Han-Wei Shen
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Professional Preparation

National Taiwan University, Taiwan	Computer Science	BS, 06/1988
State University of New York, Stony Brook	Computer Science	MS, 05/1992
University of Utah	Computer Science	PhD, 06/1998

Appointments

- Program Director, US National Science Foundation, 08/2024-Present
- Professor, Computer Science and Engineering, The Ohio State University 10/2012-present
- Associate Professor, Computer Science and Engineering, The Ohio State University, 10/2005-09/2012
- Assistant Professor, Computer Science and Engineering, The Ohio State University, 08/1999-09/2005
- Visiting Scientist, Argonne National Laboratory, 10/2008-06/2009
- Research Scientist, NASA Ames Research Center, 08/1996–07/1999
- Visiting Scientist, NASA Langley Research Center, 02/1996–03/1996, 06/1997–07/1997

Awards

- IEEE VGTC Visualization Technical Achievement Award, 2024
- Inductee, IEEE Visualization Academy
- OSU College of Engineering Lumley Interdisciplinary Research Award, 2018
- OSU Ruth and Joel Spiral Award for Excellence in Teaching, 2014
- CSE Outstanding Teaching Award, 2002, 2009
- NSF CAREER Award, 2004
- DOE Early Career Principal Investigator Award, 2003
- OSU College of Engineering Lumley Research Award, 2004, 2011
- Ameritech Faculty Fellow, 2002

Professional Activities

- Editor-in-Chief, IEEE Transactions on Visualization and Computer Graphics, 01/2023-Present
- Associate Editor-in-Chief, IEEE Transactions on Visualization and Computer Graphics, 01/2019-12/2022
- Associate Editor, IEEE Transactions on Visualization and Computer Graphics 01/2008-12/2012
- Visualization Executive Committee (VEC), IEEE Visualization, 10/2015-06/2020
- Chair, IEEE SciVis Steering Committee, 2018-2010; Member, 10/2014-06/2020
- Chair, IEEE SciVis Test of Time Award Committee, 10/2017,10/2018
- Chair, IEEE VGTC Best Doctoral Dissertation Award, 08/2018
- Paper Co-Chair, IEEE SciVis 06/2013, 06/2014, 06/2020
- Best Paper Committee, IEEE SciVis 06/2017, ChinaVis 02/2018, IEEE Pacific Vis 03/2020

- Associate Editor, Journal of Visualization
- Program Co-Chair, IEEE Visualization 10/2008, 10/2009
- Paper Co-Chair, IEEE Pacific Visualization 04/2009, 04/2010
- Program Co-Chair, IEEE/ACM Symposium on Parallel Visualization and Graphics 10/1999
- Program Co-Chair, Eurographics Symposium on Parallel Graphics and Visualization 04/2004
- Program Committee, IEEE Visualization
- Program Committee, IEEE Cluster, IEEE/ACM Supercomputing
- Program Committee, Eurographics Symposium on Visualization
- Program Committee, Pacific Graphics, Volume Graphics
- Program Committee, Eurographics Symposium on Parallel Graphics and Visualization
- Program Committee, IEEE Pacific Visualization
- Program Committee, International Symposium on Visual Computing

Research Fundings

- **NSF** (PI)
    - NSF IIS medium ($715,314; 2020-2025)
    - NSF Big Data ($727,258; 2013-2018)
    - NSF GV small ($292,147; 2010-2014)
    - NSF CAREER 2004 ($414,178; 2004-2010)
- **NSF** (co-PI)
    - National AI Institute ($20M; 2021-2026)
    - RIDIR ($1.4M; 2017-2023)
    - GV medium ($542,000; 2011-2015)
    - CPATH:NEWPATH ($639,822; 2007-2014)
    - ITR ($300,000; 2003-2010)
    - MRI ($1.5M; 2004-2010)
    - GV small ($205,060; 2002-2006)
- **DOE** (PI)
    - Oak Ridge National Laboratory ($750,000, 2025-2030)
    - Los Alamos National Laboratory ($190,000, 2024-2026)
    - Brookhaven National Laboratory ($114,825, 2023-2025)
    - ASCR, Office of Science ($600,000; 2018-2023)
    - ASCR, Office of Science ($637,500; 2014-2018)
    - ASCR , Office of Science ($462,095; 2010-2014)
    - Early Career ($299,945; 2003-2006)
- **DOE** (co-PI)
    - ScDAC BER ($258,000; 2023-2028)
    - ASCR, Office of Science ($900,000; 2022-2025)
    - SciDAC Computer Science Institute, V ($550,000; 2020-2025)
    - SciDAC Computer Science Institute, IV ($291,038; 2018-2021)
    - SciDAC Computer Science Institute, III ($750,000; 2012-2017)
    - SciDAC Computer Science Institute, II ($750,000; 2006-2012)

Journal Publications

1. Yi-Tang Chen, Haoyu Li, Neng Shi, Xihaier Luo, Wei Xu, and Han-Wei Shen. "Explorable INR: An Implicit Neural Representation for Ensemble Simulation Enabling Efficient Spatial and Parameter Exploration" IEEE Transactions on Visualization and Computer Graphics ***(IEEE Pacific 2025 Best Paper Award)***
2. Shen, Jingyi, Yuhan Duan, and Han-Wei Shen. "Surroflow: A flow-based surrogate model for parameter space exploration and uncertainty quantification." *IEEE Transactions on Visualization and Computer Graphics* (Proc. IEEE VIS 2024).
3. Ziwei Li, Xiaoqi Wang, Hong-You Chen, Han-Wei Shen, Wei-Lun Chao. "FedNE: Surrogate-Assisted Federated Neighbor Embedding for Dimensionality Reduction", *Neural Information Processing Systems (NeurIPS) 2024.*
4. Qiu, Rui, Yamei Tu, Po-Yin Yen, and Han-Wei Shen. "VADIS: A Visual Analytics Pipeline for Dynamic Document Representation and Information-Seeking." *IEEE Transactions on Visualization and Computer Graphics* (Proc. IEEE VIS 2024) ***(Best Paper Award at IEEE VIS 2024)***.
5. Tianyu Xiong, Skylar W. Wurster, Hanqi Guo, Tom Peterka, Han-Wei Shen. "Regularized Multi-Decoder Ensemble for an Error-Aware Scene Representation Network", IEEE Transactions on Visualization and Computer Graphics (Proc. IEEE VIS 2024).
6. Xiaoqi Wang, Wenbin He, Xiwei Xuan, Clint Sebastian, Jorge Henrique Piazentin Ono, Xin Li, Sima Behpour, Thang Doan, Liang Gou, Han-Wei Shen, Liu Ren. "USE: Universal Segment embeddings for Open-Vocabulary Image Segmentation." *In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR),* 2024.
7. Haoyu Li and Han-Wei Shen: "Improving Efficiency of Iso-Surface Extraction on Implicit Neural Representations Using Uncertainty Propagation." IEEE Transactions on Visualization and Computer Graphics.
8. Haoyu Li, Isaac J Michaud, Ayan Biswas, Han-Wei Shen, "Efficient Level-Crossing Probability Calculation for Gaussian Process Modeled Data", 2024 IEEE Pacific Visualization Symposium (PacificVis)
9. Xiaoqi Wang and Han-Wei Shen. "GNNBoundary: Towards Explaining Graph Neural Networks Through the Lens of Decision Boundaries." *In Proceedings of the International Conference on Learning Representations (ICLR), 2024*.
10. Yamei Tu, Rui Qiu, Han-Wei Shen, "KG-PRE-view: Democratizing A TVCG Knowledge Graph through Visual Explorations", 2024 IEEE Pacific Visualization Symposium (PacificVis)
11. Xiaoqi Wang, Kevin Yen, Yifan Hu, Han-Wei Shen. "SmartGD: A GAN-Based Graph Drawing Framework for Diverse Aesthetic Goals." IEEE Transactions on Visualization and Computer Graphics, 2024, Early access
12. Haoyu Li and Han-Wei Shen: "Improving Efficiency of Iso-Surface Extraction on Implicit Neural Representations Using Uncertainty Propagation." IEEE Transactions on Visualization and Computer Graphics, 2024. Early Access
13. Jingyi Shen and Han-Wei Shen: "PSRFlow: Probabilistic Super Resolution with Flow-Based Models for Scientific Data." IEEE Transactions on Visualization and Computer Graphics, 2004 (Special issue of IEEE VIS 2023)
14. S. W. Wurster, T. Xiong, H. -W Shen, H. Guo, T. Peterka. “Adaptively Placed Multi-Grid Scene Representation Networks for Large-Scale Data Visualization.”, IEEE Transactions on Visualization and Computer Graphics 2004 (Special issue of IEEE VIS 2023)
15. cs, 2023.Yamei Tu, Olga Li, Junpeng Wang, Han-Wei Shen, Przemek Powałko, Irina Tomescu-Dubrow, Kazimierz M. Slomczynski, Spyros Blanas, and J. Craig Jenkins. *SDR*Querier: A Visual Querying Framework for Cross-National Survey Data Recycling. IEEE Transactions on Visualization and Computer Graphics *(Proc. IEEE PacificVis 2023)*.

16. Tu, Yamei, Rui Qiu, Yu-Shuen Wang, Po-Yin Yen, and Han-Wei Shen. PhraseMap: Attention-Based Keyphrases Recommendation for Information Seeking. IEEE Transactions on Visualization and Computer Graphics *(2022).*
17. Skylar W. Wurster, Hanqi Guo, Han-Wei Shen, Tom Peterka, Jiayi Xu. Deep Hierarchical Super Resolution for Scientific Data. IEEE Transactions on Visualization and Computer Graphics (2022) (Early Access)
18. Rui Qiu, Yamei Tu, Yu-Shuen Wang, Po-Yin Yen, Han-Wei Shen**.** DocFlow. A Visual Analytics System for Question-based Document Retrieval and Categorization. IEEE Transactions on Visualization and Computer Graphics 2022
19. Haoyu Li, Junpeng Wang, Yan Zheng, Liang Wang, Wei Zhang, and Han-Wei Shen. Compressing and Interpreting Word Embeddings with Latent Space Regularization and Interactive Semantics Probing**,** Information Visualization 2022
20. Neng Shi, Jiayi Xu, Haoyu Li, Hanqi Guo, Jonathan Woodring, and Han-Wei Shen. VDL-Surrogate: A View-Dependent Latent-based Model for Parameter Space Exploration of Ensemble Simulations**,** IEEE Transactions on Visualization and Computer Graphics (Proc. IEEE VIS 2022) **(Best Paper Honorable Mention Award at IEEE VIS 2022)**
21. Jingyi Shen, Haoyu Li, Jiayi Xu, Ayan Biswas, and Han-Wei Shen**.** IDLat. An Importance-Driven Latent Generation Method for Scientific Data, IEEE Transactions on Visualization and Computer Graphics (Proc. IEEE VIS 2022)
22. Haoyu Li and Han-Wei Shen. Local Latent Representation based on Geometric Convolution for Particle Data Feature Exploration, IEEE Transactions on Visualization and Computer Graphics (2022) (Early Access)
23. Jiayi Xu, Hanqi Guo, Han-Wei Shen, Mukund Raj, Skylar W. Wurster, Tom Peterka. Reinforcement Learning for Load-balanced Parallel Particle Tracing, IEEE Transactions on Visualization and Computer Graphics (2022) (Early Access)
24. Neng Shi, Jiayi Xu, Skylar W. Wurster, Hanqi Guo, Jonathan Woodring, Luke Van Roekel, and Han-Wei Shen. GNN-Surrogate. A Hierarchical and Adaptive Graph Neural Network for Parameter Space Exploration of Unstructured-Mesh Ocean Simulations**,** IEEE Transactions on Visualization and Computer Graphics (2022) (Early Access)
25. Jiayi Xu, Hanqi Guo, Han-Wei Shen, Mukund Raj, Xueyun Wang, Xueqiao Xu, Zhehui Wang, Tom Peterka. Asynchronous and Load-Balanced Union-Find for Distributed and Parallel Scientific Data Visualization and Analysis**,** IEEE Transactions on Visualization and Computer Graphics 27 (6), 2808-2820 (2021) ***(Best Paper Award at IEEE PacificVis 2021)***
26. Hanqi Guo, David Lenz, Jiayi Xu, Xin Liang, Wenbin He, Iulian R. Grindeanu, Han-Wei Shen, Tom Peterka, Todd Munson, Ian Foster. FTK: A Simplicial Spacetime Meshing Framework for Robust and Scalable Feature Tracking**,** IEEE Transactions on Visualization and Computer Graphics 27 (8): 3463-3480 (2021)
27. Jian Chen, Meng Ling, Rui Li, Petra Isenberg, Tobias Isenberg, Michael Sedlmair, Torsten Moller, Robert S. Laramee, Han-Wei Shen, Katharina Wunsche, Qiru Wang. VIS30K: A Collection of Figures and Tables from IEEE Visualization Conference Publications, IEEE Transactions on Visualization and Computer Graphics (2021) (Early Access)
28. Xiaoqi Wang, Kevin Yen, Yifan Hu, Han-Wei Shen. DeepGD: A Deep Learning Framework for Graph Drawing Using GNN**,** IEEE Computer Graphics and Applications (2021) (Early Access)
29. Yifei An, Han-Wei Shen, Guihua Shan, Guan Li, Jun Liu. STSRNet. Deep Joint Space-Time Super-Resolution for Vector Field Visualization**,** IEEE Computer Graphics and Applications (2021) (Early Access)

30. Xiaoyang Han, Han-Wei Shen, Guan Li, Xuyi Lu, Guihua Shan, and Yangang Wang. IVDAS. an interactive visual design and analysis system for image data symmetry detection of CNN models**,** Journal of Visualization 24, no. 3 (2021): 615-629.
31. Shiyu Cheng, Hanwei Shen, Guihua Shan, Beifang Niu, and Weihua Bai. Visual analysis of meteorological satellite data via model-agnostic meta-learning, Journal of Visualization 24, no. 2 (2021): 301-315
32. Jiayi Xu, Soumya Dutta, Wenbin He, Joachim Moortgat, and Han-Wei Shen**.** Geometry-Driven Detection, Tracking and Visual Analysis of Viscous and Gravitational Fingers**,** IEEE Transactions on Visualization and Computer Graphics 28 (3): 1514-1528
33. Guan Li, Junpeng Wang, Han-Wei Shen, Kaixin Chen, Guihua Shan, and Zhonghua Lu. CNNPruner: Pruning Convolutional Neural Networks with Visual Analytics**,** IEEE Transactions on Visualization and Computer Graphics (2020) (Early Access)
34. Zhehui Wang, Jiayi Xu, Yao E. Kovach, Bradley T. Wolfe, Edward Thomas Jr, Hanqi Guo, John E. Foster, and Han-Wei Shen. Microparticle cloud imaging and tracking for data-driven plasma science**,** Physics of Plasmas 27, no. 3 (2020): 033703
35. Kaixin Chen, Yang Wang, Minzhu Yu, Han-Wei Shen, Xiaomin Yu, and Guihua Shan. ConfVisExplorer: a literature-based visual analysis system for conference comparison**,** Journal of Visualization (2020): 1-15
36. Hank Childs et al.. A terminology for in situ visualization and analysis systems**,** The International Journal of High Performance Computing Applications (2020): 1094342020935991.
37. Wenbin He, Junpeng Wang, Hanqi Guo, Ko-Chih Wang, Han-Wei Shen, Mukund Raj, Youssef SG Nashed, and Tom Peterka**.** InSituNet: Deep Image Synthesis for Parameter Space Exploration of Ensemble Simulations, IEEE Transactions on Visualization and Computer Graphics 26 (1), 23-33 (2020), ***[Best Paper Award at IEEE VIS 2019]***
38. Subhashis Hazarika, Haoyu Li, Ko-Chih Wang, Han-Wei Shen, and Ching-Shan Chou. NNVA: Neural Network Assisted Visual Analysis of Yeast Cell Polarization Simulation, IEEE Transactions on Visualization and Computer Graphics 26 (1), 34-44 (2020), ***[Best Paper Honorable Mention Award at IEEE VIS 2019]***
39. Wenbin He, Hanqi Guo, Han-Wei Shen, Tom Peterka: eFESTA. Ensemble Feature Exploration with Surface Density Estimates. IEEE Trans. Vis. Comput. Graph. 26(4): 1716-1731 (2020)
40. Jingyi Shen, Runqi Wang, Han-Wei Shen. Visual exploration of latent space for traditional Chinese music. Visual Informatics 4(2): 99-108 (2020)
41. Wenbin He, Junpeng Wang, Hanqi Guo, Han-Wei Shen, Tom Peterka. CECAV-DNN: Collective Ensemble Comparison and Visualization using Deep Neural Networks. Visual Informatics 4(2): 109-121 (2020)
42. Piyush Chawla, Subhashis Hazarika, Han-Wei Shen.Token-wise sentiment decomposition for ConvNet: Visualizing a sentiment classifier. Vis. Informatics 4(2): 132-141 (2020
43. *Junpeng Wang, Xiaotong Liu,* Han-Wei Shen. High-dimensional data analysis with subspace comparison using matrix visualization. Information Visualization 18(1) *(2019)*
44. Yang Wang*,* Minzhu Yu*,* Guihua Shan*,* Han-Wei Shen*,* Zhonghua Lu*.* VISPubComPAS: a comparative analytical system for visualization publication data. Journal of Visualization, 22(5)*: 941-953 (2019)****[Best Paper ChinaVis 2019]***
45. Junpeng Wang, Liang Gou, Wei Zhang, Hao Yang, Han-Wei Shen. DeepVID: Deep Visual Interpretation and Diagnosis for Image Classifiers via Knowledge Distillation**,** IEEE Transactions on Visualization and Computer Graphics 25 (6), 2168-2180

46. Xiaonan Ji, Han-Wei Shen, Raghu Machiraju, Alan Ritter, and Po-Yin Yen. Visual Exploration of Neural Document Embedding in Information Retrieval: Semantics and Feature Selection**,** IEEE Transactions on Visualization and Computer Graphics 25 (6), 2181-2192
47. Subhashis Hazarika, Soumya Dutta, Han-Wei Shen, Jen-Peng Chen. CoDDA: A Flexible Copula-based Distribution Driven Analysis Framework for Large-Scale Multivariate Data **,** IEEE Transactions on Visualization and Computer Graphics 25 (1), 1214-1224 (2019)
48. Junpeng Wang, Subhashis Hazarika, Cheng Li, and Han-Wei Shen. Visualization and visual analysis of ensemble data: A survey**,** IEEE Transactions on Visualization and Computer Graphics 25 (9), 2853-2872 (2019)
49. Hanqi Guo, Wenbin He, Sangmin Seo, Han-Wei Shen, and Tom Peterka. Extreme-scale stochastic particle tracing for uncertain unsteady flow analysis**,** IEEE Transactions on Visualization and Computer Graphics 25 (9), 2710-2724 (2019)
50. Ko-Chih Wang, Tzu-Hsuan Wei, Naeem Shareef, and Han-Wei Shen. Ray-based Exploration of Large Time-varying Volume Data Using Per-ray Proxy Distributions**,** IEEE Transactions on Visualization and Computer Graphics, 2019 (Early Access)
51. Hanqi Guo, Wenbin He, Sangmin Seo, Han-Wei Shen, Emil Mihai Constantinescu, Chunhui Liu, and Tom Peterka. Extreme-Scale Stochastic Particle Tracing for Uncertain Unsteady Flow Visualization and Analysis **,** IEEE Transactions on Visualization and Computer Graphics, 2018 (Early Access)
52. Junpeng Wang, Liang Gou, Han-Wei Shen, Hao Yang. DQNViz: A Visual Analytics Approach to Understand Deep Q-Networks**,** IEEE Transactions on Visualization and Computer Graphics, (Accepted at IEEE VAST 2018) ***[Best Paper Honorable Mention Award]***
53. Junpeng Wang, Subhashis Hazarika, Cheng Li, Han-Wei Shen. Visualization and Visual Analysis of Ensemble Data: A Survey**,** IEEE Transactions on Visualization and Computer Graphics, 2018 (Early Access)
54. Subhashis Hazarika, Soumya Dutta, Han-Wei Shen, Jen-Peng Chen. CoDDA: A Flexible Copula-based Distribution Driven Analysis Framework for Large-Scale Multivariate Data , IEEE Transactions on Visualization and Computer Graphics
55. Subhashis Hazarika, Ayan Biswas, Han-Wei Shen. Uncertainty Visualization Using Copula-Based Analysis in Mixed Distribution Models, IEEE Transactions on Visualization and Computer Graphics , 24(1): 934-943 (2018)
56. Junpeng Wang, Liang Gou , Hao Yang, and Han-Wei Shen. GANViz: A Visual Analytics Approach to Understand the Adversarial Game, IEEE Transactions on Visualization and Computer Graphics, 24 (6), 1905-1917 (2018) **(IEEE PacificVis 2018 Best Paper Award)**
57. Subhashis Hazarika, Ayan Biswas, Soumya Dutta, and Han-Wei Shen. Information Guided Exploration of Scalar Values and Isocontours in Ensemble Datasets**,** *Entropy 2018*, *20*(7), 540 .
58. Junpeng Wang, Xiaotong Liu, Han-Wei Shen, Guang Lin. Multi-Resolution Climate Ensemble Parameter Analysis with Nested Parallel Coordinates Plots. IEEE Trans. Vis. Comput. Graph. 23(1): 81-90 (2017)
59. Soumya Dutta, Chun-Ming Chen, Gregory Heinlein, Han-Wei Shen, Jen-Ping Chen. In Situ Distribution Guided Analysis and Visualization of Transonic Jet Engine Simulations. IEEE Trans. Vis. Comput. Graph. 23(1): 811-820 (2017) (**IEEE Vis 2016 Best Paper Honorable Mention Award**)

60. Ayan Biswas, Guang Lin, Xiaotong Liu, Han-Wei Shen. Visualization of Time-Varying Weather Ensembles across Multiple Resolutions. IEEE Trans. Vis. Comput. Graph. 23(1): 841-850 (2017)
61. Xin Tong, Cheng Li, Han-Wei Shen. GlyphLens: View-Dependent Occlusion Management in the Interactive Glyph Visualization. IEEE Trans. Vis. Comput. Graph. 23(1): 891-900 (2017)
62. Hanqi Guo, Wenbin He, Tom Peterka, Han-Wei Shen, Scott M. Collis, and Jonathan J. Helmus. Finite-Time Lyapunov Exponents and Lagrangian Coherent Structures in Uncertain Unsteady Flows. IEEETransactions on Visualization and Computer Graphics. Vol. 22, no. 6. (Feb. 2016): 1672-1682.
63. Chen, Chun-Ming, Dutta, Soumya, liu, Xiaotong, Heinlein, Gregory, Shen, Han-Wei and Chen, Jen-Ping. Visualization and Analysis of Rotating Stall for Transonic Jet Engine Simulation. IEEETransactions on Visualization and Computer Graphics. Vol. 22, no. 1. (Jan. 2016): 847-856.
64. Dutta, Soumya and Shen, Han-Wei. Distribution Driven Extraction and Tracking of Features for Time-varying Data Analysis. IEEE Transactions on Visualization and Computer Graphics. Vol. 22, no. 1. (Jan. 2016): 837-836.
65. Liu,Xiaotong; Shen,Han-Wei. Association Analysis for Visual Exploration of Multivariate Scientific Data Sets. IEEE Transactions on Visualization and Computer Graphics. Vol. 22, no. 1. (Jan. 2016): 955-964.
66. Tong Xin John Edwards, Chun-Ming Chen, Han-Wei Shen, Chris R. Johnson, and Pak Chung Wong. View-Dependent Streamline Deformation and Exploration. IEEE Transactions on Visualization and Computer Graphics. Vol. 22, no. 7. (Nov. 2015):1788-1801.
67. Xiaotong Liu, Han-Wei Shen, Yifan Hu. Supporting multifaceted viewing of word clouds with focus+context display. Information Visualization. Vol. 14, no. 2. (Apr.2015):168-180.
68. Abon Chaudhuri, Teng-Yok Lee, Han-Wei Shen, Rephael Wenger. Exploring FLow Fields Using Space-Filling Analysis of Streamlnies. IEEE Transactions on Visualization and Computer Graphics. Vol. 20, no. 10, (Oct. 2014): 1392-1404.
69. Zhang,L; Deng,Q; Machiraju,R; et al. Boosting Techniques for Physics-Based Vortex Detection. COMPUTER GRAPHICS FORUM. Vol. 33, no. 1. (Feb. 2014): 282-293.
70. BISWAS, A., DUTTA, S., SHEN, H.-W., AND WOODRING, J. An information-aware framework for exploring multivariate data sets. IEEE Transactions on Visualization and Computer Graphics. Vol. 19, no. 12. (Oct. 2013): 2683-2692.
71. LEE, T.-Y., AND SHEN, H.-W. Efficient local statistical analysis via integral histograms with discrete wavelet transform. IEEE Transactions on Visualization and Computer Graphics. Vol. 19, no. 12. (Oct. 2013): 2693-2702.
72. Lee, Teng-Yok Lee, Tong, Xin, Shen, Han-Wei, Wong, Pak Chung, Hagos, Samson, Leung, Ruby. Feature Tracking and Visualization of Madden-Julian Oscillation in Climate Simulation. IEEE Computer Graphics and Applications. 2013, Vol. 33, no. 4. (Jul. 2013):29-37.
73. Kerwin, T, Stredney, D, Wiet, G, Shen, Han-Wei. Virtual mastoidectomy performance evaluation through multi-volume analysis. Int. J. Computer Assisted Radiology and Surgery. Vol. 8, no. 1. (Jan. 2013): 51-61.
74. Wong, P, Shen, Han-Wei, Johnson, C.R., Chen, C, Ross, R. The Top 10 Challenges in Extreme-Scale Visual Analytics. IEEE Computer Graphics and Applications. Vol. 32, no. 4. (Jul. 2012): 63-67.
75. Wong, P, Shen, Han-Wei, Pascucci, V. Extreme-Scale Visual Analytics. IEEE Computer Graphics and Applications. Vol. 32, no. 4. (Jul. 2012): 23-35.
76. Kun-Chuan Feng, Chaoli Wang, Han-Wei Shen, Tong-Yee Lee. Coherent Time-Varying Graph Drawing with Multi-Focus+Context Interaction. IEEE Transactions on Visualization and Computer Graphics. Vol. 18, no. 8 (Aug. 2012): 1330-1342.
77. Boonthanome Nouanesengsey, Teng-Yok Lee, Han-Wei Shen. Load Balanced Parallel Streamline Generation on Large Scale Vector Field. IEEE Transactions on Visualization and Computer Graphics. Vol. 17, no. 6. (Oct. 2011): 1765-1974.

78. Hsieh,Hsien-Hsi; Chang,Chin-Chen; Tai,Wen-Kai; et al. Novel Geometrical Voxelization Approach with Application to Streamline. Journal of Computer Science and Technology. Vol. 5, no. 25. (Jan. 2011): 895-904.
79. Wang,Chaoli; Shen,Han-Wei. Information Theory in Scientific Visualization. Entropy. Vol. 1, no. 13. (Jan. 2011): 254-273.
80. Lijie Xu,Teng-Yok Lee and Han-Wei Shen. An information Theoretic Framework for Flow Visualization. IEEE Transactions on Visualization and Computer Graphics. Vol. 6, no. 16. (Oct. 2010): 1216-1224.
81. Ahrens,James; Shen,Han-Wei. Ultrascale Visualization. IEEE COMPUTER GRAPHICS AND APPLICATIONS. Vol.30, no. 3. (May 2010): 20-21.
82. Teng-Yok Lee and Han-Wei Shen. Visualization and Exploration of Temporal Trend Relationships in Multivariate Time-Varying Data,. IEEE Transactions on Visualization and Computer Graphics. Vol. 15, no. 6 (Nov. 2009):1359-1366.
83. Thomas Kerwin, Han-Wei Shen and Don Stredney. Enhancing Realism of Wet Surfaces in Temporal Bone Surgical Simulation,. IEEE Transactions on Visualization and Computer Graphics. Vol. 15, no. 5. (Aug. 2009): 747-759.
84. Firdaus Janoos, Boonth Nouanesengsy, Raghu Machiraju, Han-Wei Shen, and Steffen Sammet, Michael Knopp, andIstvan Morcz,. Visual Analysis of Brain Activity from fMRI Data. Computer Graphics Forum. Vol. 28, no. 3. (Jan. 2009):904-910.
85. Jonathan Woodring and Han-Wei Shen. Multi-scale Time Activity Data Exploration via Temporal Clustering Visualization Spreadsheet. IEEE Transactions on Visualization and Computer Graphics. Vol. 15, no. 1. (Jan. 2009): 123-137.
86. Jonathan Woodring and Han-Wei Shen. Semi-Automatic Time-Series Transfer Functions via Temporal Clustering and Sequencing. Computer Graphics Forum. Vol. 28, no. 3. (Jan. 2009): 791-798.
87. Ying Tu and Han-Wei Shen. Balloon Focus, A Seamless Multi Focus+Context Technique for Treemaps. IEEETransactions on Visualization and Computer Graphics. Vol. 14, no. 6. (Oct. 2008): 1157-1164.
88. Thomas Kerwin, Gregory Wiet, Don Stredney, and Han-Wei Shen. Automatic Scoring of Virtual Mastoidectomies Using Examples. International Journal of Computer Assisted Radiology and Surgery. Vol. 7, no. 1. (May 2011):1-11.
89. Han-Wei Shen. Interacting with Tree Dimensional Flow Fields. ACM SIGGRAPH, Computer Graphics quarterly. Vol. 42, no. 2. (Jan 2008)
90. Hsien-Hsi Hsieh, Liya Li, Han-Wei Shen, and Wen-Kai Tai. A Volume Rendering Framework for Visualization 3D Flow Fields. Journal of Fluid Science and Technology. Vol. 3, no. 4. (Jan. 2008).
91. Yuan Hong and Han-Wei Shen. Parallel Reflective Symmetry Transformation for Volume Data. Computers & Graphics. Vol. 32, no. 1. (Jan. 2008): 41-48.
92. Chaoli Wang, Antonio Garcia, and Han-Wei Shen. Interactive Level-of-Detail Selection Using Image-Based Quality Metric for Large Volume Visualization. IEEE Transactions on Visualization and Computer Graphics. Vol. 13, no. 1. (Jan. 2007): 122-132.
93. Liya Li and Han-Wei Shen. Imaged Based Streamline Generation and Rendering. IEEE Transactions on Visualization and Computer Graphics. Vol. 13, no. 3. (Jan. 2007): 630-640.
94. Woodring,Jonathan; Shen,Han-Wei. Incorporating highlighting animations into static visualizations. VISUALIZATION AND DATA ANALYSIS 2007. Vol. 6495, (Jan. 2007)
95. Ying Tu and Han-Wei Shen. Visualizing Changes of Hierarchical Data using Treemaps. IEEE Transactions on Visualization and Computer Graphics. Vol. 13, no. 6. (Jan. 2007): 1286-1293.
96. Chaoli Wang and Han-Wei Shen,. LOD Maps, A Visual Interface for Navigating Multiresolution Volume Visualization. IEEE Transactions on Visualization and Computer Graphics. Vol. 12, no. 5. (Jan. 2006): 1029-1037.

97. Guangfeng Ji and Han-Wei Shen. Dynamic View Selection for Time-varying Volumes. IEEE Transactions on Visualization and Computer Graphics,. Vol. 12, no. 5. (Jan. 2006):1109-1117.
98. Jonathan Woodring and Han-Wei Shen. Multi-variate, Time-varying, and Comparative Visualization with Contextual Cues. IEEE Transactions on Visualization and Computer Graphics. Vol. 12, no. 5. (Jan. 2006): 1109-1117.
99. Antonio Garcia and Han-Wei Shen. GPU-based 3D Wavelet Reconstruction with Tileboarding. The Visual Computer. Vol. 21, no. 8. (Jan. 2005): 755-763.
100. Jinzhu Gao, Chaoli Wang, Liya Li, and Han-Wei Shen. A Parallel Mult-resolution Volume Rendering Algorithm for Large Data Visualization. Journal of Parallel Computing. Vol. 31, no. 2. (Jan. 2005): 185-204.
101. Udeepta Bordoloi, David Kao, and Han-Wei Shen. Visualization Techniques for Spatial Probability Density Function Data.Journal of Parallel Computing. Vol. 3, (Jan. 2005): 153-162.
102. Han-Wei Shen, Guo-Shi Li, and Udeepta Bordoloi. Interactive Visualization of Three-Dimensional Vector Fields with Flexible Appearance Control. IEEE Transactions on Visualization and Computer Graphics. Vol. 10, no. 4. (Jan. 2004):434-446.
103. Udeepta Bordoloi and Han-Wei Shen. Hardware Accelerated Interactive Vector Field Visualization: A Level of Detail Approach. Computer Graphics Forum. Vol. 21, no. 3. (Jan. 2002): 605-614.
104. Han-Wei Shen and David L. Kao. A New Line Integral Convolution Algorithm for Visualizing Unsteady Flows. IEEE Transactions on Visualization and Computer Graphics. Vol. 4, no. 2. (Jan. 1998): 98-108.
105. Han-Wei Shen. Using Line Integral Convolution to Visualize Dense Vector Fields. Computers in Physics. Vol. 11, no. 5. (Jan. 1997): 474-480.
106. Y. Livnat, Han-Wei Shen, and C.R. Johnson. A Near Optimal Isosurface Extraction Algorithm Using the Span Space. IEEE Transaction on Visualization and Computer Graphics. Vol. 2, no. 1. (Jan. 1996): 73-84.

Conference Publications

1. Skylar W Wurster and Han-Wei Shen. "AMGSRN++: Improved Adaptive SRN for Scientific Visualization", 2025 IEEE Pacific Visualization Symposium (PacificVis)
2. Wei Xu, Rui Qiu, Han-Wei Shen, et al.: "Extending Two Explainable Artificial Intelligence Methods for Deep Climate Emulators" *In Proceedings of the International Conference on Learning Representation (ICLR) - Tackling Climate Change with Machine Learning Workshop, 2025*.
3. Xiaoqi Wang, Wenbin He, Xiwei Xuan, Clint Sebastian, Jorge Henrique Piazentin Ono, Xin Li, Sima Behpour, Thang Doan, Liang Gou, Han-Wei Shen, Liu Ren. "USE: Universal Segment embeddings for Open-Vocabulary Image Segmentation." In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2024.
4. Haoyu Li, Isaac J Michaud, Ayan Biswas, Han-Wei Shen, "Efficient Level-Crossing Probability Calculation for Gaussian Process Modeled Data'', 2024 IEEE Pacific Visualization Symposium (PacificVis)
5. Xiaoqi Wang and Han-Wei Shen. "GNNBoundary: Towards Explaining Graph Neural Networks Through the Lens of Decision Boundaries." In Proceedings of the International Conference on Learning Representations (ICLR), 2024.
6. Yamei Tu, Rui Qiu, Han-Wei Shen, "KG-PRE-view: Democratizing A TVCG Knowledge Graph through Visual Explorations'', 2024 IEEE Pacific Visualization Symposium (PacificVis)

7. Xiaoqi Wang and Han-Wei Shen. "GNNInterpreter: A Probabilistic Generative Model-Level Explanation For Graph Neural Networks." *In International Conference on Learning Representations (ICLR), 2023*.
8. Hong-You Chen, Cheng-Hao Tu, Ziwei Li, Han-Wei Shen, and Wei-Lun Chao. "On the Importance and Applicability of Pre-Training for Federated Learning." *In International Conference on Learning Representations (ICLR), 2023.*
9. Skylar W Wurster, Hanqi Guo, Tom Peterka, Han-Wei Shen. "Neural Stream Functions." *In Proceedings of PacificVis 2023*.
10. Haoyu Li, Tianyu Xiong, and Han-Wei Shen**:** Efficient Interpolation-based Pathline Tracing with B-spline Curves in Particle Dataset**,** 2022 IEEE Visualization Conference (VIS) Short Paper.
11. Yamei Tu, Jiayi Xu, Han-Wei Shen: KeywordMap: Attention-based Visual Exploration for Keyword Analysis, Pacific Visualization Symposium (PacificVis), 2021 IEEE, 206-215
12. Jingyi Shen, Han-Wei Shen: An Information-theoretic Visual Analysis Framework for Convolutional Neural Networks, In Proceedings of Smart Tools and Apps for Graphics (STAG) - Eurographics Italian Chapter Conference, 2021
13. Dmitriy Morozov, Tom Peterka, Hanqi Guo, Mukund Raj, Jiayi Xu, and Han-Wei Shen: IExchange: Asynchronous Communication and Termination Detection for Iterative Algorithms**,** In Proceedings of IEEE Symposium on Large Data Analysis and Visualization (LDAV), 2021.
14. Xiaonan Ji, Yamei Tu, Wenbin He, Junpeng Wang, Han-Wei Shen, and Po-Yin Yen: USEVis: Visual analytics of attention-based neural embedding in information retrieval**,** Visual Informatics (2021).
15. Guan Li, Jiayi Xu, Tianchi Zhang, Guihua Shan, Han-Wei Shen, Ko-Chih Wang, Shihong Liao, and Zhonghua Lu: Distribution-based Particle Data Reduction for In-situ Analysis and Visualization of Large-scale N-body Cosmological Simulations, Pacific Visualization Symposium (PacificVis), 2020 IEEE, 171-180
16. Wenbin He, Teng-Yok Lee, Jeroen van Baar, Kent Wittenburg, Han-Wei Shen: DynamicsExplorer: Visual Analytics for Robot Control Tasks involving Dynamics and LSTM-based Control Policies. PacificVis 2020: 36-45
17. Guan Li, Jiayi Xu, Tianchi Zhang, Guihua Shan, Han-Wei Shen, Ko-Chih Wang, Shihong Liao, Zhonghua Lu: Distribution-based Particle Data Reduction for In-situ Analysis and Visualization of Large-scale N-body Cosmological Simulations. PacificVis 2020: 171-180
18. Ko-Chih Wang, Jiayi Xu, Jonathan Woodring, and Han-Wei Shen: Statistical Super Resolution for Data Analysis and Visualization of Large Scale Cosmological Simulations**,** Pacific Visualization Symposium (PacificVis), 2019 IEEE, 303-312
19. Cheng Li, and Han-Wei Shen: Object-in-Hand Feature Displacement with Physically-Based Deformation**,** Pacific Visualization Symposium (PacificVis), 2019 IEEE, 21-30
20. Wenbin He, Hanqi Guo, Tom Peterka, Sheng Di, Franck Cappello, and Han-Wei Shen: Parallel Partial Reduction for Large-Scale Data Analysis and Visualization, In Proceedings of 2018 IEEE Symposium on Large Data Analysis and Visualization, 2018. **[Best Paper Honorable Mention]**
21. Ko-Chih Wang, Naeem Shareef, and Han-Wei Shen**:** Image and Distribution Based Volume Rendering for Large Data Sets**,** Pacific Visualization Symposium (PacificVis), 2018 IEEE, 26-35
22. Tzu-Hsuan Wei, Soumya Dutta, and Han-Wei Shen: Information Guided Data Sampling and Recovery using Bitmap Indexing**,** Pacific Visualization Symposium (PacificVis), 2018 IEEE, 56-65
23. Soumya Dutta, Han-Wei Shen, and Jen-Ping Chen: In Situ Prediction Driven Feature Analysis in Jet Engine Simulations**,** Pacific Visualization Symposium (PacificVis), 2018 IEEE, 66-75

24. Cheng Li, Joachim Moortgat, and Han-Wei Shen: An Automatic Data Deformation Approach for Occlusion Free Egocentric Data Exploration, Pacific Visualization Symposium (PacificVis), 2018 IEEE, 215-224
25. Cheng Li, Xin Tong, and Han-Wei Shen, Virtual Retractor: An Interactive Data Exploration System Using Physically Based Deformation,IEEE Pacific Vis 2017
26. Soumya Dutta, Jonathan Woodring, Han-Wei Shen, Jen-Ping Chen, and James Ahrens, Homogeneity Guided Probabilistic Data Summaries for Analysis and Visualization of Large-Scale Data Sets,, IEEE Pacific Vis 2017
27. Tzu-Hsuan Wei,Chun-Ming Chen, Jon Woodring, Huijie Zhang, and Han-Wei Shen, Efficient Distribution based Feature Search in Multi-field Datasets,, IEEE Pacific Vis 2017
28. Kewei Lu and Han-Wei Shen, Multivariate Volumetric Data Analysis and Visualization through Bottom-Up Subspace Exploration, IEEE Pacific Vis 2017
29. Wenbin He, Xiaotong Liu, Han-Wei Shen, Scott Collis, and Jonathan Helmus, Range Likelihood Tree: A Compact and Effective Representation for Visual Exploration of Uncertain Data Sets, IEEE Pacific Vis 2017
30. Ko-Chih Wang, Kewei Lu, Tzu-Hsuan Wei, Naeem Shareef, and Han-Wei Shen, Statistical Visualization and Analysis of Large Data Using a Value-based Spatial Distribution, IEEE Pacific Vis 2017
31. Ayan Biswas, Richard Strelitz, Jonathan Woodring, Chun-Ming Chen, and Han-Wei Shen. A Scalable Streamline Generation Algorithm Via Flux-Based Isocontour Extraction.
32. Proceeding of EGPGV. (Jun 2016).
33. Ross Vasko, Han-Wei Shen, Raphael Wenger. Visualizing Flow Fields Using Fractal Dimensions. EuroVis 2016. (Jun 2016).
34. Xin Tong, Huijie Zhang, Chris Jacobsen, Han-Wei Shen, Patrick McCormick. Crystal Glyph: Visualization of Directional Distributions Based on the Cube Map. Eurovis 2016. (Jun 2016).
35. Subahsis Hazarika, Soumya Dutta, Han-Wei Shen. Visualizing the Variations of Ensemble of Isosurfaces. IEEE Pacific Vis 2016. (Apr 2016).
36. Wenbin He Chun-Ming Chen Xiaotong Liu Han-Wei Shen. A Bayesian Approach for Probabilistic Streamline Computation in Uncertain Flows. IEEE Pacific Vis 2016. (Apr 2016).
37. Tong, Xin, Chen, Chun-Ming, Shen, Han-Wei, Wang, Pak. , Interactive Streamline Exploration and Manipulation Using Deformation, IEEE Pacific Visualization 2015. Hangzhou, April 2015.
38. Liu, Xiaotong, Shen, Han-Wei. The Effects of Representation and Juxtaposition on Graphical Perception of Matrix Visualization, ACM CHI. Seoul, Korea, ACM, May 2015.
39. Chen, Chun-Ming, Biswas, Ayan, Shen, Han-Wei. Uncertainty Modeling and Error Reduction for Pathline Computation in Time-varying Flow Fields, IEEE Pacific Visualization 2015. Hangzhou, April, 2015.
40. Biswas, Ayan, Thompson, David, He, Wenbin, Deng, Qi, Chen, Chun-Ming, Shen, Han-Wei, Machiraju, Raghu, Rangarjan, Anand., An Uncertainty-Driven Approach to Vortex Analysis Using Oracle Consensus and Spatial Proximity,IEEE Pacific Visualization 2015. Hangzhou, April 2015.
41. Wei, Tzu-Hsuan, Chen, Chun-Ming, Biswas, Ayan, Efficient Local Histogram Searching via Bitmap Indexing, EuroVis 2015, Italy, May 2015.
42. Liu, Xiaotong, Parthsarathy, Srinivasan, Shen, Han-Wei, and Hu, Yifan, GalaxyExplorer: Influence-Driven Visual Exploration of Context-Specific Social Media Interactions. International World Wide Web Conference (WWW), 2015.
43. Lu, Kewei and Shen, Han-Wei, A compact multivariate histogram representation for query-driven visualization, IEEE Symposium on Large Data Analysis and Visualization, 2015.

44. Kewei Lu, Han-Wei Shen, and Tom Peterka, Scalable Computation of Stream Surfaces on Large Scale Vector Field, ACM/IEEE SC'14, pp. 1008-1019.
45. Pak Chung Wong, Han-Wei Shen, Ruby Leung, Samson Hagos, Teng-Yok Lee, Xin Tong, Kewei Lu, Visual Analysis of Large Scale Climate Model Data, IEEE Symposium on Large Data Analysis and Visualization, 2014.
46. Sheng Jie Luo, Li Ting Huang, Bing Yu Chen, Han Wei Shen, EmailMap: Visualizing Event Evolution and Contact Interaction within Email Archives, 2014 IEEE Pacific Visualization, (Best Short Paper)
47. Yu Su, Gagan Agrawal, Jonathan Woodring, Ayan Biswas, Han-Wei Shen, Supporting correlation analysis on scientific datasets in parallel and distributed settings, Proceedings of the 23rd international symposium on High-performance parallel and distributed computing, pp.191-202, ACM.
48. Abon Chaudhuri, TH Wei, TY Lee, HW Shen, T Peterka, Efficient range distribution query for visualizing scientific data, IEEE Pacifiic Visualization Symposium (PacificVis), 2014,201-208.
49. Kewei Lu, Abon Chaudhuri, Teng-Yok Lee, Han-Wei Shen, Pak Chung Wong, Exploring Vector Fields with Distribution-based Streamline Analysis, IEEE Pacific Visualization 2013.
50. Steven Martin, Han-Wei Shen, Transformations for Volumetric Range Distribution Queries, IEEE Pacific Visualization 2013.
51. Xiaotong Liu, Yifan Hu, Stephen North, Han-Wei Shen, CompactMap: A Mental Map Preserving Visual Interface for Streaming Text Data, IEEE Big Data Visualization Workshop 2013 .
52. Ying Tu and Han-Wei Shen, GraphCharter: Combining Browsing with Query to Explore Large Semantic Graphs, IEEE Pacific Visualization 2013.
53. Chun-Ming Chen and Han-Wei Shen, Graph-based Seed Scheduling for Out-of-core FTLE and Pathline Computation, IEEE Symposium on Large Data Analysis and Visualization 2013.
54. Boonthanome Nouanesengsy, Teng-Yok Lee, Kewei Lu, Han-Wei Shen, Tom Peterka, Particle Advection and FTLE Computation for Time-Varying Flow Fields, ACM SC 12.
55. Abon Chauduhri, Teng-Yok Lee, Cong Wang, Bo Zhou, Tian-Tian Xu, Han-Wei Shen, Tom Peterka, Yi-Jen Chiang, Computation of Distributions from Large Scale Data Sets, IEEE symposium on Large Data Analysis and Visualization 2012.
56. Xin Tong, Teng-Yok Lee, Han-Wei Shen, Time Steps Selection from Large Scale Time-Varying Data Sets with Dynamic Time Warping, IEEE symposium on Large Data Analysis and Visualization 2012.
57. Chun-Ming Chen, Boonthanome Nouanesengsy, Teng-Yok Lee, Han-Wei Shen, Flow-Guided File Layout for Out-of-core Pathline Computation, IEEE symposium on Large Data Analysis and Visualization 2012.
58. Xiaotong Liu, Teng-Yok Lee, Han-Wei Shen, Word Cloud Rendering with Semantic Zooming, IEEE Visualization 2012 Poster.
59. Abon Chaudhuri, Teng-Yok Lee, Han-Wei Shen, Exploring Flow Fields Using Fractal Analysis of Field Lines, EEE Visualization 2012 Poster.
60. Kewei Liu, Teng-Yok Lee, Abon Chaudhuri, Han-Wei Shen, Vector Fields with Distribution-based Streamline Analysis, IEEE Visualizaion 2012 Poster.
61. Steve Martin and Han-Wei Shen, Interactive Transfer Function Design on Large Multiresolution Volumes, 2012 IEEE symposium on Large Data Analysis and Visualization.
62. Abon Chaudhuri and Han-Wei Shen, "A Self-Adaptive Technique for Visualizing Geospatial Data in 3D with Minimum Occlusion" In Visualization and Data Analysis Conference in IS&/SPIE Symposium on Electronic Imaging, 2012 (Best Paper Award).
63. Chun-Ming Chen, Lijie Xu, Teng-Yok Lee, Han-Wei Shen, A Flow Guided Layout for Out-of-Core Streamline Computation, in: IEEE Pacific Visualization 2012.

64. Tom Peterka, Rob Ross, Wes Kendall, Attila Gyulassy, Valerio Pascucci, Han-Wei Shen, Teng-Yok Lee, Abon Chaudhuri, Scalable Parallel Building BLocks for Custom Data Analysis, in IEEE Symposium on Large Data Analysis and Visualization (LDAV) 2011.
65. Steve Martin and Han-Wei Shen, HIstogram Spectra for Multivariate Time-Varying Volume LOD Selection, In: IEEE Symposium on Large Dat Analysis and Visualization (LDAV) 2011.
66. Peterka, T., Ross, R., Nouanesengsey, B., Lee, T.-Y., Shen, H.-W., Kendall, W., Huang, J.: A Study of Parallel Particle Tracing for Steady-State and Time-Varying Flow Fields, in Proceedings IPDPS'11, Anchorage AK, May 2011.
67. Teng-Yok Lee, Oleg Mishchenko, Han-Wei Shen, and Roger Crawfis, View point evaluation and streamline filtering for flow visualization, IEEE Pacific Visualization 2011, pp 83-90, March 2011.
68. Boonthanome Nouanesengsy, Jim Ahrens, Jonathan Woodring, and Han-Wei Shen, Revisiting parallel rendering for shared memory machines, Eurographics Symposium on Parallel Graphics and Visualization 2011, April 2011.
69. Wes Kendall, Tom Peterka, Jian Huang, Han-Wei Shen, and Robert Ross. Accelerating and benchmarking radix-k image compositing at large scale. In EGPGV '10: Proceedings of Eurographics Symposium on Parallel Graphics and Visualization 2010, pages 101-110, May 2010.
70. Steven Martin, Han-Wei Shen, and Patrick McCormick. Load-balanced isosurfacing on multi-gpu clusters. In EGPGV '10: Proceedings of Eurographics Symposium on Parallel Graphics and Visualization 2010, pages 91-100, May 2010.
71. Thomas Kerwin, Han-Wei Shen andf Brad Hittle, Don Stredney, and Gregory Wiet. Anatomical volume visualization with weighted distance fields. In Eurographics Workshop on Visual Computing for Biology and Medicine, 2010.
72. Teng-Yok Lee, Abon Chaudhuri, Fatih Poikli, and Han-Wei Shen March 2010. Cyclestack: Inferring periodic behavior via temporal sequenc visualization in ultrasound video. In PacificVis '10: Proceedings of IEEE Pacific Visualization Sympoisum 2010, pages 89-96, Mar. 2010.
73. Lijie Xu and Han-Wei Shen. Flow web: A graph based user interface for 3d flow field exploration. In Proceedings of IS&T/SPIE Visualization and Data, Jan. 2010.
74. Abon Chaudhuri and Han-Wei Shen. A self-adaptive treemap-based technique for visualizing hierarchical data in 3d. In PacificVis '09: Proceedings of IEEE Pacific Visualization Symposium 2009, pages 105-112, 2009.
75. Zhiyan Du, Yi-Jen Chiang, and Han-Wei Shen. Out-of-core rendering for time-varying fields using a space-partitioning tree (spt). In PacificVis '09: Proceedings of IEEE Pacific Visualization Symposium 2009, pages 73-80, 2009.
76. Yuan Hong, Tom Peterka, and Han-Wei Shen. Histogram-based i/o optimization for visualizing large-scale data. In Ultrascale Visualization Workshop in ACM Supercomputing 2009, 2009.
77. Teng yok Lee and Han-Wei Shen. Visualizing time-varying features with tac-based distance fields. In PacificVis '09: Proceedings of IEEE Pacific Visualization Symposium 2009, pages 1-8, 2009.
78. Boonthanome Nouanesengsy, Sang-Cheol Seok, Han-Wei Shen, and Veronica Vieland. Using projection and 2d plots to visually reveal genetic mechanisms of complex human disorders. In VAST '09: Proceedings of IEEE Symposium on Visual Analytics Science and Technology 2009, pages 171-178, 2009.
79. Tom Peterka, David Goodwell, Rob Ross, Han-Wei Shen, and Rajiv Takur. A configurable algorithm for parallel image compositing applications. In SC '09: Proceedings of ACM Supercomputing 2009, pages 1-10, 2009.
80. Guanfeng Ji, Han-Wei Shen, and Jinzhu gao. Interactive exploration of remote isosurface with point-based non-photorealistic rendering. In PacificVis '08: Proceedings of IEEE Pacific Visualization Symposium 2008, pages 25-32, 2008.

81. Liya Li, Hsien-His Hsieh, and Han-Wei Shen. Illustrative streamline placement and visualization. In PacificVis '08: Proceedings of the IEEE Pacific Visualization Symposium 2008, pages 79-86, 2008.
82. Aidong Lu and Han-Wei Shen. Interactive storyboard for overall time-varying data visualization. In PacificVis '08: Proceedings of IEEE Pacific Visualization Symposium 2008, pages 143-150, 2008.
83. Steve Martin, Han-Wei Shen, and Ravi Samtaney. Efficient rendering of extrudable curvilinear volumes. In PacificVis '08: Proceedings of IEEE Pacific Visualization Symposium 2008, pages 1-8, 2008
84. Yuan Hong and Han-Wei Shen. Parallel reflective symmetry transformation for volume data. In EGPGV '07: Proceedings of Eurographics/ACM SIGGRAPH Symposium on Parallel Graphics and Visualization 2007, pages 77-85, 2007.
85. Jonathan Woodring and Han-Wei Shen. Incorporating highlighting animations into static visualizations. In EI '07: Proceedings of IS&T/SPIE Electronic Imaging 2007, volume 6495, page 649503. SPIE, 2007.
86. Guangfeng Ji and Han-Wei Shen. Feature tracking using earth mover's distance and global optimization. In PG'06: Proceedings of the Pacific Graphics 2006, 2006.
87. T. Kerwin, Han-Wei Shen, and D. Stredney. Capture and review of interactive volumetric manipulations for surgical training. In VG '06: Proceedings of the Eurographics/IEEE VGTC Workshop on Volume Graphics 2006, pages 71-74, 2006.
88. Liya Li and Han-Wei Shen. View-dependent multi-resolutional flow texture advection. In Proceedings of IS&T/SPIE Visualization and Data Analysis, volume 6060, pages 24-34, 2006.
89. Liya Li and Han-Wei Shen. Image-based streamline generation and rendering. In Vis '06: IEEE Visualization 2006, 2006. Best Poster Award.
90. Naeem Shareef, Teng-Yok Lee, Han-Wei Shen, and Klaus Mueller. An image-based modelling approach to gpu-based unstructured grid volume rendering. In VG '06: Proceedings of the Eurographics/IEEE VGTC Workshop on Volume Graphics 2006, pages 31-38. AK Peters, Ltd., 2006.
91. Udeepta Bordoloi and Han-Wei Shen. View selection for volume rendering. In Vis '05: Proceedings of the IEEE Visualization 2005, pages 487-494, 2005.
92. Antonio Garcia and Han-Wei Shen. Asynchronous rendering of time-variant volumes with workload-based data shuffling. In HPC spring simulation multiconference, 2005.
93. Chaoli Wang, Jinzhu Gao, Liya Li, and Han-Wei Shen. A multiresolution volume rendering framework for large-scale time-varying data visualization. In VG '05: Proceedings of the Eurographics/IEEE VGTC Workshop on Volume Graphics 2005, pages 11-19, 2005.
94. Chaoli Wang and Han-Wei Shen. Hierarchical navigation interface: Leveraging multiple coordinated views for level-of-detail multiresolution volume rendering of large scientific data sets. In Proceedings of the Ninth International Conference on Information Visualisation, volume 00, pages 259-267. IEEE Computer Society Washington, DC, USA, 2005.
95. Udeepta Bordoloi, David L. Kao, and Han-Wei Shen. Visualization and exploration of spatial probability density functions: a clustering-based approach. In Proceedings of IS&T/SPIE Visualization and Data Analysis 2004, volume 5295, pages 57-64, 2004.
96. Udeepta Bordoloi, David L. Kao, and Han-Wei Shen. Visualization techniques for spatial probability density function data. Data Science Journal, 3:153-162, 2004.
97. Jinzhu Gao, Han-Wei Shen, Jian Huang, and James Arthur Kohl. Visibility culling for time-varying volume rendering using temporal occlusion coherence. In Vis '04: Proceedings of the IEEE Visualization 2004, pages 147-154. IEEE Computer Society Washington, DC, USA, 2004.
98. Guangfeng Ji and Han-Wei Shen. Efficient isosurface tracking using precomputed correspondence table. In Proceedings of the Eurographics/IEEE VGTC Symposium on Visualization 2004, pages 283-292, 2004.
99. Han-Wei Shen. Visualization Handbook, chapter Time-Varying Isosurface Extraction. Academic Press, 2004. Chaoli Wang, Jinzhu Gao, and Han-Wei Shen. Parallel multiresolution volume rendering of

large data sets with error-guided load balancing. In EGPGV '04: Proceedings of the Eurographics Symposium on Parallel Graphics and Visualization 2004, pages 23-30, 2004.
100. Udeepta Bordoloi and Han-Wei Shen. Space efficient fast isosurface extraction for large datasets. In Vis '03: Proceedings of the IEEE Visualization 2003, page 27. IEEE Computer Society Washington, DC, USA, 2003.
101. Jinzhu Gao and Han-Wei Shen. Hardware-assisted view-dependent isosurface extraction using spherical partition. In Proceedings of the Eurographics/IEEE VGTC Symposium on Visualization 2003, pages 267-276. Eurographics Association Aire-la-Ville, Switzerland, Switzerland, 2003.
102. Guangfeng Ji, Han-Wei Shen, and Rephael Wenger. Volume tracking using higher dimensional isosurfacing. In Vis '03: Proceedings of the IEEE Visualization 2003, pages 209-216, 2003.
103. Guo-Shi Li, Udeepta Bordoloi, and Han-Wei Shen. Chameleon: An interactive texture-based rendering framework for visualizing three-dimensional vector fields. In Vis '03: Proceedings of the IEEE Visualization 2003, pages 241-248, 2003.
104. S. Senapathi, B. Chandrasekaran, D. Stredney, H. Shen, and D. K. Panda. Qos-aware middleware for cluster-based servers to support interactive and resource-adaptive applications. In Proceedings of the 12th IEEE International Symposium on High Performance Distributed Computing 2003, page 205, Washington, DC, USA, 2003. IEEE Computer Society.
105. Jonathan Woodring and Han-Wei Shen. Chronovolumes: a direct rendering technique for visualizing time-varying data. In VG '03: Proceedings of the Eurographics/IEEE VGTC Workshop on Volume Graphics 2003, pages 27-34. ACM Press New York, NY, USA, 2003.
106. Jonathan Woodring, Chaoli Wang, and Han-Wei Shen. High dimensional direct rendering of time-varying volumetric data. In Vis '03: Proceedings of the IEEE Visualization 2003, pages 417-424, 2003.
107. U. Bordoloi, H. Shen, and DL Kao. Understanding time-varying map data using spatio-temporal clustering. Eos Transactions AGU, Fall Meet. Suppl., Abstract NG12A-1018, 83(47), 2002.
108. Antonio Garcia and Han-Wei Shen. An interleaved parallel volume renderer with pc-clusters. In EGPGV '02: Proceedings of the Eurographics Workshop on Parallel Graphics and Visualization 2002, pages 51-59. Eurographics Association Aire-la-Ville, Switzerland, Switzerland, 2002.
109. Guangfeng Ji, Han-Wei Shen, and Jinzhu Gao. Remote exploration of isosurfaces with point-based non-photorealistic rendering. In Vis '02: IEEE Visualization 2002, 2002. Poster.
110. Xinyue Li and Han-Wei Shen. Time-critical multiresolution volume rendering using 3d texture mapping hardware. In Proceedings of the IEEE Symposium on Volume Visualization and Graphics 2002, pages 29-36. IEEE Press Piscataway, NJ, USA, 2002.
111. Jinzhu Gao and Han-Wei Shen. Hardware-assisted view-dependent isosurface extraction using spherical partition. In Proceedings of the Eurographics/IEEE VGTC Symposium on Visualization 2003, pages 267-276. Eurographics Association Aire-la-Ville, Switzerland, Switzerland, 2003.
112. Guangfeng Ji, Han-Wei Shen, and Rephael Wenger. Volume tracking using higher dimensional isosurfacing. In Vis '03: Proceedings of the IEEE Visualization 2003, pages 209-216, 2003.
113. Guo-Shi Li, Udeepta Bordoloi, and Han-Wei Shen. Chameleon: An interactive texture-based rendering framework for visualizing three-dimensional vector fields. In Vis '03: Proceedings of the IEEE Visualization 2003, pages 241-248, 2003.
114. S. Senapathi, B. Chandrasekaran, D. Stredney, H. Shen, and D. K. Panda. Qos-aware middleware for cluster-based servers to support interactive and resource-adaptive applications. In Proceedings of the 12th IEEE International Symposium on High Performance Distributed Computing 2003, page 205, Washington, DC, USA, 2003. IEEE Computer Society.
115. Jonathan Woodring and Han-Wei Shen. Chronovolumes: a direct rendering technique for visualizing time-varying data. In VG '03: Proceedings of the Eurographics/IEEE VGTC Workshop on Volume Graphics 2003, pages 27-34. ACM Press New York, NY, USA, 2003.

116. Jonathan Woodring, Chaoli Wang, and Han-Wei Shen. High dimensional direct rendering of time-varying volumetric data. In Vis '03: Proceedings of the IEEE Visualization 2003, pages 417-424, 2003.
117. U. Bordoloi, H. Shen, and DL Kao. Understanding time-varying map data using spatio-temporal clustering. Eos Transactions AGU, Fall Meet. Suppl., Abstract NG12A-1018, 83(47), 2002.
118. Antonio Garcia and Han-Wei Shen. An interleaved parallel volume renderer with pc-clusters. In EGPGV '02: Proceedings of the Eurographics Workshop on Parallel Graphics and Visualization 2002, pages 51-59. Eurographics Association Aire-la-Ville, Switzerland, Switzerland, 2002.
119. Guangfeng Ji, Han-Wei Shen, and Jinzhu Gao. Remote exploration of isosurfaces with point-based non-photorealistic rendering. In Vis '02: IEEE Visualization 2002, 2002. Poster.
120. Xinyue Li and Han-Wei Shen. Time-critical multiresolution volume rendering using 3d texture mapping hardware. In Proceedings of the IEEE Symposium on Volume Visualization and Graphics 2002, pages 29-36. IEEE Press Piscataway, NJ, USA, 2002.
121. Sandhya Senapathi, Dhabaleswar K. Panda, Don Stredney, and Han-Wei Shen. A qos framework for clusters to support applications with resource adaptivity and predictable performance. In Proceedings of the IEEE International Workshop on Quality of Service 2002, pages 180-190, 2002.
122. Jinzhu Gao and Han-Wei Shen. Parallel view-dependent isosurface extraction using multi-pass occlusion culling. In Proceedings of the IEEE Symposium on Parallel and Large-data Visualization and Graphics 2001, pages 67-74. IEEE Press Piscataway, NJ, USA, 2001.
123. Jinzhu Gao, Han-Wei Shen, and Tony Garcia. Parallel view-dependent isosurface extraction and rendering. In Tenth SIAM Conference on Parallel Processing for Scientific Computing, 2001.
124. Xinyue Li and Han-Wei Shen. Adaptive volume rendering using fuzzy logic control. In 2001 Eurographics/IEEE VGTC Symposium on Visualization. Springer, 2001.
125. Han-Wei Shen and Xinyue Li. Time-critical volume rendering. In ACM SIGGRAPH 2001 Technical Sketches and Applications, 2001.
126. Udeepta Bordoloi and Han-Wei Shen. Hierarchical LIC for vector field visualization. In NSF/DoE Lake Tahoe Workshop on Hierarhical Approximation and Geometrical Methods for Scientific Visualization, 2000.
127. Roger A. Crawfis, Han-Wei Shen, and Nelson Max. Flow visualization techniques for cdf using volume rendering. In 9th International Symposium on Flow Visualization, Edinburgh, Scotland, 2000.
128. David Ellsworth, Ling-Jen Chiang, and Han-Wei Shen. Accelerating time-varying hardware volume rendering using tsp trees and color-based error metrics. In Proceedings of the IEEE Symposium on Volume Visualization 2000, pages 119-128. ACM Press New York, NY, USA, 2000.
129. Kwan-Liu Ma and Han-Wei Shen. Compression and accelerated rendering of time-varying volume data. In Proceedings of the International Computer Symposium-Workshop on Computer Graphics and Virtual Reality 2000, pages 82-89, 2000.
130. Kwan-Liu Ma and Han-Wei Shen. Visualization techniques for time-varying volume data. In International Computer Symposium 2000, 2000.
131. Phil M. Sutton, Chuck D. Hansen, Han-Wei Shen, and Dan Schikore. A case study of isosurface extraction algorithm performance. In Proceedings of the Eurographics/IEEE VGTC Symposium on Visualization 2000, pages 259-268, 2000.
132. David L. Kao and Han-Wei Shen. Automatic surface flow feature visualization. Computational Fluid Dynamics Conference, 14 th, Norfolk, Collection of Technical Papers., 1:305-314, 1999.
133. Han-Wei Shen, Ling-Jen Chiang, and Kwan-Liu Ma. A fast volume rendering algorithm for time-varying fields using a time-space partitioning (tsp) tree. In Vis '99: Proceedings of the IEEE Visualization 1999, pages 371-377. IEEE Computer Society Press Los Alamitos, CA, USA, 1999.

134. Han-Wei Shen, David L. Kao, Ling-Jen Chiang, and Aleksandra Kuswik. Glic: An interactive software tool for visualizing surface flows. In 37th AIAA Aerospace Sciences Meeting and Exhibit, 1999.
135. David L. Kao and Han-Wei Shen. Numerical surface flow visualization. In Proceedings of the 36th AIAA Aerospace Sciences Meeting and Exhibit, pages 98-0076, 1998
136. Han-Wei Shen. Isosurface extraction in time-varying fields using a temporal hierarchical index tree. In Vis '98: Proceedings of the IEEE Visualization 1998, pages 159-166, 1998.
137. Kawn-Liu Ma and Han-Wei Shen. 1997 SIGGRAPH course notes, chapter Some extensions to Line Integral Convolution. ACM Siggraph, 1997.
138. Han-Wei Shen and David L. Kao. Uflic: A line integral convolution algorithm for visualizing unsteady flows. In Vis '97: Proceedings of the IEEE Visualization 1997, pages 317-322, 1997.
139. Han-Wei Shen, Chuck D. Hansen, Y. Livnat, and Christopher R. Johnson. Isosurfacing in span space with utmost efficiency (issue). In Vis '96: Proceedings of the IEEE Visualization 1996, pages 287-294. IEEE Computer Society Press Los Alamitos, CA, USA, 1996.
140. Han-Wei Shen, Christopher R. Johnson, and Kwan-Liu Ma. Visualizing vector fields using line integral convolution and dye advection. In Proceedings of the IEEE Symposium on Volume Visualization 1996, pages 63-70, 1996.
141. Han-Wei Shen and Christopher R. Johnson. Sweeping simplices: A fast iso-surface extraction algorithm for unstructured grids. In Vis '05: Proceedings of the IEEE Visualization 1995, pages 143-150. IEEE Computer Society Washington, DC, USA, 1995.
142. Han-Wei Shen, P. B. Gharpure, and Christopher R. Johnson. Visualization of 3-d wave propagation in the heart-a new technique. In Proceedings of the 16th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 1994. Engineering Advances: New Opportunities for Biomedical Engineers., pages 684-685, 1994.
143. Han-Wei Shen and Christopher R. Johnson. Differential volume rendering: a fast volume visualization technique for flow animation. In Vis '94: Proceedings of the IEEE Visualization 1994, pages 180-187, 1994.

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