. Fuchs), pp. 125-140, Springer-Verlag, 2012.

[C-12] Tony McLoughlin, Matthew Edmunds, Robert S. Laramee, Mark W. Jones, **Guoning Chen**, and Eugene Zhang, "Using Integral Surfaces to Visualize CFD Simulation Results," NAFEMS World Congress (NWC) Conference Proceedings, The International Association for the Engineering Analysis Community, 9 pages (full proceedings on CDROM), Boston, MA, May, 2011.

[C-11] Matthew Edumunds, Tony McLoughlin, Robert S. Laramee, **Guoning Chen**, Nelson Max, Eugene Zhang, and Harry Yeh, "Automatic Stream Surface Seeding," EUROGRAPHICS Short Papers, pp. 53-56, Llandudno, Wales, April, 2011.

[C-10] Harsh Bhatia, Shreeraj Jadhav, Peer-Timo Bremer, **Guoning Chen**, Joshua A. Levine, Luis Gustavo Nonato, and Valerio Pascucci, "Edge Maps: Representing Flow with Bounded Error," IEEE PacificVis, pp. 75-82, Hong Kong, China, March, 2011 (**Best Paper**).
(Acceptance rate: 32.10%)

[C-9] Zhenmin Peng, Robert S. Laramee, **Guoning Chen**, and Eugene Zhang, "Glyph and Streamline Placement Algorithms for CFD Simulation Data," NAFEMS World Congress (NWC) Conference Proceedings, the International Association for the Engineering Analysis Community, 12 pages (full proceedings on CDROM), Crete, Greece, June, 2009.

[C-8] Robert S. Laramee, **Guoning Chen**, Monika Jankun-Kelly, Eugene Zhang, and David Thompson, "Bringing Topology-Based Flow Visualization Techniques to the Application Domain," in Proceedings of Topology-Based Methods in Visualization, Visualization and Mathematics (Editors: H.-C. Hege, K. Polthier, G. Scheuermann), pp. 161-176, Springer-Verlag, 2009.

[C-7] **Guoning Chen**, Robert S. Laramee and Eugene Zhang, "Advanced Visualization of Engine Simulation Data Using Texture Synthesis and Topological Analysis," NAFEMS World Congress (NWC) Conference Proceedings, The International Association for the Engineering Analysis Community, 12 pages (full proceedings on CDROM), Vancouver, Canada, May, 2007.

[C-6] **Guoning Chen**, Taoshen Li, "Extended Chain-Conflicting Serializability for the Correct Schedule of Transactions in Hierarchical Multidatabase," The Fifth International Conference on Web-Age Information Management, Lecture Notes in Computer Science Volume 3129, pp. 658-663, July, Dalian, China, July, 2004.

[C-5] **Chen Guoning** and Li Taoshen, "A CBL Locking Mechanism Based on the Ordered Sharing Locks," The Symposium on Global Manufacturing and Simulation Technology of the 21^{st} Century, 8 pages (full proceedings on CDROM), Guiyang, Guizhou, China, October, 2004 (in Chinese).

[C-4] **Chen Guoning**, Li Taoshen, Liao Guoqiong, "A Multi-Granularity Locking Protocol Based on Ordered Sharing Locks in Engineering Databases that Supports Cooperative Design," International Symposium on Distributed Computing and Applications to Business, Engineering and Science (DCABES), pp. 552-558, Wuhan, Hubei, China, September, 2004.

[C-3] Huang Baixiong, Su Yidan, and **Chen Guoning**, "An Implementation Methodology for Inheritance Relationships to Relational Tables," Computer Applications and Software, 6 pages, 2004 (in Chinese).

[C-2] **Guoning Chen**, Taoshen Li and Guoqiong Liao, "Commit Mechanism of Engineering Database Supporting Cooperative Design Transaction," International Symposium of Future Software Technology (ISFST), 6 pages (full proceedings on CDROM), Wuhan, China, October, 2002.

[C-1] Li Taoshen, Liao Guoqiong and **Chen Guoning**, "Transaction Management Mechanisms in Distributed Engineering Database System," Proceeding of the Seventh International Conference on Computer Aided Design and Computer Graphics, pp. 785-790, Kunming, China, August, 2001.

Refereed Abstracts and Posters

[A-7] Adeel Zafar$^{(s)}$ and **Guoning Chen**, "Hairpin Vortex Identification using Template Fitting on Vortex Corelines," poster presentation, IEEE Visualization 2022, October 16 - 21, 2022.

[A-6] Nguyen K. Phan$^{(s)}$ and **Guoning Chen**, "Direct Neighbor Search for Curve-based Vector Field Processing," poster presentation, IEEE Visualization 2022, October 16 - 21, 2022.

[A-5] Muhammad Naeem Akram$^{(s)}$, Yue Zhang, and **Guoning Chen**, "Impact of Hex-mesh Structure to Simulation Quality-A First Study," Research Abstract,28th International Meshing Roundtable (IMR), Research Abstract, Buffalo, NY, October 14-17, 2019.

[A-4] Marzieh Berenjkoub$^{(s)}$ and **Guoning Chen**, "Correlation Study of Attributes for Unsteady Flow," poster presentation (**Honorable Mention Poster**), IEEE Visualization 2017, October 1 - 6, Phoenix, Arizona, 2017.

[A-3] Amirhossein Arzani, Alberto M. Gambaruto, **Guoning Chen**, and Shawn C. Shadden, "Near-Wall Stagnation in Large Arteries: Is Wall Shear Stress Magnitude Sufficient?" poster presentation, 2016 Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C2016), June 29-July 2, National Harbor, MD.

[A-2] Amirhossein Arzani, Alberto M. Gambaruto, **Guoning Chen**, and Shawn C. Shadden, "Coherent Wall Shear Stress Structures Determine the Near Wall Transport in Aneurysms," poster presentation, 2015 Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C2015), June 17-20, Snowbird, Utah.

[A-1] Stephen Snider, Daniel Morse, **Guoning Chen**, Sourabh V. Apte, James A. Liburdy and Eugene Zhang, "Detection and Analysis of Separated Flow Induced Vortical Structures," 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, January, 2008.

Invited Papers

[M-1] Earl P.N. Duque, Scott Imlay, Sean Ahern, **Guoning Chen**, and David Kao, "NASA CFD Vision 2030 Visualization and Knowledge Extraction: Panel Summary from AIAA Aviation 2015 Conference", AIAA SciTech Forum and Exposition, San Diego, 2016.

Technical Reports

[T-4] Marzieh Berenjkoub$^{(s)}$, Harsha Nyshadham, Zhigang Deng, and **Guoning Chen**, "A Visual Analytic System for Longitudinal Transportation Data of Great Britain," Technical Report UH-CS-15-01, Department of Computer Science, University of Houston, July 2015.

[T-3] **Guoning Chen**, Lei Zhang$^{(s)}$, David Thompson, Adrian Sescu, and Robert S. Laramee, "The $\Phi-$Operator: A Rotation Operator For Flow Analysis and Visualization," Technical Report UH-CS-14-02, Department of Computer Science, University of Houston, July, 2014.

[T-2] **Guoning Chen** and Shuyu Xu$^{(s)}$, "An Image-Space Morse Decomposition of Vector Fields," Technical Report UH-CS-14-03, Department of Computer Science, University of Houston, July, 2014.

[T-1] Tony McLoughlin, Matthew Edmunds, **Guoning Chen**, Robert S. Laramee, Eugene Zhang, and Harry Yeh, "Visualization of Flow Sensitivity," Technical Report, Department of Computer Science, University of Wales, Swansea, UK, March, 2010.

Dissertations

[D-2] **Guoning Chen**, "Topological Analysis, Visualization, and Design of Vector Fields on Surfaces," Ph.D. Dissertation, Department of Computer Science, Oregon State University, USA, June 2009.

[D-1] **Guoning Chen**, "A Transaction Management Mechanism for Engineering Databases That Support Collaborative Design," M.S. Thesis, School of Computer, Electronic and Information, Guangxi Univeristy, China, June 2002.
(Google Scholar Citations: **4**)

Invited Talks

- 05/19/2022, Topological Data Visualization Workshop, University of Iowa, "Hexahedral Mesh Structure Visualization and Optimization"

- 12/01/2021, Scientific Computing and Imaging (SCI), University of Utah, "Bridge the Geometric Representation and Physical Relevance in Flow Visualization"
- 02/07/2020, Center for Thermofluid Mechanics, University of Houston, "Bridge the Geometric Representation and Physical Relevance in Flow Visualization"
- 08/07/2019, Los Alamos National Laboratory, "Toward Robust Structure-Aware Hexahedral Meshing"
- 03/08/2019, Hewlett Packard Enterprise Data Science Institute, University of Houston, "Data Visualization Research at DaViM"
- 02/08/2019, Department of Computer Science, University of Houston, "Toward Robust Structure-Aware Hexahedral Meshing"
- 02/04/2019, Bellair High School, TED talk, "What is Visualization and What Can it Do?"
- 01/16/2019, School of Biomedical Informatics, The University of Texas, Health Science Center at Houston, "Examples of Graph-based Scientific Data Processing and Geometry Processing"
- 02/27/2017, VCC Visualization Workshop, KAUST, Saudi Arabia, "Toward Vector Field Summary Representation–Where Are We Now?"
- 06/18/2016, VisCamp 2015, "Extract and Manipulate STRUCTURE from Various Geometric Data," Eugene, OR
- 06/26/2015, AIAA Aviation 2015, "Topology-based Methods in Flow Visualization," in Panel: The Path to CFD Visualization in 2030, Dallas, TX
- 05/21/2015, TopoInVis 2015, "Compute and Visualize Discontinuity Among Neighboring Integral Curves of 2D Vector Fields"
- 02/11/2015, IS&E/SPIE VDA 2015, "An Image-Space Morse Decomposition for 2D Vector Fields"
- 07/25/2014, Dept. of Computer Science, Univ. of Houston, REU Guest Lecture, "A Glimpse to Data Visualization and Analysis"
- 02/16/2014, Dagstuhl group seminar on Visualization and Processing of Higher Order Descriptors for Multi-Valued Data, "Control and Edit Higher-Order Tensor Fields for Hex-Meshing," Wadern, Germany
- 10/30/2013, Dept. of Computer Science and Engineering, Univ. of Notre Dame, "Toward Efficient Abstract Representation of Vector Fields"
- 10/13/2013, IEEE Visualization 2013 tutorial, "Vector Field Topology in Flow Analysis and Visualization," Atlanta, GA
- 07/17/2013, Dept. of Computer Science, Univ. of Houston, REU Guest Lecture, "A Glimpse to Data Visualization and Analysis"
- 06/19/2012, CAD& CG National Lab, Zhejiang Univ., China, "Toward Efficient Vector Field Analysis and Control"
- 03/22/2012, Dept. of Computer Science and Engineering, Univ. of Notre Dame, "Toward Efficient Vector Field Analysis and Control"
- 02/24/2012, Dept. of Computer Science, Univ. of Houston, "Toward Efficient Vector Field Analysis and Control"
- 10/08/2009, Symposium of Procedural Modeling, SIAM GPM2009, San Francisco, "Interactive Procedural Street Modeling"
- 05/19/2009, Scientific Computing and Imaging (SCI) Institute, Univ. of Utah, "Efficient Morse Decomposition of Vector Fields"

External Grants

Total as PI: $1,546,752

Current Grants

3. "CDS&E: Multi-scale Coherent Structure Extraction and Tracking For Modern CFD Data Analysis," National Science Foundation, OAC 2102761, PI: **Guoning Chen** (60% effort), Co-PI: Di Yang, Rodolfo Ostilla Monico, $527,899, 09/01/2021–08/30/2024.

2. "REU Supplement to CAREER: Extract Hierarchical Vector-Valued Data Summary for Scalable Flow Data Processing and Visualization," National Science Foundation, IIS-1553329, sole PI: **Guoning Chen**, $54,800, 05/27/2016–01/31/2022.
1. "CAREER: Extract Hierarchical Vector-Valued Data Summary for Scalable Flow Data Processing and Visualization", National Science Foundation, IIS-1553329, sole PI: **Guoning Chen**, $499,053, 02/01/2016–01/31/2022.

Past Grants

3. "Advanced Web-based Visualization for Drilling Data Analytics," Shell Exploration and Production, sole PI: **Guoning Chen**, $65,000, 09/16/2018–09/16/2019.
2. "Scalable Interactive Visual Computing Infrastructure for Modeling, Training and Planning", Army Research Office (ARO), PI: **Guoning Chen** (60% effort), Co-PI: Zhigang Deng, $250,000, 04/18/2016–07/17/2017.
1. "EAGER: Define and Construct an Enhanced Graph Representation for Multiscale Vector Field Data Summarization", National Science Foundation, IIS-1352722, sole PI: **Guoning Chen**, $150,000, 09/01/2013–08/31/ 2015.

Teaching Experience

– University of Houston

- **Instructor**, develop and teach new course COSC 6344 "Visualization." (Fall 2020, Fall 2019, Fall 2018, Fall 2017, Fall 2016, Fall 2015, Fall 2014)
- **Instructor**, develop new content and teach course COSC 1430 "Introduction to Programming." (Spring 2021, Spring 2020, Spring 2019, Spring 2018, Spring 2017).
- **Instructor**, develop new content and teach course COSC 1320 "Introduction to Computer Science II." (Spring 2016, Spring 2015, Spring 2014)
- **Instructor**, develop and teach new course COSC 6397 "Feature Detection in Data Analysis." (Spring 2013)
- **Instructor**, develop and teach new course COSC 6397 "Introduction to Visualization." (Fall 2013)
- **Instructor**, develop and teach new course COSC 6397 "Scientific Visualization." (Fall 2012)

– Oregon State University

- **Teaching Assistant**, Computer Science course CS450/550 "Introduction to Computer Graphics." (Fall 2004)

– Guangxi University

- **Instructor**, develop new content and teach course "Computer Graphics." (Spring 2004, Spring 2003)
- **Instructor**, develop new content and teach course "Database Principles." (Fall 2003)
- **Instructor**, develop new content and teach course "Java Programming." (Spring 2003)
- **Instructor**, develop new content and teach course "C Programming." (Fall 2003)
- **Instructor**, develop new content and teach course "Software Engineering." (Fall 2002)

Mentoring Experience

Ph.D. Thesis Advisor of:

4. Adeel Zafar, PhD, Research topics: "Robust Coherent Structure Extraction and Separation for Turbulent Flow Study (tentative)," Spring 2022 - present

3. Lei Si, PhD, Research topics: "Structured Hexahedral Mesh Generation and Optimization (tentative)," Fall 2020 - present

2. Nguyen K Phan, PhD, Research topics: "Curve-based vector field data processing and visualization," Fall 2019 - present

1. Muhammad Naeem Akram, " 2D and 3D Structured Mesh Simplification and Optimization ," Department of Computer Science, UH, Fall 2018 – Expected in Spring 2023.

–Graduated Ph.D. Students:

7. Duong Binh Nguyen (Department of Computer Science, UH)
PhD Dissertation: "Multi-scale Coherent Structure Extraction and Visualization for Flow Analysis," (defended his Ph.D. dissertation in October 2020)
First employment: Microsoft

6. Lieyu Shi (Department of Computer Science, UH)
PhD Dissertation: "Lagrangian-based Simplification and Feature Estimation for Flow Visualization," (defended his Ph.D. dissertation in November 2019)
First employment: AMD

5. Marzieh Berenjkoub (Department of Computer Science, UH)
PhD Dissertation: "Analysis and Visualization of Vortices: Topological, Physics-Based and Deep Learning Techniques," (defended her Ph.D. dissertation in November 2019)
First employment: Nvidia

4. Pavel Govyadinov (Department of Computer Science, UH), co-advising with Dr. David Mayerich
PhD Dissertation: "Segmentation, Analysis and Visualization of Large Microvascular Networks in the Mouse Brain " (defended his Ph.D. dissertation in July 2019)
First employment: Postdoc researcher, UH

3. Kaoji Xu (Department of Computer Science, UH)
PhD Dissertation: "Hexahedral Mesh Generation, Optimization, and Visualization " (defended his Ph.D. dissertation in April 2019)
First employment: Cadence Design Systems

2. Lei Zhang (Department of Computer Science, UH)
PhD Dissertation: "Flow Visualization and Analysis: From Geometry to Physics" (defended his Ph.D. dissertation in June 2017)
First employment: Amazon

1. Xifeng Gao (Department of Computer Science, UH, co-advised with Zhigang Deng)
PhD Dissertation: "Toward High Quality Hexahedral Meshes: Generation, Optimization and Evaluation" (defended his Ph.D. dissertation in April 2016)
Current position: Assistant Professor, Florida State University.

M.S. Thesis Advisor of:

–Graduated M.S. Students:

4. Kishansingh Rajput (Department of Computer Science, UH)
MSc. Thesis: "Anomaly Detection and Feature Alignment for Time Series Data," Department of Computer Science, UH, Fall 2018 - Spring 2020.
First employment: Thomas Jefferson National Accelerator Facility

3. Glenn Turner (Department of Computer Science, UH)
MSc. Thesis: "A Visual Analytics System for Large-scale Data Exploration, ", Department of Computer Science, UH, Fall 2018 - Fall 2019. *First employment:* Ph.D. student at UH CS.

2. Shuyu Xu (Department of Computer Science, UH)
MSc. Thesis: "Efficient Visual Analysis of Steady Vector Fields Based on Streamline Characterization" (defended his thesis in April 2014)
First employment: Amazon (now at Microsoft).

1. Wei Cao (Department of Computer Science, UH)
   MSc. Thesis: "Analysis Supported SPH Simulation" (defended his thesis in November 2013)
   First employment: Turn.

Undergraduate Research Advisor of:

10. Andres Flores, "Hexahedral Mesh Structure Evaluation (CAHSI REU)," Department of Computer Science, UH, Spring 2022.
9. Nghia Luu Nghiep, "Stream Surface Seeding using Derived Attribute Field," Department of Computer Science, UH, Fall 2021.
8. Sergio Sanz, "Untangling and optimization of quadrilateral meshes with open boundaries," Department of Computer Science, UH, February 2020 - Spring 2022.
7. Omar Baig, "Integrate VTK with the Unreal Engine," Department of Electrical and Computer Engineering, UH, January 2021 - Fall 2021.
6. George Navarro, "A Client/Server Web-based Flow Data Visualization Platform," Department of Computer Science, UH, June 2020 - August 2020.
5. Jenna Horn, "A Web-based Visualization System," Department of Computer Science, UH, June 2019 - August 2019.
4. Richy Nguyen, "A Scientific Data Rendering Engine," Department of Computer Science, UH, June 2019 - August 2019.
3. Oluwakunle Eniola, "Pathline Clustering and Selection for 2D Unsteady Flow Visualization," Department of Computer Science, UH, June 2017 – August 2017.
2. Maxwell Ciotti, "Efficient Pathline Placement for Flow Visualization," Department of Computer Science, UH, Spring 2016 - Fall 2016.
1. Binh Tran, "Vector Field Design Tool for Education," Department of Computer Science, UH, June 2016 - August 2016.

Mentee Awards

- 2021, Muhammad Naeem Akram, DAAD RISE professional scholarship
- 2020, Sergio Sanz, Honorable Mention CRA Undergraduate Researcher Award 2021.
- 2020, Duong Binh Nguyen, Best Ph.D. Dissertation Award (UH CS Department)
- 2020, Kishansingh Rajput, Best MS Student Award (UH CS Department)
- 2019, Pavel Govyadinov, Best Ph.D. Dissertation Award (UH CS Department)
- 2019, Muhammad Naeem Akram, Travel Award for 28th International Meshing Roundtable and User Forum
- 2018, Kaoji Xu, Travel Award for 27th International Meshing Roundtable and User Forum
- 2018, Marzieh Berenjkoub, Scholarship for Grace Hopper Conference
- 2016, Lei Zhang, Travel Award for IEEE Doctoral Colloquium 2016
- 2016, Xifeng Gao, Best Ph.D. Dissertation Award (UH CS Department)
- 2016, Xifeng Gao, Best Poster, Ph.D. Showcase 2016 (UH CS Department)
- 2015, Xifeng Gao, Best Ph.D. Student Award (UH CS Department)
- 2014, Xifeng Gao, NSMAA Scholarship Recipient
- 2014, Anirban Sarkar, First Place Award of 2014 Science Engineering Fair of Houston Poster Design Contest
- 2013, Xifeng Gao, Best Junior Ph.D. Student Award (UH CS Department)

Professional Services

Conference Involvement

- **Steering Committee Member**
  - International Workshop on Topology-based Method in Visualization (TopoInVis) (2022-present)

- **Local Organization Co-Chairs**
  - The 27^{th} International Conference on Computer Animation and Social Agents (CASA), Houston, May 26-28, 2014
- **Workshop Co-Chairs**
  - The First workshop on "Structured-Meshing: Theory, Applications, and Evaluation," Houston, May 26-28, 2014
- **Workshop Jury**
  - SIGGRAPH Asia 2014 Workshop Jury, Shenzhen, December 3-7, 2014
- **Session Chairs**
  - Session 6: "Learning based Methods," CAD/Graphics 2017, Zhangjiajie, China, August 24-27, 2017
  - Session 5: "Visual Analytics," IS&T Visualization and Data Analysis (VDA), San Francisco, February 8-12, 2016
  - Session 4: "Human Factors," SPIE/IS&T Visualization and Data Analysis (VDA), San Francisco, February 8-12, 2016
  - "Posters Fast Forward II," SPIE/IS&T Visualization and Data Analysis (VDA), San Francisco, February 8-12, 2015
  - Session 9: "Natural Phenomena", The 27^{th} International Conference on Computer Animation and Social Agents (CASA) 2014, Houston, May 26-28, 2014
- **Program Committee Member**
  - The International Conference on Computer-Aided Design and Computer Graphics (CAD/Graphics 2013, 2015, 2017)
  - The International Conference on Computer Animation and Social Agents (CASA) (2014–2020)
  - The International conference on Computational Visual Media (CVM) (2019-2021)
  - IEEE VIS (2021, 2022)
  - IEEE Visualization (SciVis) (2014–2017, 2020)
  - International Conference on Information Visualization Theory and Applications (IVAPP) (2013–2022)
  - PacificGraphics (2011–2018)
  - PacificVis (2019–2022)
  - PacificVis Notes (2015, 2017-2019)
  - ChinaVis (2019–2021)
  - SPIE Visualization and Data Analysis (VDA) (2012–2016, 2018-2022)
  - International Workshop on Topology-based Method in Visualization (TopoInVis) (2015, 2017, 2019)
  - EuroVis Short Papers (2012–2014, 2017-2019)
  - EuroGraphics Posters (2011)
- **Other Services**
  - Siggraph Asia 2019 Conflict of Interest Coordinator
  - Siggraph Asia 2022 Conflict of Interest Coordinator

Editorial and Reviewer Work

- **Paper Reviewer**
  - ACM Transactions on Graphics
  - ACM Siggraph
  - ACM Siggraph Asia
  - Big Data Research
  - Computer Graphics Forum

  - Computer Graphics International (CGI)
  - Computer & Graphics (Elsevier)
  - EuroGraphics
  - EuroVis
  - EURASIP Journal on Advances in Signal Processing
  - Graphics Models
  - IEEE BIBE
  - IEEE DataComp
  - IEEE Transactions on Visualization and Graphics
  - IEEE Visualization
  - IEEE Computer Graphics and Applications
  - Journal of Machine Vision and Applications (Springer)
  - Journal of Visualization
  - PacificGraphics
  - PacificVis
  - Workshop on Topology-based Method In Visualization
  - Vision, Modeling, and Visualization (VMV)
- **Proposal Review Panelist or External Reviewer**
  - NSF
  - DoE
  - DoD
  - ERC (European Research Council)

Outreach

Technology Demonstrations

- 03/08/2019, Visualization Day, University of Houston, Houston, TX
- 10/05/2012, TLC^2 Open House presentation, Houston, TX
- 11/04/2011, SCIx, Research Open House at the SCI Institute, Salt Lake City, UT
- 10/20/2010, IEEE Visualization 2010, SCI Open House, Salt Lake City, UT

Software Dissemination

- Source code for hex-mesh structure visualization and evaluation.
  URL: https://github.com/Cotrik/CotrikMesh. This open source code provides a reference implementation of our IEEE Visualization 2018 paper for the evaluation and visualization of the structure of valid all-hex meshes.
- Source code for hex-mesh structure optimization.
  URL: https://github.com/gaoxifeng/Robust-Hexahedral-Re-Meshing. This open source code provides a reference implementation of our Siggraph Asia 2017 paper for the simplification and optimization of the structure of valid all-hex meshes.
- Data for hex-mesh quality metric evaluation.
  URL: https://drive.google.com/file/d/0B8PvG-CIyQv6aXhSREN0RjFGaFk/view?usp=sharing. This data set provide tens of thousands of hex-meshes generated for 22 various 3D models for our study of the correlations among different quality metrics for hex-meshes. This is the first time such a large mesh data set was created for the evaluation of the effectiveness of various quality metrics.
- Source code for hex-mesh optimization.
  URL: http://www2.cs.uh.edu/ cotrikxu/research/papers/cag2017_hexopt/supplementary_material.zip. This open source code provides the reference implementation of our recent work on angle-based hex-mesh optimization techniques. This tool has been applied to more than 100 hex-meshes and has been demonstrated effective in improving the minimum scaled Jacobian of the meshes.

- Tools for 2D/2.5D vector field analysis.
  URL: http://www.sci.utah.edu/∼chengu/vfanalysis.HTM. This software provides the implementation of three of my major work on vector field topological analysis based on Morse decomposition. Since its publication, it has been visited and downloaded for more than 1300 times.
- Interactive design system for street modeling.
  URL: http://www.sci.utah.edu/∼chengu/street_sig08/street_project.htm. This software provides the implementation of my SIGGRAPH paper on procedual street modeling that utilizes tensor field design to guide the placement of street network. Since its publication, it has been visited and downloaded for more than 890 times.
- Tool for 2D Time-varying vector field design.
  URL: http://www.sci.utah.edu/∼chengu/timeVarying_vfd.htm. This software provides a number of interactive methods to allow the user to create and modify 2D time-varying vector fields, based on my IEEE TVCG paper with a similar title.