Cláudio T. Silva

Professor of Computer Science and Engineering and Data Science

Tandon School of Engineering
New York University
Six MetroTech Center
Brooklyn, NY 11201

Professional Preparation

- Post-doc, Applied Mathematics and Statistics — 1996-7
  State University of New York at Stony Brook
  Concentration Area: Computational Geometry
  Mentor: Distinguished Professor Joseph S.B. Mitchell
- Ph.D., Computer Science — December 1996
  State University of New York at Stony Brook
  Dissertation Title: "Parallel Volume Rendering of Irregular Grids"
  Advisor: Distinguished Professor Arie E. Kaufman
- M.S., Computer Science — May 1993
  State University of New York at Stony Brook
- B.S., Mathematics — July 1990
  Universidade Federal do Ceará (Brazil)

Professional Experience

- Center for Data Science, New York University
  - Interim Director, (September 2016–August 2017)
  - Associated Faculty, (September 2013–)
- Computer Science & Engineering, School of Engineering, New York University
  - Professor (July 2011–)
  - Research Professor (October 2010–June 2011)
  - Engineer-in-Residence, Incubator (December 2012–)
- Center for Urban Science and Progress, New York University
  - Head of Disciplines (September 2012–August 2015)
- Department of Computer Science, Courant Institute of Mathematical Sciences, NYU
  - Affiliated Faculty (December 2011–)
- Major League Baseball (MLB) Advanced Media

  - Consultant (February 2012–)

- Kirkland & Ellis LLP
  - Expert Consultant (February 2016–August 2016)
- Modelo, Inc.
  - Co-founder (2011)
- School of Computing, University of Utah
  - Adjunct Professor (July 2011–)
  - Professor (July 2010–June 2011)
  - Associate Professor (October 2003–June 2010)
- Guest Professor, Linköping University, Sweden, (January 2010–December 2012)
- Scientific Computing and Imaging (SCI) Institute, University of Utah
  - Associate Director (January 2008–May 2009)
  - Faculty Member (October 2003–June 2011)
- Visiting Researcher, ETH Zurich, (November 2010)
- VisTrails, Inc. (2007) [University of Utah startup company: www.vistrails.com]
  - Co-founder
  - Chief Scientist
- Participating Guest Researcher (April 2003–), Lawrence Livermore National Laboratory.
- Faculty Scholar (January 2003–March 2003), Lawrence Livermore National Laboratory.
- Associate Professor (September 2002–April 2006; on leave starting October 2003), Department of Computer Science & Engineering, OGI School of Science & Engineering, Oregon Health & Science University.
- Information Visualization Research Department, AT&T Labs-Research.
  - Principal Member of Technical Staff (April 2002–September 2002)
  - Senior Member of Technical Staff (July 1999–April 2002)
- Adjunct Assistant Professor, Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, July 1998–July 2000.
- Research Staff Member, Visual and Geometric Computing, IBM T. J. Watson Research Center, December 1997–July 1999.
- Research Associate, Computational Geometry Lab (Joseph S.B. Mitchell, Director). Department of Applied Mathematics and Statistics, State University of New York at Stony Brook, September 1996–December 1997.

- Researcher, Visualization Group, Sandia National Laboratories, May 1995–December 1997.
- Teaching and Research Assistant, Visualization Lab (Arie Kaufman, Director). Department of Computer Science, State University of New York at Stony Brook, 1991–1995.
- Summer Intern, Brookhaven National Laboratories, 1992.
- Summer Intern, Philips Laboratories, 1991.

Honors, Distinctions, and Achievements

- Best demo honorable mention award – SIGMOD 2017
- (student award) 2017 Henning Biermann Award from the Courant Institute
  advisee: Dr. Bowen Yu (2017)
- Best paper honorable mention award – IEEE Data Science and Advanced Analytics, 2016
- Elected Chair of IEEE Technical Committee on Visualization and Computer Graphics (2015–2017)
- (student award) Pearl Brownstein Doctoral Research Award (for PhD thesis),
  advisee: Dr. Nivan Ferreira (2015)
- (student award) Courant's Matthew Smosna Prize for excellence in computer science (for MS thesis),
  advisee: Yunzhe Jia (2015)
- Alpha Award for Best Analytics Innovation/Technology for MLB Advanced Media's Statcast player tracking system, 2015 MIT Sloan Sports Analytics Conference
- 2014 IEEE VGTC Visualization Technical Achievement Award "in recognition of seminal advances in geometric computing for visualization and for contributions to the development of the VisTrails data exploration system."
- Outstanding Partnership, Federal Laboratory Consortium for Technology Transfer for Ultrascale Visualization Climate Data Analysis Tools (UV-CDAT), 2014
- (student award) VPG Best Dissertation Finalist,
  advisee: Dr. Tiago Etiene (2013)
- IBM Faculty Award, 2013.
- Best paper honourable mention award – EuroVis 2013
- 2013 IEEE Fellow "for contributions to geometric computing and visualization."
- Best paper award – SIBGRAPI 2012
- Best panel award – IEEE VisWeek 2011
- Best paper award – 2nd prize, EuroVis 2011
- Best paper award, ACM Eurographics Symposium on Parallel Graphics and Visualization 2011.
- Finalist, Executable Paper Grand Challenge, 2011.

- 2011 IEEE Computer Society, Certificate of Appreciation "for outstanding service and performance as Co-Chairman of VisWeek 2010."
- Best paper award, EUROGRAPHICS 2010 Educator Program.
- Best poster award, 24th Brazilian Symposium On Databases (SBBD 2009)
- 2009 Utah Innovation Awards, VisTrails Provenance Plugin for Autodesk Maya.
- IEEE Senior Member (since 2008).
- Best paper award, IEEE Shape Modeling International 2008.
- Best paper award, IEEE Visualization 2007.
- Best paper finalist, IEEE Shape Modeling International 2007.
- Dean's Teaching Commendation, Spring 2007.
- IBM Faculty Award, 2007.
- IBM Faculty Award, 2006.
- IBM Faculty Award, 2005.
- Best paper finalist, IEEE Visualization 2001.
- Best paper finalist, IEEE Visualization 1999.
- IBM First Plateau Invention Award, 1999.
- IBM Research Division "accomplishment list" for MPEG-4 3D Model Coding, 1998.
- National Science Foundation Post-Doctoral CISE Associateship Award, 1996–1997.
- Best paper finalist, ACM/IEEE Volume Visualization 1996.
- Doctoral Fellowship – Brazilian Research Council (CNPq – Brazil), 1991–1995.
- 1st place, Entrance exam, Mathematics, Federal University of Ceara, Brazil.

Media Coverage

- New York Times (online): Mapping the Shadows of New York City: Every Building, Every Block; `https://goo.gl/dToiem`
- New York Times (print and online): To Create a Quieter City, Theyre Recording the Sounds of New York; `https://goo.gl/oimnsK`
- Economist (print and online): Listen to the music of the traffic in the city; `https://goo.gl/jIfvc2`
- Economist (print and online): Every step they take; `https://goo.gl/pEZNGj`
- Vice Sports, Future of the game: The era of wearables (video); `http://goo.gl/D6XGRC`
- Vice Sports, Future of the game: Baseball's latest statistical revolution (video); `http://goo.gl/N4f3sh`

- NetworkWorld, How the cloud gives Major League Baseball a new world of stats; http://goo.gl/1uJfkO
- Interview at archspeech (in Russian); http://goo.gl/sBquLO
- Claudio Silva: The future of the interdisciplinary approach, capable of solving complex problems of cities (in Russian); http://goo.gl/vngUOI
- Do not spoil the unsuccessful city buildings (in Russian); http://goo.gl/zolzs8
- (ABC News, USA Today, Sun Times, ...), Data Deluge: MLB Rolls out Statcast Analytics on Tuesday; http://goo.gl/m0HXEm
- PR Newswire, McGraw-Hill Education Takes Important Step in Open Technology, Enabling Educators to Build Personalized Learning Experiences; http://goo.gl/waklJU
- MLB News, Statcast wins prestigious Alpha Award for innovation; http://goo.gl/u0745S
- Newsweek, Can baseball get more interesting to watch with Big Data?; http://goo.gl/vWK5jm
- Wall Street Journal, Billy Beane Expects Big Things from MLBs Big Data Play; http://goo.gl/mGrBj9
- MLB.com, Statcast interview (video); http://goo.gl/TVQ9Hy
- MLB News, MLBAM introduces new way to analyze every play; http://goo.gl/DW52zW

Publications

Google Scholar h-index: 55; total citations: 13,516 (date: 7/20/17)

Book (1)

[1] *An Introduction to Verification of Visualization Techniques*, T. Etiene, R. Kirby and C. Silva, Morgan & Claypool Publishers, 2015.

Journal Publications (112)

[2] *TopoAngler: Interactive Topology-based Extraction of Fishes,* A. Bock, H. Doraiswamy, A. Summers, and C. Silva, IEEE Transactions on Visualization and Computer Graphics (SCIVIS 2017), accepted.

[3] *Mocap: Large-scale inference of transcription factor binding sites from chromatin accessibility,* X. Chen, B. Yu, N. Carriero, C. Silva, and R. Bonneau, Nucleic Acids Research, 45(8):4315–4329, 2017.

[4] *Dynamic Scene Graph: Enabling Scaling, Positioning, and Navigation in the Universe,* E. Axelsson, A. Bock, J. Costa, C. Emmart, C. Silva, and A. Ynnerman, Computer Graphics Forum (Proceedings of EuroVis 2017), 36(3):459–468, 2017.

[5] *ARIES: Enabling Visual Exploration and Organization of Art Image Collections,* L. Crissaff, L. Ruby, S. Deutch, L. DuBois, J.-D. Fekete, J. Freire, and C. Silva, IEEE Computer Graphics and Applications, accepted.

[6] *TopKube: A Rank-Aware Data Cube for Real-Time Exploration of Spatiotemporal Data*, F. Miranda, L. Lins, J.T. Klosowski, C. Silva, IEEE Transactions on Visualization and Computer Graphics, to appear.

[7] *STaRS: Simulating Taxi Ride Sharing at Scale*, M. Ota, H. Vo, C. Silva, and J. Freire, IEEE Transactions on Big Data, to appear.

[8] *A Survey of Surface Reconstruction from Point Clouds*, M. Berger, A. Tagliasacchi, L. Seversky, P. Alliez, G. Guennebaud, J. Levine, A. Sharf and C. Silva, Computer Graphics Forum, 36(1):301–329, 2017.

[9] *Urban Pulse: Capturing the Rhythm of Cities*, F. Miranda, H. Doraiswamy, M. Lage, K. Zhao, B. Gonçalves, L. Wilson, M. Hsieh, and C. Silva, IEEE Transactions on Visualization and Computer Graphics (SCIVIS 2016), 23(1): 791-800 (2017).

[10] *VisFlow - Web-based Visualization Framework for Tabular Data with a Subset Flow Model*, B. Yu and C. Silva, IEEE Transactions on Visualization and Computer Graphics (VAST 2016), 23(1): 251-260 (2017).

[11] *Bijective Maps from Simplicial Foliations*, M. Campen, C. Silva, and D. Zorin, ACM Transactions on Graphics (SIGGRAPH 2016), 35(4):74, 2016.

[12] *Statcast Dashboard: Exploration of Spatiotemporal Baseball Data*, M. Lage J. Piazentin Ono, D. Cervone, J. Chiang, C. Dietrich, and C. Silva, IEEE Computer Graphics and Applications, 36(5): 28–37, 2016.

[13] *Visual Analysis of Bike-Sharing Systems*, G. Oliveira, J. Sotomayor, R. Torchelsen, C. Silva, and J. Comba, Computers & Graphics, 60: 119-129, 2016.

[14] *Reducing the Analytical Bottleneck for Domain Scientists: Lessons from a Climate Data Visualization Case Study*, A. Dasgupta, J. Poco, E. Bertini, and C. Silva, Computing in Science and Engineering, 18(1): 92–100, 2016.

[15] *Visually Exploring Transportation Schedules*, C. Palomo, Z. Guo, C. Silva, and J. Freire, IEEE Transactions on Visualization and Computer Graphics, 22(1):170–179, 2016.

[16] *Topology-based Catalogue Exploration Framework for Identifying View-Enhanced Tower Designs*, H. Doraiswamy, N. Ferreira, M. Lage, H. Vo, L. Wilson, H. Werner, M. Park, and C. Silva, ACM Transactions on Graphics, 34(6):230, 2015.

[17] *Exploring Traffic Dynamics in Urban Environments Using Vector-Valued Functions*, J. Poco, H. Doraiswamy, H. Vo, J. Comba, J. Freire, and C. Silva, Computer Graphics Forum, 34(3):161–170, 2015.

[18] *Bridging Theory with Practice: An Exploratory Study of Visualization Use and Design for Climate Model Comparison*, A. Dasgupta, J. Poco, Y. Wei, B. Cook, E. Bertini and C. T. Silva, IEEE Transactions on Visualization and Computer Graphics, 21(9):996–1014, 2015.

[19] *Riding from Urban Data to Insight Using New York City Taxis*, J. Freire, C. Silva, Huy T. Vo, H. Doraiswamy, N. Ferreira, J. Poco, IEEE Data Eng. Bull. 37(4):43–55, 2014.

[20] *Structured Open Urban Data: Understanding the Landscape*, L. Barbosa, K. Pham, C. Silva, M. Vieira, and J. Freire, Big Data Journal, 2:(3), 144–154, 2014.

[21] *Using Physically Based Rendering to Benchmark SL Scanners*, E. Medeiros, H. Doraiswamy, M. Berger, and C. Silva, Computer Graphics Forum (Proceedings of Pacific Graphics 2014), 33(7):71–80, 2014.

[22] *Visual Reconciliation of Alternative Similarity Spaces in Climate Modeling*, J. Poco, A. Dasgupta, Y. Wei, W. Hargrove, C. Schwalm, D. Huntzinger, R. Cook, E. Bertini, and C. Silva, IEEE Transactions on Visualization and Computer Graphics, 20(12):1923–1932, 2014.

[23] *Genotet: An Interactive Web-based Visual Exploration Framework to Support Validation of Gene Regulatory Networks*, B. Yu, H. Doraiswamy, X. Chen, E. Miraldi, M. Arrieta-Ortiz, C. Hafemeister, A. Madar, R. Bonneau, and C. Silva, IEEE Transactions on Visualization and Computer Graphics, 20(12):1903–1912, 2014.

[24] *Using Topological Analysis to Support Event-Guided Exploration in Urban Data*, H. Doraiswamy, N. Ferreira, T. Damoulas, J. Freire, and C. Silva, IEEE Transactions on Visualization and Computer Graphics, 20(12):2634–2643, 2014.

[25] *A Weighted Delaunay Triangulation Framework for Merging Triangulations in a Connectivity Oblivious*, L.F. Silva, L.F. Scheidegger, T. Etiene, J. Comba, L. Nonato, and C. Silva, Computer Graphics Forum, 33(6):18–30, 2014.

[26] *SimilarityExplorer: A Visual Inter-comparison Tool for Multifaceted Climate Data*, J. Poco, A. Dasgupta, Y. Wei, W. Hargrove, C. Schwalm, R. Cook, E. Bertini, and C. Silva, Computer Graphics Forum, 33(3):341-350, 2014.

[27] *Fast Adaptive Blue Noise on Polygonal Surfaces*, Esdras medeiros, Lis Ingrid, Sinesio Pesco, and Claudio Silva, Graphical Models, 76(1):17–29, 2014.

[28] *Verifying Volume Rendering Using Discretization Error Analysis*, Tiago Etiene, D. Jonsson, T. Ropinski, C. Scheidegger, J. Comba, L. G. Nonato, R. M. Kirby, A. Ynnerman, and C. T. Silva, IEEE Transactions on Visualization and Computer Graphics, 20(1):140–154, 2014.

[29] *Visual Exploration of Big Spatio-Temporal Urban Data: A Study of New York City Cab Trips*, Nivan Ferreira, Jorge Poco, Huy T. Vo, Juliana Freire and Claudio Silva, IEEE Transactions on Visualization and Computer Graphics (Proceedings of VAST), 19(12):2149–2158, 2013.

[30] *Practical considerations on Marching Cubes 33 topological correctness*, Lis Custodio, Tiago Etiene, Sinesio Pesco, Claudio T. Silva, Computers & Graphics 37(7):840–850, 2013.

[31] *Vector Field k-Means: Clustering Trajectories by Fitting Multiple Vector Fields,* N. Ferreira, J.T. Klosowski, C. Scheidegger, and C. Silva, Computer Graphics Forum (Proceedings of EuroVis 2013). **Best paper honourable mention award.**

[32] *Ultrascale Visualization of Climate Data,* D. Williams, T. Bremer, C. Doutriaux, J. Patchett, S. Williams, G. Shipman, R. Miller, D. Pugmire, B. Smith, C. Steed, E. Wes Bethel, H. Childs, H. Krishnan, P. Prabhat, M. Wehner, C. Silva, E. Santos, D. Koop, T. Ellqvist, J. Poco, B. Geveci, A. Chaudhary, A. Bauer, A. Pletzer, D. Kindig, G. Potter, and T. Maxwell, IEEE Computer, 46(9): 68-76, 2013.

[33] *UV-CDAT: Analyzing Climate Datasets from a User's Perspective*, E. Santos, J. Poco, Y. Wei, S. Liu, B. Cook, D. Williams and C. Silva, Computing in Science & Engineering, 15(1):94–103, 2013.

[34] *VisTrails SAHM: visualization and workflow management for species habitat modeling,* J.T. Morisette, C.S. Jarnevich, T.R. Holcombe, C.B. Talbert, D. Ignizio, M.K. Talbert, C. Silva, D. Koop, A. Swanson, and N.E. Young, Ecography, 36(2):129-135, 2013.

[35] *A Benchmark for Surface Reconstruction,* M. Berger, J. Levine, L. G. Nonato, G. Taubin, and C. Silva, ACM Transactions on Graphics, 32(2):20, 2013.

[36] *Quad-Mesh Generation and Processing: a survey*, D. Bommes, B. Lévy, N. Pietroni, E. Puppo, C. Silva, M. Tarini, and D. Zorin, Computer Graphics Forum (Proceedings of Eurographics 2012), 32(6):51-76, 2013.

[37] *Nonrigid Matching of Undersampled Shapes via Medial Diffusion,* M. Berger and C. Silva. Computer Graphics Forum (Proceedings of Symposium on Geometry Processing 2012), 31(5):1587–1596, 2012.

[38] *Making Computations and Publications Reproducible with VisTrails,* J. Freire and C. Silva, Computing in Science and Engineering, 14(4):18–25, 2012.

[39] *Medial Kernels,* M. Berger and C. Silva. Computer Graphics Forum (Proceedings of Eurographics 2012), 31(2):795–804, 2012.

[40] *ISP: An Optimal Out-Of-Core Image-Set Processing Streaming Architecture for Parallel Heterogeneous Systems,* L. Ha, J. Krueger, J. Comba, C. Silva, and S. Joshi, IEEE Transactions on Visualization and Computer Graphics), 18(6):838–851, 2012.

[41] *Simple and Efficient Mesh Layout with Space-filling Curves,* H. Vo, L. Scheidegger, V. Pascucci, and C. Silva, Journal of Graphics Tools, GPU, and Game Tools, 16(1):25–39, 2012.

[42] *Interactive Quadrangulation with Reeb Atlases and Connectivity Textures,* J. Tierny, J. Daniels II, L. G. Nonato, V. Pascucci and C. Silva, IEEE Transactions on Visualization and Computer Graphics), 18(10):1650–1663, 2012.

[43] *HyperFlow and ITK v4 Integration: Exploring the use of a modern parallel dataflow architecture in ITK,* H. Vo, L. Lins, and C. Silva, The Insight Journal, 04-2012.

[44] *Inspired Quadrangulation,* J. Tierny, J. Daniels II, L. G. Nonato, V. Pascucci and C. Silva, Computer-Aided Design (Proceedings of SIAM Conference on Geometric and Physical Modeling), 43(11):1516–1526, 2011.

[45] *Efficient Probabilistic and Geometric Anatomical Mapping using Particle Mesh Approximation on GPUs,* L. Ha, M. Prastawa, G. Gerig, J. Gilmore, C. Silva and S. Joshi, International Journal of Biomedical Imaging, 2011.

[46] *Template-Based Quadrilateral Mesh Generation from Imaging Data,* M. Lizier, M. Siqueira, J. Daniels II, C. Silva and L. Nonato, The Visual Computer, 27(10):887–903, 2011.

[47] *Managing Data for Visual Analytics: Opportunities and Challenges*, J.-D. Fekete and C. Silva, IEEE Data Eng. Bull. 35(3): 27-36, 2012.

[48] *Topology Verification for Isosurface Extraction,* T. Etiene, L. Nonato, C. Scheidegger, J. Tierny, T. Peters, V. Pascucci, R. M. Kirby, and C. Silva, IEEE Transactions on Visualization and Computer Graphics, 18(6):952–965, 2012. **Spotlight paper.**

[49] *BirdVis: Visualizing and Understanding Bird Populations,* N. Ferreira, L. Lins, D. Fink, S. Kelling, C. Wood, J. Freire, and C. Silva, IEEE Transactions on Visualization and Computer Graphics (Proceedings of InfoVIS 2011), 17(12):2374-2383, 2011.

[50] *Streaming-Enabled Parallel Data Flow Framework in the Visualization ToolKit,* H. Vo, J. Comba, B. Geveci, and C. Silva, Computing in Science and Engineering, 13(3):72-83, 2011.

[51] *A User Study of Visualization Effectiveness Using EEG and Cognitive Load,* E. Anderson, K. Potter, L. Matzen, J. Shepherd, G. Preston, and C. Silva, Computer Graphics Forum (Proceedings of EuroVis 2011). **Best paper award – 2nd prize.**

[52] *Template-based Quadrilateral Meshing,*, J. Daniels II, M. Lizier, M. Siqueira, C. Silva and L.G. Nonato, Computers and Graphics (Proceedings of Shape Modeling International 2011), 35(3), 2011.

[53] *The ALPS project release 2.0: Open source software for strongly correlated systems*, B. Bauer, L. D. Carr, H.G. Evertz, A. Feiguin, J. Freire, S. Fuchs, L. Gamper, J. Gukelberger, E. Gull, S. Guertler, A. Hehn, R. Igarashi, S.V. Isakov, D. Koop, P.N. Ma, P. Mates, H. Matsuo, O. Parcollet, G. Pawlowski, J.D. Picon, L. Pollet, E. Santos, V.W. Scarola, U. Schollwck, C. Silva, B. Surer, S. Todo, S. Trebst, M. Troyer, M.L. Wall, P. Werner, S. Wessel, Journal of Statistical Mechanics: Theory and Experiment (JSTAT), 5:P05001, 2011.

[54] *Using VisTrails and Provenance for Teaching Scientific Visualization,* C. Silva, E. Anderson, E. Santos, and J. Freire, Computer Graphics Forum, 30(1):75–84, 2011. (Presented at EUROGRAPHICS 2010 Educator Program, 2010). **Best paper award.**

[55] *PedVis: A Structured, Space Efficient Technique for Pedigree Visualization*, C. Tuttle, L. G. Nonato, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Information Visualization 2010), 16(6):1063–1072, 2010.

[56] *Two-Phase Mapping for Projecting Massive Data Sets*, F. V. Paulovich, L. G. Nonato, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2010), 16(6):1281-1290, 2010.

[57] *Interactive Vector Field Feature Identification*, J. Daniels, E. W. Anderson, L. G. Nonato, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2010), 16(6):1560–1568, 2010.

[58] *Using Python for Signal Processing and Visualization*. E. Anderson, G. Preston, and C. Silva. IEEE Computing in Science and Engineering 12(4) pp 90–95, 2010.

[59] *Fiedler Trees for Multiscale Surface Analysis,* M. Berger, L. G. Nonato, V. Pascucci, and C. Silva, Computer & Graphics (Proceedings of IEEE International Conference on Shape Modeling and Applications (SMI) 2010).

[60] *Streaming-Enabled Parallel Dataflow Architecture for Multicore Systems,* H. Vo, B. Summa, D. Osmari, J. Comba, V. Pascucci, and C. Silva, Computer Graphics Forum (Proceedings of EuroVis 2010).

[61] *Effects of 10Hz rTMS on the neural efficiency of working memory*, G. A. Preston, E. W. Anderson, E. Wassermann, T. Goldberg, and C. Silva, Journal of Cognitive Neuroscience, 22(3):447–456, 2010.

[62] *Verifiable Visualization for Isosurface Extraction*, T. Etiene, C. Scheidegger, L. G. Nonato, R. M. Kirby, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2009).

[63] *VisMashup: Streamlining the Creation of Custom Visualization Applications*, E. Santos, L. Lins, J. Ahrens, J. Freire, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2009).

[64] *Semi-Regular Quadrilateral Remeshing from Simplified Base Domains*, J. Daniels, E. Cohen, and C. Silva. Computer Graphics Forum (Proceedings of Symposium on Geometry Processing 2009), 28(5):1427–1435, 2009.

[65] *Localized Quadrilateral Coarsening*, J. Daniels, E. Cohen, and C. Silva. Computer Graphics Forum (Proceedings of Symposium on Geometry Processing 2009), 28(5):1436–1444, 2009.

[66] *Robust Topology-Based Multiscale Analysis of Scientific Data*, A. Gyulassy, L. G. Nonato, P.-T. Bremer, C. Silva, and Valerio Pascucci. Computing in Science and Engineering, 11(5):88–95, 2009.

[67] *Fast 4-way parallel radix sorting on GPUs*, L. Ha, J. Krueger, and C. Silva. Computer Graphics Forum, 28(8):2368–2378, 2009.

[68] *Image-Space Acceleration for Direct Volume Rendering of Unstructured Grids using Joint Bilateral Upsampling*, S. P. Callahan and C. Silva, Journal of Graphics, GPU, & Game Tools, 14(1):115, 2009.

[69] *Bandwidth Selection and Reconstruction Quality in Point-Based Surfaces*, H. Wang, C. E. Scheidegger, and C. Silva, IEEE Transactions on Visualization and Computer Graphics, 15(4):572–582, 2009.

[70] *Marching Cubes without Skinny Triangles*, C. Dietrich, J. Comba, L. Nedel, C. Scheidegger, J. Schreiner, and C. Silva. Computing in Science and Engineering, 11(2):82–87, 2009.

[71] *Improving Mesh Quality of Marching Cubes Using Edge Transformations*, C. Dietrich, J. Comba, L. Nedel, C. Scheidegger, J. Schreiner, and C. Silva. IEEE Transactions on Visualization and Computer Graphics, 15(1):150–159, 2009.

[72] *Quadrilateral Mesh Simplification*, J. Daniels, C. Silva, J. Shepherd, and E. Cohen, ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2008).

[73] *The Need for Verifiable Visualization*, R. M. Kirby and C. Silva. IEEE Computer Graphics and Applications, 28(5):78–83, 2008.

[74] *Interactive Transfer Function Specification for Direct Volume Rendering of Disparate Volumes*, F. Bernardon, L. Ha, S. Callahan, J. Comba, and C. Silva. Computing in Science and Engineering, 10(6):82–89, 2008.

[75] *VisComplete: Automating Suggestions for Visualization Pipelines*, D. Koop, C. Scheidegger, S. Callahan, J. Freire, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2008), 14(6):1691–1698, 2008.

[76] *Edge Groups: A New Approach to Understanding the Mesh Quality of Marching Methods*, C. Dietrich, J. Comba, L. Nedel, C. Scheidegger, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2008), 14(6):1651–1658, 2008.

[77] *Revisiting Histograms and Isosurface Statistics*, C. Scheidegger, J. Schreiner, B. Duffy, H. Carr and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2008), 14(6):1659-1666, 2008.

[78] *Spline-Based Feature Curves from Point-Sampled Geometry*, J. Daniels, T. Ochotta, L. Ha, and C. Silva. The Visual Computer, 24(6):449–462, 2008.

[79] *Scientific Exploration in the Era of Ocean Observatories,* A. Baptista, B. Howe, J. Freire, D. Maier, and C. Silva. Computing in Science and Engineering, 10(3):53-58, 2008.

[80] *Provenance for Computational Tasks: A Survey,* J. Freire, D. Koop, E. Santos, and C. Silva. Computing in Science and Engineering, 10(3):11-21, 2008.

[81] *Provenance in Comparative Analysis: A Study in Cosmology,* E. W. Anderson, J. Ahrens, K. Heitmann, S. Habib, and C. Silva. Computing in Science and Engineering, 10(3):30-37, 2008.

[82] *Robust Soft Shadow Mapping with Depth Peeling*, L. Bavoil, S. Callahan, and C. Silva. Journal of Graphics Tools, 13(1):19-30, 2008.

[83] *Tackling the Provenance Challenge One Layer at a Time*, C. Scheidegger, D. Koop, E. Santos, H. Vo, S. Callahan, J. Freire, and C. Silva. Concurrency And Computation: Practice And Experience, 20(5):473–483, 2008.

[84] *Direct Volume Rendering: A 3D Plotting Technique for Scientific Data* , S. P. Callahan, J. H. Callahan, C. E. Scheidegger, and C. Silva, Computing in Science and Engineering, 10(1):88-92, 2008.

[85] *Special Issue: The First Provenance Challenge*, L. Moreau et al., Concurrency and Computation: Practice and Experience, 20(5):409–418, 2008.

[86] *Provenance for Visualization: Reproducibility and Beyond*, C. Silva, J. Freire, and S. P. Callahan, Computing in Science and Engineering, 9(5):82-89, 2007.

[87] *Querying and Creating Visualizations by Analogy*, C. E. Scheidegger, H. T. Vo, D. Koop, J. Freire, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2007), 13(6):1560-1567. **Best paper award.**

[88] *An Adaptive Framework for Visualizing Unstructured Grids with Time-Varying Scalar Fields*, F. Bernardon, S. Callahan, J. Comba, and C. Silva. Parallel Computing, 33(6):391–405, 2007.

[89] *Streaming Simplification for Tetrahedral Meshes*, H. Vo, S. Callahan, P. Lindstrom, V. Pascucci, and C. Silva. IEEE Transactions on Visualization and Computer Graphics, 13(1):145-155, 2007.

[90] *GPU-based Tiled Ray Casting using Depth Peeling*, F. Bernardon, C. Pagot, J. Comba, and C. Silva, Journal of Graphics Tools, 11(4):1–16, 2006.

[91] *High-Quality Extraction of Isosurfaces from Regular and Irregular Grids*, J. Schreiner, C. Scheidegger, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2006), 12(5):1205–1212, 2006.

[92] *Progressive Volume Rendering of Large Unstructured Grids*, S. Callahan, L. Bavoil, V. Pascucci, and C. Silva. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE Visualization 2006), 12(5):1307-1314, 2006.

[93] *Direct (Re)Meshing for Efficient Surface Processing*, J. Schreiner, C. Scheidegger, S. Fleishman, and C. Silva. Computer Graphics Forum (Proceedings of Eurographics 2006), 25(3):527–536, 2006.

[94] *A Survey of GPU-Based Volume Rendering of Unstructured Grids*, C. Silva, J. Comba, S. Callahan, and F. Bernardon, Brazilian Journal of Theoretic and Applied Computing (RITA), 12(2):9–29, 2005.

[95] *Image-Space Visibility Ordering for Cell Projection Volume Rendering of Unstructured Data*, R. Cook, N. Max, C. Silva, and P. Williams, IEEE Transactions on Visualization and Computer Graphics, 10(6):695–707, 2004.

[96] *Computing and Rendering Point Set Surfaces*, M. Alexa, J. Behr, D. Cohen-Or, S. Fleishman, D. Levin, and C. Silva, 9(1):3–15, IEEE Transactions on Visualization and Computer Graphics, 2003.

[97] *Out-Of-Core Sort-First Parallel Rendering for Cluster-Based Tiled Displays*, W. Corrêa, J. Klosowski, and C. Silva, Parallel Computing, Vol 29, pp. 325–338, 2003.

[98] *Robust Moving Least-squares Fitting with Sharp Features*, S. Fleishman, D. Cohen-Or, and C. Silva. ACM Transactions on Graphics (Proceedings of SIGGRAPH 2005), 24(3):544–552, 2005.

[99] *Hardware-Assisted Visibility Sorting for Unstructured Volume Rendering*, S. Callahan, M. Ikits, J. Comba, and C. Silva, IEEE Transactions on Visualization and Computer Graphics, 11(3):285–295, 2005.

[100] *Progressive Point Set Surfaces*, S. Fleishman, M. Alexa, D. Cohen-Or, and C. Silva, ACM Transactions on Graphics, 22(4):997–1011, 2003.

[101] *A Survey of Visibility for Walkthrough Applications*, D. Cohen-Or, Y. Chrysanthou, C. Silva, and F. Durand, 9(3):412-431, IEEE Transactions on Visualization and Computer Graphics, 2003.

[102] *Modeling and Rendering of Real Environments*, W. Corrêa, M. Oliveira, C. Silva, and J. Wang, 9(2):127–156, Brazilian Journal of Theoretic and Applied Computing (RITA), 2002.

[103] *Efficient Conservative Visibility Culling Using The Prioritized-Layered Projection Algorithm*, J. Klosowski and C. Silva, 7(4):365–379, IEEE Transactions on Visualization and Computer Graphics, 2001.

[104] *Out-Of-Core Rendering of Large Unstructured Grids*, R. Farias and C. Silva, 21(4):42–50, IEEE Computer Graphics and Applications, 2001.

[105] *Surface Reconstruction using Lower Dimensional Incremental Delaunay Triangulation*, M. Gopi, S. Krishnan, and C. Silva, Computer Graphics Forum (Proceedings of Eurographics 2000), 19:467–478, 2000.

[106] *Visualization Research with Large Displays*, B. Wei, C. Silva, E. Koutsofios, S. Krishnan, and S. North, 20(4):50–54, IEEE Computer Graphics and Applications, 2000.

[107] *Approximate Volume Rendering for Curvilinear and Unstructured Grids by Hardware-Assisted Polyhedron Projection*, N. Max, P. Williams, and C. Silva, 11:53–61, International Journal of Imaging Systems and Technology, 2000.

[108] *Fast Polyhedral Cell Sorting for Interactive Rendering of Unstructured Grids*, J. Comba, J. Klosowski, N. Max, J. Mitchell, C. Silva, and P. Williams, Computer Graphics Forum (Proceedings of Eurographics 1999), 18:367–376, 1999.

[109] *The Ball-Pivoting Algorithm for Surface Reconstruction*, F. Bernardini, J. Mittleman, H. Rushmeier, C. Silva, and G. Taubin, 5(4):349–359, IEEE Transactions on Visualization and Computer Graphics, 1999.

[110] *Efficient Compression of Non-Manifold Polygonal Meshes*, A. Gueziec, F. Bossen, G. Taubin, and C. Silva, 14(1-3):137–166, Computational Geometry: Theory and Applications, 1999.

[111] *The Prioritized-Layered Projection Algorithm for Visible Set Estimation*, J. Klosowski and C. Silva, 6(2):108–123, IEEE Transactions on Visualization and Computer Graphics, 2000.

[112] *The Lazy Sweep Ray Casting Algorithm for Rendering Irregular Grids*, C. Silva and J. Mitchell, 3(2):142–157, IEEE Transactions on Visualization and Computer Graphics, 1997.

[113] *PVR: High Performance Volume Rendering*, C. Silva, A. Kaufman, and C. Pavlakos, pp. 18–28, IEEE Computational Science and Engineering (Special Issue on Visual Supercomputing), Winter 1996.

Conference Publications (92)

[114] *Querying and Exploring Polygamous Relationships in Urban Spatio-Temporal Data Sets,* Y.-Y. Chan, F. Chirigati, H. Doraiswamy, C. Silva and J. Freire, ACM SIGMOD 2017, pp. 1643–1646, 2017.

[115] *Using Change-Sets to Achieve a Bounded Undo and Make Tutorials in 3D Version Control Systems,* R. Vieira, J. B. Cavalcante Neto, C. Vidal, G. Vialaneix and C. Silva, 29th SIBGRAPI Conference on Graphics, Patterns and Images, SIBGRAPI 2016, pp. 144–151, 2016.

[116] *Anonymizing NYC Taxi Data: Does It Matter?*, M. Douriez, H. Doraiswamy, C. Silva and J. Freire, In Proceedings of IEEE International Conference on Data Science and Advanced Analytics (DSAA) pp. 140–148, 2016.

[117] *A GPU-Based Index to Support Interactive Spatio-Temporal Queries over Historical Data*, H. Doraiswamy, H. Vo, C. Silva, and J. Freire. In Proceedings of IEEE International Conference on Data Engineering (ICDE), pp. 1086–1097, 2016.

[118] *A Scalable Approach for Data-Driven Taxi Ride-Sharing Simulation*, M. Ota, H. Vo, C. Silva, and J. Freire. In Proceedings of IEEE BigData 2015, pp. 888–897, 2015.

[119] *Visualizing the Evolution of Module Workflows*, M. Hlawatsch, M. Burch, F. Beck, J. Freire, C. Silva, and D. Weiskopf. In Proceedings of the IEEE International Conference on Information Visualisation, pp. 40–49, 2015.

[120] *Using Maximum Topology Matching to Explore Differences in Species Distribution Models*, J. Poco, H. Doraiswamy, M. Talbert, J. Morisette, and C. Silva, Proceedings of SciVis 2015, pp. 9–16, 2015.

[121] *Wavelet-based visualization of time-varying data on graphs*, P. Valdivia, F. Dias, F. Petronetto, C. Silva, and L. Nonato, Proceedings of VAST 2015, pp. 1–8, 2015.

[122] *Urbane: A 3D Framework to Support Data Driven Decision Making in Urban Development*, Nivan Ferreira, Marcos Lage, Harish Doraiswamy, Huy Vo, Luc Wilson, Heidi Werner, Muchan Park, and C. Silva, Proceedings of VAST 2015, pp. 97–104, 2015.

[123] *An Urban Data Profiler,* D. Ribeiro, H. Vo, J. Freire, and C. Silva, WWW 2015 Companion Volume, 2015:1389–1394, 2015.

[124] *Visualization and Analysis of Parallel Dataflow Execution with Smart Traces*, Daniel K. Osmari, Huy T. Vo, Cláudio T. Silva, João L. D. Comba, and Lauro Lins, Proceedings of SIBGRAPI 2014, pp. 165–172, 2014.

[125] *Baseball4D: A Tool for Baseball Game Reconstruction & Visualization*, Carlos Dietrich, David Koop, Huy Vo, Claudio Silva, Proceedings of VAST 2014, pp. 23–32, 2014.

[126] *Discovering and Visualizing Patterns in EEG Data,* E. W. Anderson, C. Chong, G. Preston, C. Silva, Proceedings of IEEE 6th Symposium of Pacific Visualization 2013, pp. 57–64, 2013.

[127] *Discovering and Visualizing Patterns in EEG Data,* D. Koop, J. Freire, and C. Silva, Proceedings of IEEE 6th Symposium of Pacific Visualization 2013, pp. 105–112, 2013.

[128] *HyperFlow: A Heterogeneous Dataflow Architecture,* H. Vo, D. Osmari, J. Comba, P. Lindstrom, and C. Silva, Proceedings of Eurographics Symposium on Parallel Graphics and Visualization (EGPGV), pp. 1–10, 2012.

[129] *Connectivity Oblivious Merging of Triangulations,* L.F. Silva, L.F. Scheidegger, T. Etiene, C. Silva, L.G. Nonato, and J. Comba, Conference on Graphics, Patterns and Images (SIBGRAPI 2012), pp. 118–125, 2012. **Best paper award.**

[130] *A wildland fire modeling and visualization environment,* J. Mandel, J. D. Beezley, A. K. Kochanski, V. Y. Kondratenko, L. Zhang, E. Anderson, J. Daniels II, C. Silva, and Christopher R. Johnson, Proceedings of the Ninth Symposium on Fire and Forest Meteorology, 2011.

[131] *VisCareTrails: Visualizing Trails in the Electronic Health Record with Timed Word Trees, a Pancreas Cancer Use Case*, L. Lins, M. Heilbrun, J. Freire and C. Silva, Workshop on Visual Analytics in Healthcare (VAHC 2011), 2011.

[132] *Parallel Large-data Visualization with Display Walls,* L. Scheidegger, H. Vo, J. Kruger, C. Silva and J. Comba. Proceedings IS&T/SPIE Electronic Imaging 2012, Visualization and Data Analysis (VDA), 2012.

[133] *Parallel Visualization on Large Clusters using MapReduce,* H. Vo, J. Bronson, B. Summa, J. Comba, J. Freire, B. Howe, V. Pascucci, and C. Silva, IEEE Symposium on Large-Scale Data Analysis and Visualization, 2011.

[134] *CrowdLabs: Social Analysis and Visualization for the Sciences,* P. Mates, E. Santos, J. Freire, and C. Silva, Statistical and Scientific Database Management (SSDBM), 2011.

[135] *Massive Image Editing on the Cloud*, B. Summa, H. Vo, V. Pascucci and C. Silva, Proceedings of the IASTED International Conference on Computational Photography (CPhoto), 2011.

[136] *A Provenance-Based Infrastructure for Creating Executable Papers*, D. Koop, E. Santos, P. Mates, H. T. Vo, P. Bonnet, B. Bauer, B. Surer, M. Troyer, D. N. Williams, J. E. Tohline, J. Freire, and C. Silva. Procedia Computer Science, 2011. ICCS 2011. **Grand Challenge Finalist.**

[137] *Optimal Multi-Image Processing Streaming Framework on Parallel Heterogeneous Systems*, L. Ha, C. Silva, J. Krueger, J. Comba, and S. Joshi, 11th Eurographics Workshop on Parallel Graphics and Visualization (EGPGV 2011), 2011. **Best paper award.**

[138] *Template-based Remeshing for Image Decomposition*, M. Lizier, M. Siqueira, J. Daniels II, C. Silva, and L. G. Nonato. SIBGRAPI 2010 – Brazilian Symposium on Computer Graphics and Image Processing, 2010. (Selected as one of the best papers, invited for journal submission.)

[139] *Image Registration Driven by Combined Probabilistic and Geometric Descriptors,* Linh Ha, Marcel Prastawa, Guido Gerig, John H. Gilmore, Claudio T. Silva, Sarang Joshi, Proceedings of MICCAI 2010.

[140] *Collaborative Monitoring and Analysis for Simulation Scientists,* R. Tchoua, S. Klasky, N. Podhorszki, B. Grimm, A. Khan, E. Santos, C. Silva, P. Mouallem, and M. Vouk. Proceedings of The 2010 International Symposium on Collaborative Technologies and Systems (CTS 2010).

[141] *The Provenance of Workflow Upgrades,* D. Koop, C. Scheidegger, J. Freire, and C. Silva, 3rd International Provenance and Annotation Workshop (IPAW) 2010.

[142] *Bridging Workflow and Data Provenance using Strong Links,* D. Koop, E. Santos, B. Bauer, M. Troyer, J. Freire, and C. Silva, Statistical and Scientific Database Management (SSDBM), 2010.

[143] *Fast Parallel Unbiased Diffeomorphic Atlas Construction on Multi-Graphics Processing Units,* L. K. Ha, J. Krueger, P. T. Fletcher, S. Joshi and C. Silva, 9th Eurographics Workshop on Parallel Graphics and Visualization (EGPGV 2009), 2009.

[144] *Enabling Advanced Visualization Tools in a Simulation Monitoring System,* E. Santos, J. Tierny, A. Khan, B. Grimm, L. Lins, J. Freire, V. Pascucci, C. Silva, S. Klasky, R. Barreto, N. Podhorszki, IEEE International Conference on e-Science 2009, pp. 358–365, 2009.

[145] *Using Workow Medleys to Streamline Exploratory Tasks*, E. Santos, D. Koop, H. Vo, E. Anderson, J. Freire, and C. Silva, pp. 292–301, Statistical and Scientific Database Management (SSDBM), 2009.

[146] *Using Mediation to Achieve Provenance Interoperability*, T. Ellkvist, D. Koop, J. Freire, C. Silva, and L. Strömbäck, IEEE International Conference on Scientific Workflows 2009.

[147] *End-to-End eScience: Integrating Workflow, Query, Visualization, and Provenance at an Ocean Observatory*, B. Howe, P. Lawson, R. Bellinger, E. Anderson, E. Santos, J. Freire, C. Scheidegger, A. Baptista, and C. Silva, IEEE International Conference on e-Science 2008.

[148] *Effects of Texture and Color on the Perception of Medical Images*, I. Cheng, A. Badalov, C. Silva, and A. Basu. 30th IEEE Engineering in Medicine and Biology Society, 2008.

[149] *A First Study on Clustering Collections of Workflow Graphs*, E. Santos, L. Lins, J. P. Ahrens, J. Freire, and C. Silva. Second International Provenance and Annotation Workshop (IPAW) 2008.

[150] *Towards Provenance-Enabling ParaView*, S. P. Callahan, J. Freire, C. E. Scheidegger, C. Silva, and Huy T. Vo. Second International Provenance and Annotation Workshop (IPAW) 2008.

[151] *Using Provenance to Support Real-Time Collaborative Design of Workflows*, T. Ellkvist, D. Koop, E. W. Anderson, J. Freire, and C. Silva. Second International Provenance and Annotation Workshop (IPAW) 2008.

[152] *Examining Statistics of Workflow Evolution Provenance: A First Study*, L. Lins, D. Koop, E. W. Anderson, S. P. Callahan, E. Santos, C. E. Scheidegger, J. Freire, and C. T. Silva. Statistical and Scientific Database Management (SSDBM), 2008.

[153] *Optimal Bandwidth Selection for MLS Surfaces,* H. Wang, C. E. Scheidegger, and C. Silva, IEEE International Conference on Shape Modeling and Applications (SMI), 2008. **Best paper award.**

[154] *Querying and Re-Using Workflows with VisTrails*, C. E. Scheidegger, H. T. Vo, D. Koop, J. Freire, and C. Silva, ACM SIGMOD 2008.

[155] *Quality Improvement and Boolean-Like Cutting Operations in Hexahedral Meshes,* J.F. Shepherd, Y. Zhang, C. Tuttle, and C. Silva, Proceedings of the 10th Conference of the International Society of Grid Generation, 2007.

[156] *Hardware-Assisted Point-Based Volume Rendering of Tetrahedral Meshes*, E. Anderson, S. Callahan, C. Scheidegger, J. Schreiner, and C. Silva. SIBGRAPI 2007 – Brazilian Symposium on Computer Graphics and Image Processing, 2007.

[157] *iRun: Interactive Rendering of Large Unstructured Grids*, H. Vo, S. Callahan, N. Smith, C. Silva, W. Martin, D. Owen, D. Weinstein. 7th Eurographics Workshop on Parallel Graphics and Visualization (EGPGV 2007), pages 93–100, 2007.

[158] *Robust Smooth Feature Extraction from Point Clouds*, J. Daniels, L. Ha, T. Ochotta, and C. Silva. Shape Modeling International 2007, pages 123–133, 2007. **Best paper finalist.**

[159] *Towards Development of a Circuit Based Treatment for Impaired Memory: A Multidisciplinary Approach*, E. Anderson, G. Preston, and C. Silva. IEEE Engineering in Medicine and Biology Conference (EMBS) 2007, 2007.

[160] *Multi-Fragment Effects on the GPU using the k-Buffer*, L. Bavoil, S.P. Callahan, A. Lefohn, J.L.D. Comba, and C. Silva. ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, pages 97–104, 2007.

[161] *Volume Rendering of Time-Varying Scalar Fields on Unstructured Meshes*, F. Bernardon, S. Callahan, J. Comba, and C. Silva. 6th Eurographics Workshop on Parallel Graphics and Visualization (EGPGV 2006).

[162] *Managing the Evolution of Dataflows with VisTrails*, S. P. Callahan, J. Freire, E. Santos, C. E. Scheidegger, C. Silva, and H. T. Vo, IEEE Workshop on Workflow and Data Flow for Scientific Applications (SciFlow) 2006.

[163] *Visualizing Uncertainty with Uncertainty Multiples*, R. B. Gilbert, F. Tonon, J. Freire, C. Silva, and D. R. Maidment, American Society of Civil Engineers (ASCE) 2006 GeoCongress.

[164] *VisTrails: Visualization meets Data Management*, S. P. Callahan, J. Freire, E. Santos, C. E. Scheidegger, C. Silva, and H. T. Vo, ACM SIGMOD 2006, pp. 745-747, 2006.

[165] *Interactive Rendering of Large Unstructured Grids Using Dynamic Level-Of-Detail*, S. Callahan, J. Comba, P. Shirley, and C. Silva. IEEE Visualization 2005, pp. 199–206, 2005.

[166] *Hardware Accelerated Simulated Radiography*, D. Laney, S. Callahan, N. Max, C. Silva, S. Langer, and R. Frank. IEEE Visualization 2005, pp. 343–350, 2005.

[167] *Triangulating Point Set Surfaces with Bounded Error*, C. Scheidegger, S. Fleishman, and C. Silva. Eurographics Symposium on Geometry Processing 2005, pp. 63–72, 2005.

[168] *Simplification of Unstructured Tetrahedral Meshes by Point-Sampling*, D. Uesu, L. Bavoil, S. Fleishman, J. Shepherd, and C. Silva, pp. 157–165, Volume Graphics 2005, pp. 157–165, 2005.

[169] *Implicit Occluders*, S. Pesco, P. Lindstrom, V. Pascucci, and C. Silva, IEEE Symposium on Volume Visualization and Graphics 2004, pp. 47–54, 2004. (Selected as one of the best papers, invited for journal submission.)

[170] *VisTrails: Enabling Interactive Multiple-View Visualizations*, L. Bavoil, S. Callahan, P. Crossno, J. Freire, C. Scheidegger, C. Silva, and H. Vo. IEEE Visualization 2005, pp. 135–142, 2005.

[171] *On the Convexification of Unstructured Grids From A Scientific Visualization Perspective*, J. Comba, J. Mitchell, and C. Silva, Proceedings of Dagstuhl 2003. Scientific Visualization: Extracting Information and Knowledge from Scientific Datasets Editors: G.-P. Bonneau, T. Ertl, G. M. Nielson, Springer-Verlag, 2005.

[172] *Visibility-Based Prefetching for Interactive Out-Of-Core Rendering*, W. Corrêa, J. Klosowski, and C. Silva, IEEE Parallel & Large-Data Visualization & Graphics Symposium 2003, pp. 1–8, 2003.

[173] *Visualizing Spatial and Temporal Variability in Coastal Observatories*, W. Herrera-Jimenez, W. Corrêa, C. Silva, and A. Baptista, IEEE Visualization 2003, pp. 269–274, 2003.

[174] *Volume Rendering for Curvilinear and Unstructured Grids*, N. Max, P. Williams, and C. Silva, Computer Graphics International, 2003.

[175] *Out-Of-Core Sort-First Parallel Rendering for Cluster-Based Tiled Displays*, W. Corrêa, J. Klosowski, and C. Silva, 4th Eurographics Workshop on Parallel Graphics and Visualization, 2002.

[176] *A Generic Programming Approach to Multiresolution Spatial Decompositions*, V. Mello, L. Velho, P. Roma, and C. Silva, International Workshop on Visualization and Mathematics 2002, Berlin-Dahlem, Germany, 2002.

[177] *Towards Point-Based Acquisition and Rendering of Large Real-World Environments*, W. Corrêa, S. Fleishman, and C. Silva, SIBGRAPI 2002 – Brazilian Symposium on Computer Graphics and Image Processing, 2002.

[178] *Integrating Occlusion Culling with View-Dependent Rendering*, J. El-Sana, N. Sokolovsky, and C. Silva, IEEE Visualization 2001, pp. 371–378, 2001.

[179] *A Unified Infrastructure for Parallel Out-Of-Core Isosurface and Volume Rendering of Unstructured Grids*, Y.-J. Chiang, R. Farias, C. Silva, and B. Wei, pp. 59–66, IEEE Parallel & Large-Data Visualization & Graphics Symposium 2001.

[180] *Parallelizing the ZSWEEP algorithm for Distributed-Shared Memory Architectures*, R. Farias, and C. Silva, International Workshop On Volume Graphics 2001.

[181] *A Hardware-Assisted Visibility-Ordering Algorithm With Applications to Volume Rendering*, S. Krishnan, C. Silva, and B. Wei, pp. 233–242, Data Visualization 2001 Joint Eurographics-IEEE TVCG Symposium on Visualization, 2001.

[182] *A Memory Insensitive Technique for Large Model Simplification*, P. Lindstrom and C. Silva, pp. 121–126, IEEE Visualization 2001.

[183] *Point Set Surfaces*, M. Alexa, J. Behr, D. Cohen-Or, S. Fleishman, D. Levin, and C. Silva, IEEE Visualization 2001, pp. 21–28, 2001. **Best paper finalist.**

[184] *Cell Projection of Meshes With Non-Planar Faces*, N. Max, P. Williams, and C. Silva, Proceedings of Dagstuhl 2000.

[185] *Time-Critical Rendering of Irregular Grids*, R. Farias, J. Mitchell, C. Silva, and B. Wylie, pp. 243–250, SIBGRAPI 2000 – Brazilian Symposium on Computer Graphics and Image Processing, 2000.

[186] *ZSWEEP: An Efficient and Exact Projection Algorithm for Unstructured Volume Rendering*, R. Farias, J. Mitchell, and C. Silva, pp. 91–99, ACM Volume Visualization and Graphics Symposium, 2000. **(72 citations)**

[187] *Rendering on a Budget: A Framework for Time-Critical Rendering*, J. Klosowski and C. Silva, pp. 115–122, IEEE Visualization, 1999. **Best paper finalist.**

[188] *Efficient Compression of Non-Manifold Polygonal Meshes*, A. Gueziec, F. Bossen, G. Taubin and C. Silva, pp. 73–80, IEEE Visualization, 1999.

[189] *Optimal Processor Allocation for Sort-Last Compositing under BSP-tree Ordering*, C. R. Ramakrishnan and C. Silva. SPIE Electronic Imaging, Visual Data Exploration and Analysis IV, 1999.

[190] *Greedy Cuts: An Advancing Front Terrain Triangulation Algorithm*, C. Silva and J. Mitchell, pp. 137–144, ACM Symposium on Geographic Information Systems 1998.

[191] *An Exact Interactive Time Visibility Ordering Algorithm for Polyhedral Cell Complexes*, C. Silva, J. Mitchell, and P. Williams, pp. 87–94, ACM/IEEE Volume Visualization Symposium, 1998.

[192] *Simple, Fast, and Robust Ray Casting of Irregular Grids*, P. Bunyk, A. Kaufman, and C. Silva, In "Scientific Visualization", pp. 30–36, Proceedings of Dagstuhl '97, H. Hagen, G. Nielson, F. Post, eds., IEEE Computer Society Press, 2000. Also in "Advances in Volume Visualization", ACM SIGGRAPH 98 Course #24, July 1998.

[193] *External Memory Techniques for Isosurface Extraction in Scientific Visualization*, Y.-J. Chiang and C. Silva, In "AMS/DIMACS Proceedings of the DIMACS Workshop on External Memory Algorithms and Visualization", J. Abello and J. Vitter, eds., DIMACS book series, American Mathematical Society, 1998. (Journal version of the presentation given at the workshop.)

[194] *Interactive Out-Of-Core Isosurface Extraction*, Y.-J. Chiang, C. Silva, and W. Schroeder, pp. 167–174, IEEE Visualization, 1998.

[195] *I/O Optimal Isosurface Extraction*, Y.-J. Chiang and C. Silva, pp. 293–300, IEEE Visualization, 1997.

[196] *Wavelet and Entropy Analysis Combination to Evaluate Diffusion and Correlation Behaviors*, R. Chiou, M. Ferreira, C. Silva and A. Kaufman, SIBGRAPI '97 – Brazilian Symposium on Computer Graphics and Image Processing.

[197] *Fast Rendering of Irregular Grids*, C. Silva, J. Mitchell and A. Kaufman, pp. 15–22, ACM/IEEE Volume Visualization Symposium, 1996. Selected as one of the best papers, invited for special issue.

[198] *Three Dimensional Visualization of Proteins in Cellular Interactions*, C. Monks, P. Crossno, G. Davidson, C. Pavlakos, A. Kupfer, C. Silva and B. Wylie, pp. 363–366, IEEE Visualization, 1996.

[199] *Using Wavelets to Extract Information from Volumetric Data*, R. Chiou, M. Ferreira, A. Kaufman, and C. Silva, pp. 576–582, International Conference on Information Systems Analysis and Synthesis, 1996.

[200] *Tetra-Cubes: An algorithm to generate 3D isosurfaces based upon tetrahedra*, B. Piquet, C. Silva, and A. Kaufman, pp. 205–210, SIBGRAPI '96 – Brazilian Symposium on Computer Graphics and Image Processing, Minas Gerais, Brazil, 1996.

[201] *Automatic Generation of Triangular Irregular Networks using Greedy Cuts*, C. Silva, J. S. B. Mitchell and A. Kaufman, pp. 201–208, IEEE Visualization, 1995.

[202] *VolVis: A Diversified Volume Visualization System*, R. Avila, T. He, L. Hong, A. Kaufman, H. Pfister, C. Silva, L. Sobierajski, S. Wang, pp. 31–38, IEEE Visualization, 1994.

[203] *Parallel Performance Measures for Volume Ray Casting*, C. Silva and A. Kaufman, pp. 196–203, IEEE Visualization, 1994.

[204] *Flow Surface Probes for Vector Field Visualization*, C. Silva, L. Hong and A. Kaufman, In "Scientific Visualization: Overviews, Methodologies and Techniques", Dagstuhl '94, G. Nielson, H. Mueller, and H. Hagen, eds., IEEE Computer Society Press, 1997.

[205] *Minhoca Plus – A Local Area Network for Teaching*, J. Coelho, C. Silva, M. Vieira, and A. Oliveira, VII Brazilian Conference on Computer Networks, UFRGS, March 1989. (In Portuguese.)

Patents (12 granted)

[206] US patent 8,762,186, *Analogy based workflow identification*, issued to the University of Utah on June 24, 2014.

[207] US patent 8,190,633, *Enabling provenance management for pre-existing applications*, issued to the University of Utah on May 29, 2012.

[208] US patent 8,229,967, *Space efficient visualization of pedigree data*, issued to the University of Utah on July 24, 2012.

[209] US patent 8,060,391, *Automated development of data processing results*, issued to the University of Utah on November 15, 2011.

[210] US patent 6,968,299, *Method and apparatus for reconstructing a surface using a ball-pivoting algorithm*, issued to IBM on November 22, 2005.

[211] US patent 6,933,946, *Method for out-of core rendering of large 3D models*, issued to AT&T on August 23, 2005.

[212] US patent 6,831,636, *System and Process for Level of Detail Selection Based on Approximate Visibility Estimation*, issued to IBM on December 14, 2004.

[213] US patent 6,801,215, *Hardware-Assisted Visibility-Ordering Algorithm*, issued to AT&T on October 5, 2004.

[214] US patent 6,452,596, *Methods and Apparatus for the Efficient Compression of Non-manifold Polygonal Meshes*, issued to IBM on September 17th, 2002.

[215] US patent 6,445,389, *Compression of Polygonal Models with Low Latency Decompression*, issued to IBM on September 3rd, 2002.

[216] US patent 6,414,680, *System, Program Product And Method Of Rendering A Three Dimensional Image On a Display*, issued to IBM on July 2nd, 2002.

[217] US patent 6,356,262, *System And Method For Fast Polyhedral Cell Sorting*, issued to IBM on March 12th, 2002.

Book Chapters (9)

[218] *Programming with Big Data*, H. Vo, and C. Silva, Big Data and Social Science: A Practical Guide to Methods and Tools, pp. 125-144, 2016.

[219] *Reproducibility using VisTrails*, J. Freire, D. Koop, F. Chirigati, and C. Silva. In Stodden et al., Implementing Reproducible Research, 2014.

[220] *Estimating Species Distributions–Across Space, Through Time, and with Features of the Environment*, Kelling, S., Fink, D., Hochachka, W., Rosenberg, K., Cook, R., Damoulas, T., Silva, C. and Michener, W., The DATA Bonanza: Improving Knowledge Discovery in Science, Engineering, and Business, chapter 22, John Wiley & Sons, Inc., 2013.

[221] *VisTrails*, D. Koop, E. Santos, C. E. Scheidegger, H. T. Vo, C. T. Silva, and J. Freire. In Architecture of Open-Source Applications, pp. 377-394, 2011.

[222] *Multi-scale Unbiased Diffeomorphic Atlas Construction on Multi-GPUs*, L. Ha, J. Krüger, S. Joshi and C. Silva, GPU GEMS volume 1, 2010.

[223] *Visualization for Data-Intensive Science*, C. Hansen, C. R. Johnson, V. Pascucci, and C. Silva. In The Fourth Paradigm: Data Intensive Scientific Discovery, K. Tolle, S. Tansley and T. Hey (Eds), 2010.

[224] *Scientific Process Automation and Workflow Management*, B. Ludaescher, I. Altintas, S. Bowers, J. Cummings, T. Critchlow, E. Deelman, D. D. Roure, J. Freire, C. Goble, M. Jones, S. Klasky, T. McPhillips, N. Podhorszki, C. Silva, I. Taylor, and M. Vouk. In A. Shoshani and D. Rotem, editors, Scientific Data Management: Challenges, Existing Technology, and Deployment, Computational Science Series, chapter 13. Chapman & Hall/CRC, 2009.

[225] *Modeling Cardiogenesis: The Challenges and Promises of 3D Reconstruction*, J. Pentecost, C. Silva, M. Pescitelli, and K. Thornburg, pp. 115–143, Vol. 56, Current Topics in Developmental Biology, 2003.

[226] *Fast and Simple Occlusion Culling*, W. Corrêa, J. Klosowski, and C. Silva, pp. 353–358, Game Programming Gems 3, 2002.

Edited Proceedings (6)

[227] *Proceedings of Advances in Visual Computing, 5th International Symposium, ISVC 2009, Part I*, G. Bebis, R. D. Boyle, B. Parvin, D. Koracin, Y. Kuno, J. Wang, R. Pajarola, P. Lindstrom, A. Hinkenjann, M. L. Encarnação, C. Silva, D. S. Las Vegas, NV, USA, 2009.

[228] *Proceedings of Advances in Visual Computing, 5th International Symposium, ISVC 2009, Part II*, G. Bebis, R. D. Boyle, B. Parvin, D. Koracin, Y. Kuno, J. Wang, R. Pajarola, P. Lindstrom, A. Hinkenjann, M. L. Encarnação, C. Silva, D. S. Las Vegas, NV, USA, 2009.

[229] *Proceedings of IEEE Visualization 2006*, E. Groeller, A. Pang, C. Silva, J. Stasko, and J. van Wijk, IEEE, ISSN 1077-2626, 2006.

[230] *Proceedings of IEEE Visualization 2005*, C. Silva, E. Groeller, and H. Rushmeier, IEEE, 0-7803-9462-3, 2005.

[231] *Proceedings of IEEE/ACM SIGGRAPH Symposium on Volume Visualization and Graphics 2004*, D. Silver, T. Ertl, C. Silva, IEEE, 0-7803-8781-3, 2004.

[232] *Proceedings of the IEEE Symposium on Parallel and Large-Data Visualization and Graphics 2003*, A. Koning, R. Machiraju, and C. Silva, IEEE, 0-7803-8122-X, 2003.

Journal Editorials (2)

[233] *Guest Editorial: Special Section on Visualization 2005*, C. Silva, E. Groeller, and H. Rushmeier. IEEE Transactions on Visualization and Computer Graphics, 12(4):419–420, 2006.

[234] *Guest Editorial: Special Issue on Computational Provenance*, C. Silva and J. Tohline, Computing in Science and Engineering, 10(3):9-10, 2008.

Invited Conference Publications (7)

[235] *Occam's razor and petascale visual data analysis*, E. W. Bethel, C. Johnson, S. Ahern, J. Bell, P.-T. Bremer, H. Childs, E. Cormier-Michel, M. Day, E. Deines, T. Fogal, C. Garth, C. G. R. Geddes, H. Hagen, B. Hamann, C. Hansen, J. Jacobsen, K. Joy, J. Krger, J. Meredith, P. Messmer, G. Ostrouchov, V. Pascucci, K. Potter, Prabhat, D. Pugmire, O. Rbel, A. Sanderson, C. Silva, D. Ushizima, G. Weber, B. Whitlock , K. Wu, Journal of Physics: Conference Series, SciDAC 2009 Conference, 2009.

[236] *Software Infrastructure for Exploratory Visualization and Data Analysis: Past, Present and Future,* C. Silva and J. Freire, Journal of Physics: Conference Series, SciDAC 2008 Conference, July 2008.

[237] *Comparing Techniques for Tetrahedral Mesh Generation*, M. Lizier, J. F. Shepherd, L. G. Nonato, J. Comba, and C. Silva. Inaugural International Conference of the Engineering Mechanics Institute, 2008.

[238] *SciDAC visualization and analytics center for enabling technology,* E. W. Bethel, C. Johnson, K. Joy, S. Ahern, V. Pascucci, H. Childs, J. Cohen, M. Duchaineau, B. Hamann, C. Hansen, D. Laney, P. Lindstrom, J. Meredith, G. Ostrouchov, S. Parker, C. Silva, A. Sanderson, and X. Tricoche, Journal of Physics: Conference Series, SciDAC 2007 Conference, June 2007.

[239] *Automation of Network-Based Scientific Workflows*, M. Vouk, I. Altintas, R. Barreto, J. Blondin, Z. Cheng, T. Critchlow, A. Khan, S. Klasky, J. Ligon, B. Ludaescher, P. A. Mouallem, S. Parker, N. Podhorszki, A. Shoshani, C. Silva, International Federation for Information Processing (IFIP), Volume 239, Grid-Based Problem Solving Environments, 2007.

[240] *Managing Rapidly-Evolving Scientific Workflows*, J. Freire, C. Silva, S. P. Callahan, E. Santos, C. E. Scheidegger and H. T. Vo, Proceedings of the International Provenance and Annotation Workshop (IPAW), pp. 10-18, 2006. **Invited paper corresponding to Keynote Talk.**

[241] *VACET: Proposed SciDAC2 Visualization and Analytics Center for Enabling Technologies*, E. Wes Bethel, C. Johnson, C. Hansen, S. Parker, A. Sanderson, C. Silva, X. Trichoche, V. Pascucci, H. Childs, J. Cohen, M. Duchaineau, D. Laney, P. Lindstrom, S. Ahern, J. Meredith, G. Ostouchov, K. Joy, B. Hamann, Journal of Physics: Conference Series, SciDAC 2006 Conference, Denver CO, 2006.

Invited Posters (1)

[242] *Meet the Proposed SciDAC2 Visualization and Analytics Center for Enabling Technologies*, E. Wes Bethel, C. Johnson, C. Hansen, S. Parker, A. Sanderson, C. Silva, X. Trichoche, V. Pascucci, H. Childs, J. Cohen, M. Duchaineau, D. Laney, P. Lindstrom, S. Ahern, J. Meredith, G. Ostouchov, K. Joy, B. Hamann. Poster, 2006 SciDAC program meeting, Denver, CO.

Refereed Posters, SIGGRAPH Sketches, and Presentations (14)

[243] *Desenvolvimento de Estruturas de Controle Explcito para o SGWfC VisTrails*, F. Seabra Chirigati, R. Dahis, S. Manuel Serra da Cruz, J. Freire, C. Silva, and M. Mattoso, 24th Brazilian Symposium On Databases (SBBD 2009). **Best poster award.**

[244] *Simplifying the Design of Workflows for Large-Scale Data Exploration and Visualization*, J. Freire and C. Silva. In Proceedings of the Microsoft eScience Workshop, 2008.

[245] *Using Mediation to Achieve Provenance Interoperability*, T. Ellkvist, D. Koop, J. Freire, C. Silva, and L. Strömbäck, IEEE International Conference on e-Science 2008.

[246] *Enhanced neuronal efficiency and 10-12Hz spectral dynamics: Results from a concurrent EEG-TMS study,* G. A. Preston, E. W. Anderson, E. Wassermann, T. Goldberg, and C. Silva. 1st North American Symposium on TMS and Neuroimaging in Cognition and Behaviour, 2008.

[247] *Towards Enabling Social Analysis of Scientific Data,* J. Freire and C. Silva, CHI Social Data Analysis Workshop, 2008.

[248] *VisTrails: Using Provenance to Streamline Data Exploration,* E. W. Anderson, S. P. Callahan, D. A. Koop, E. Santos, C. E. Scheidegger, H. T. Vo, J. Freire, and C. Silva. Post Proceedings of the International Workshop on Data Integration in the Life Sciences (DILS) 2007. Invited for oral presentation.

[249] *Effects of 10 Hz rTMS on Alpha Spectral Dynamics and Working Memory Performance,* G. A. Preston, E. W. Anderson, E. Wassermann, T. Goldberg, and C. Silva. Proceedings of Neuroscience Poster Session 2007.

[250] *Real-Time Soft Shadows with Cone Culling*, L. Bavoil and C. Silva. ACM SIGGRAPH 2006 Sketches Program.

[251] *Progressive Volume Rendering of Unstructured Grids on Modern GPUs*, S. Callahan, L. Bavoil, V. Pascucci, and C. Silva. ACM SIGGRAPH 2006 Sketches Program.

[252] *Efficient Acquisition of Web Data Through Restricted Query Interfaces*, S. Byers, J. Freire, and C. Silva, WWW10, poster, 2001.

[253] *Curvature-Based Estimation of Surface Sampling*, C. Silva and G. Taubin, SIAM Conference on Geometric Design, 1999.

[254] *External Memory Techniques for Isosurface Extraction in Scientific Visualization*, Y.-J. Chiang and C. Silva, Third CGC Workshop on Computational Geometry, 1998.

[255] *Lazy Sweep Ray Casting: A Fast Scanline Algorithm for Rendering Irregular Grids*, C. Silva and J. Mitchell, Second CGC Workshop on Computational Geometry, 1997.

[256] *Automatic Generation of Triangular Irregular Networks using Greedy Cuts*, C. Silva, J. S. B. Mitchell and A. Kaufman, Fifth MSI-Stony Brook Workshop on Computational Geometry, 1995.

Other Publications (2)

[257] *Through a New Looking Glass: Mathematically Precise Visualization*, K. E. Jordan, R. M. Kirby, C. Silva, and T. J. Peters, SIAM News, Vol. 43, Number 5, June 2010.

[258] *DOE's SciDAC Visualization and Analytics Center for Enabling Technologies - Strategy for Petascale Visual Data Analysis Success,* E. Bethel, C. Johnson, C. Aragon, Prabhat, O. Rbel, G. Weber, V. Pascucci, H. Childs, P.-T. Bremer, B. Whitlock, S. Ahern, J. Meredith, G. Ostrouchov, K. Joy, B. Hamann, C. Garth, M. Cole, C. Hansen, S. Parker, A. Sanderson, C. Silva, X. Tricoche, CTWatch Quarterly, Volume 3, Number 4, November 2007.

Selected Technical Reports (7)

[259] *DEFOG: A System for Data-Backed Visual Composition*, L. Lins, D. Koop, J. Freire, and C. Silva. SCI Technical Report, No. UUSCI-2011-003, University of Utah, 2011.

[260] *A Unified Projection Operator for Moving Least Squares Surfaces*, T. Ochotta, C. Scheidegger, J. Schreiner, R. Kirby, and C. Silva. SCI Institute Technical Report, No. UUSCI-2007-006, 2007.

[261] *Visualization in Radiation Oncology: Towards Replacing the Laboratory Notebook*, E. W. Anderson, S. P. Callahan, G. T.Y. Chen, J. Freire, E. Santos, C. E. Scheidegger, C. Silva, and H. T. Vo, SCI Institute Technical Report UUSCI-2006-17, 2006.

[262] *Simplification of Unstructured Tetrahedral Meshes by Point-Sampling*, D. Uesu, L. Bavoil, S. Fleishman, and C. Silva, SCI Institute Technical Report UUSCI-2004-005, 2004.

[263] *Out-Of-Core Algorithms for Scientific Visualization and Computer Graphics*, C. Silva, Y.-J. Chiang, W. Corrêa, J. El-Sana, and P. Lindstrom, LLNL Technical Report UCRL-JC-150434-REV-1, 2003.

[264] *iWalk: Interactive Out-Of-Core Rendering of Large Models*, W. Corrêa, J. Klosowski, and C. Silva, Technical Report TR-653-02, Princeton University, 2002.

[265] *Final Report for the Tera Computer TTI CRADA*, G. Davidson, C. Pavlakos, and C. Silva, Sandia Report SAND97-0134, Sandia National Laboratories, 1997.

[266] *Parallel Volume Rendering of Irregular Grids*, C. Silva, Ph.D. thesis, Department of Computer Science, State University of New York at Stony Brook, 1996.

Research Funding

[1] MLB Advanced Media, *Sports Analytics Research,* C. Silva (PI), US$ 335K, 2016-2017.

[2] Moore and Sloan Foundations, *Moore-Sloan Data Science Initiative*, Joint effort by New York University, the University of California, Berkeley and the University of Washington. US$ 37.8 million. 2013–2018.

[3] National Science Foundation, *CPS: Frontier: SONYC: A Cyber-Physical System for Monitoring, Analysis and Mitigation of Urban Noise Pollution*, J. Bello (PI), R. DuBois (Co-PI), C. Silva (Co-PI), O. Nov (Co-PI), A. Arora (Co-PI), US$ 4.6M, 2016-2021.

[4] National Aeronautics and Space Administration (NASA), *OpenSpace: An Engine for Dynamic Visualization of Earth and Space Science for Informal Education and Beyond*, C. Silva (NYU PI), US$ 1.2M, 2015-2020.

[5] National Science Foundation, *AitF: FULL: Collaborative Research: Provably Efficient GPU Algorithms*, J. Iacono (PI) and C. Silva (co-PI), US$ 500K, 2015-19.

[6] National Science Foundation, *MRI: Acquisition of an infrastructure for prototyping next-generation algorithms for large-scale visualization, data processing and analysis*, C. Silva (PI) and H. Vo, J. Freire, J. Iacono, and T. Suel. US$ 800K (2012–2017).

[7] State of New York, *Develop Data Storage and Access Platform for MTA Bustime Data*, C. Silva (PI) with K. Ozbay, US$ 86K, 2015-16.

[8] National Aeronautics and Space Administration (NASA) (through a USGS sub-contract), *Using the USGS Resource for Advanced modeling*, US$ 444K, 2012-2016.

[9] McGraw-Hill Education, *Education Data Algorithms and Visualizations*, US$ 250K, C. Silva (PI), with J. Plass, L. Dubois, E. Bertini, and B. Ubell, 2015.

[10] MLB Advanced Media, *Sports Analytics Research,* C. Silva (PI), US$ 192K, 2015-2016.

[11] AT&T Virtual University Research Initiative (VURI), C. Silva (PI), US$ 25K, 2015.

[12] Lawrence Livermore National Labs, *Ultrascale Visualization Climate Data Analysis Tools (UV- CDAT)*, C. Silva (PI), US$ 100K, 2015.

[13] Department of Energy, *Accelerated Climate Modeling For Energy*, C. Silva (PI), US$ 225K, 2014-2017.

[14] Kitware (Department of Energy subcontract), *ClimatePipes: User-Friendly Data Access, Data Manipulation, Data Analysis and Visualization of Community Climate Models*, C. Silva (PI), US$ 500K, 2012–2014.

[15] Sloan Foundation. *Computational Reproducibility: Understanding the Requirements and Building the Necessary Infrastructure*, J. Freire (PI), Co-PIs: C. Silva and D. Shasha. US$74K. 2012–2014.

[16] Kitware (National Institutes of Health subcontract), *ITK v4*, C. Silva (PI) and H. Vo (co-PI), US$ 120K (2011-2012).

[17] Department of Energy, *Ultra-scale Visualization Climate Data Analysis Tools (UV-CDAT)*, C. Silva (PI) US$ 1.2M (2010-1014).

[18] National Science Foundation, *III: Medium: Provenance Analytics: Exploring Computational Tasks and their History*, J. Freire (PI) and C. Silva (co-PI). US$ 957K (2009-2012).

[19] National Science Foundation, *II-NEW: The Utah Acquisition and Rapid Prototyping Laboratory*, A. Bargteil (PI), E. Cohen (co-PI), R. M. Kirby (co-PI), and C. Silva (co-PI). US$ 391K (2009-2012).

[20] Department of Energy. *SBIR Phase I and Phase II: Provenance-Enabling DOE Visualization Applications.* D. Koop (PI); Co-PIs: J. Freire and C. Silva. US$ 850,000 (2008–2011).

[21] National Science Foundation, *Where the Ocean Meets the Cloud: Ad Hoc Longitudinal Analysis and Collaboration Over Massive Mesh Data*, C. Silva (PI) and J. Freire (co-PI). US$ 190K. (2009-2011) (This is a collaborative proposal with B. Howe, University of Washington.)

[22] National Science Foundation, *CDI-Type II: Collaborative Research: The Open Wildland Fire Modeling E-community: a virtual organization accelerating research, education, and fire management technology,* ATM-0835821, C. Johnson (PI) and C. Silva (co-PI). US$ 641,790 (Utah portion out of a total project budget of US$ 1.65M). (2008-2012). Collaborative proposal with NCAR and University of Colorado at Denver.

[23] National Science Foundation, *CRI: IAD A Service-Oriented Architecture for The Computation, Visualization, and Management of Scientific Data*, CNS-0751152, C. Silva (PI), J. Freire, S. Joshi, R. M. Kirby (co-PIs). US$ 500,000 (2008-2011).

[24] National Science Foundation, *Science and Technology Center for Coastal Margin Observation and Prediction*, OCE-0424602, A. Baptista (PI, OHSU), J. Freire and C. Silva (Utah co-PIs), Total: (approx) US$ 20,000,000; Utah portion: US$ 478,563 (2006-11).

[25] Department of Energy, *Scientific Data Management Enabling Technology Center*, DOE SciDAC II. A. Shoshani (PI, LBNL), C. Silva (Utah PI), Total: (approx) US$ 16,500,000; Utah portion: US$ 910,000 (2006-11).

[26] Department of Energy, *VACET: Visualization and Analytics Center for Enabling Technologies*, DOE SciDAC II. C. Johnson, C. Hansen, C. Silva, S. Parker, A. Sanderson, X. Tricoche (Utah Team), Total: (approx) US$ 11,000,000; Utah portion: US$ 2,790,726 (2006-11).

[27] Department of Energy, *Towards a multi-threaded data-driven streaming execution model for VTK*, C. Silva (PI), C. Hansen, and V. Pascucci. US$ 126K (2009).

[28] ExxonMobil, *Imaging, Visualization, and Modeling Research Center*, R. Whitaker (PI), C. Hansen (co-PI), V. Pascucci (co-PI), and C. Silva (co-PI). US$ 2.2M (2008–2013).

[29] Department of Energy, *Supporting Pipelines of Retrieval, Analysis and Visualization of Web Data*, J. Freire (PI) and C. Silva (co-PI) US$ 103K (2009-10).

[30] Department of Energy, *Provenance Analytics Tools to Improve the Measurement of Usability and Insight in Visualization Applications*, C. Silva (PI) and J. Freire (co-PI). US$ 100K (2009-10).

[31] National Institutes of Health, *NCRR ARRA Administrative Supplement - Translational*, D. A. McClain (PI), L. Cannon-Albright, P. Renshaw, C. Silva, J. Freire, D. A. Yurgelun-Todd. US$ 998,137 (2009-2011).

[32] *National Science Foundation*, SBIR Phase I and IB: A Collaborative Architecture to Support Large-Scale Exploratory Workflows, IIP-0712592, S. P. Callahan (PI); Co-PIs: J. Freire and C. Silva. US$ 150,000 (2007).

[33] *State of Utah, Centers of Excellence.* Center for Software Process Automation and Exploratory Data Mining. G. Jones, J. Freire and C. Silva. US$ 200,000 (2008–2009).

[34] Department of Energy, *Integrating VisIt and VisTrails Software*, C. Silva. US$ 53,209 (2009).

[35] National Science Foundation, *MSPA-MCS: Collaborative Research: New Methods for Robust, Feature-Preserving Surface Reconstruction*, CCF-0528201 and CCF-0528209, C. Silva (lead PI, Utah), J. Mitchell (PI, Stony Brook). Total: US$ 480,686 (2005-8); Utah portion: US$ 275,599 (2005-8).

[36] National Science Foundation, *SEIII: Managing Complex Visualizations*, IIS-0513692, J. Freire (PI) and C. Silva (co-PI). US$ 530,252 (2005-8). REU supplement: US$ 12,000 (2006).

[37] National Science Foundation, *U.S. Brazil Collaborative Research: 3D Modeling and Visualization*, OISE-0405402, C. Silva (PI), E. Praun (co-PI) and R. Whitaker (co-PI). US$ 85,000 (2004-6). REU supplements: US$ 15,000 (2005).

[38] State of Utah, Centers of Excellence. *Center for Management of Exploratory Workflows-Business Team,* J. Freire (PI) and C. Silva (co-PI), US$ 50,000 (2007-8).

[39] Department of Energy, *Topic in Visualization Research*, C. Silva (PI), C. Hansen and J. Freire (co-PIs). US$ 200,000 (2007-8).

[40] National Institutes of Health, *High Resolution Mapping Of Placental Gene Expression*, C. Silva (co-I), J. Pentecost (PI, OHSU). Approximately US$ 210,000 (2005-7).

[41] National Science Foundation, *Interactive Out-Of-Core Visualization of Large Polygonal Datasets*, CCF-0401498, Cláudio Silva (PI). US$ 178,488 (2003–6). REU supplements: US$ 12,000 (2004); US$ 12,000 (2005).

[42] Department of Energy, *Using Morse Theory in the Parameterization of Arbitrary 2-Manifolds*, C. Silva (PI). US$ 35,306 (2006).

[43] Department of Energy, *Advanced Volume Rendering Techniques*, C. Silva (PI). US$ 90,000 (2006).

[44] Department of Energy, *Utah Advanced Visualization Center*, C. Hansen (PI) and C. Silva (co-PI). US$ 680,000 (2003–6).

[45] National Science Foundation, *A Cluster Infrastructure to Support Retrieval, Management and Visualization of Massive Amounts of Data*, EIA-0323604, J. Freire (PI) and C. Silva (co-PI). US$ 110,000 (2003–5). Institutional matching funds: US$ 55,000.

[46] Department of Defense (Army STTR), *A Scalable System for Enormous Dataset Volume Visualization on Commodity Hardware* (Phase I), W911INF-05-C-0107, D. Weinstein (PI, Visual Influence), C. Silva (PI, Utah), and J. Freire (co-PI). Phase I: US$ 94,704 (2005-6).

[47] Department of Energy, *Studying The Topology of Point-Set Surfaces*, C. Silva (PI). US$ 37,492 (2005).

[48] University of Utah Seed Grant, *Digital Geometry Processing Techniques for Spatial Genomics*, C. Silva (PI). US$ 27,000 (2004-5).

[49] Department of Energy, *Advanced Scientific Visualization Techniques*, C. Silva (PI). US$ 56,000 (2004–5).

[50] Department of Energy, *Rendering of Isosurfaces Using Implicit Occluders*, C. Silva (PI). US$ 22,919 (2003).

[51] Department of Energy, *Visualization of Adaptive Mesh Refinement in SAMRAI*, C. Silva (PI). US$ 22,170 (2003).

[52] Department of Energy, *Developing Techniques for High-Resolution Interactive Volume Rendering of Large Unstructured Volumetric Grids on Clusters of Commodity PCs*, C. Silva (PI). US$ 92,984 (2003–4).

[53] Department of Energy, *High-Performance Visualization*, J. Mitchell (PI) and C. Silva (co-PI). US$ 303,196 (1996–2001).

[54] National Science Foundation, *Efficient Geometric Algorithms in Support of Virtual Reality Systems*, Post-Doctoral CISE Associateship Award, CCR-9626370. J. Mitchell (PI) and C. Silva. US$ 46,000 (1996–98).

[55] Department of Energy, *Support for Research Assistant – Cláudio T. Silva*, A. Kaufman (PI). (approx) US$ 50,000. (1995–96).

Advising

Current Post-doctoral Assistants (2 Post-doc)

Alexander Bock (Data Science Fellow, New York University, 2017–)
Yitzchak Lockerman (Post-doc, New York University, 2016–)

Current Graduate Students (3 Ph.D.)

Jorge Henrique (Ph.D., New York University, since August 2015)
Fabio Miranda (Ph.D., New York University, since August 2012)
Bowen Yu (Ph.D., New York University, since August 2013)

Former Graduate Students and Post-doctoral Assistants (12 Post-doc, 17 Ph.D., 9 M.S.)

Marcel Campen (Post-doc, New York University, 2015–2017)
Lhaylla Crissaff (Post-doc, New York University, 2015-16)
Harish Doraiswamy (Post-doc, New York University, 2012–2015; Co-advised with Juliana Freire)
Aritra Dasgupta (Post-doc, New York University, 2012–2015)
Yunzhe (Alvin) Jia (M.S., New York University, 2015)
Nivan Ferreira (Ph.D., New York University, 2015)
Jorge Poco (Ph.D., New York University, 2015)
Guillaume Vialaneix (Post-doc, New York University, 2013–2014)
Lis Custodio Roque (Ph.D., PUC-Rio, 2014; Co-advised with Sinesio Pesco)
Joel Daniels (Post-doc, NYU-Poly, 2009–2011)
Lauro Lins (Post-doc, University of Utah and NYU-Poly 2007–2012; Co-advised with Juliana Freire))
Wendel Silva (M.S., NYU-Poly, 2013)
Daniel K. Osmari (M.S., NYU-Poly, 2013)
Jonathas Costa (M.S., NYU-Poly, 2013)
Tiago Etiene (Ph.D., University of Utah, 2013)
Matt Berger (Ph.D., University of Utah, 2012)
Erik Anderson (Ph.D., University of Utah, 2011)
David Koop (Ph.D., University of Utah, 2011; Co-advised with Juliana Freire)
Huy T. Vo (Ph.D., University of Utah, 2011)
Linh K. Ha (Ph.D., University of Utah, 2011; Co-advised with Sarang Joshi and Jens Krueger)
Claurissa Tuttle (M.S., University of Utah, 2011)
Emanuele Santos (Ph.D., University of Utah, 2010; Co-advised with Juliana Freire)
Hao Wang (M.S.–project option, University of Utah, 2010).
Carlos Scheidegger (Ph.D., University of Utah, 2009)
Joel D. Daniels II (Ph.D., University of Utah, 2009; Co-advised with Elaine Cohen)
Tilo Ochotta (Post-doc, 2008–2009)
John Schreiner (Ph.D., University of Utah, 2008)
Steven P. Callahan (Ph.D., University of Utah, 2008)
Heballa Benan Alzahawi (M.S.–project option, University of Utah, 2008)
Yuan Zhou (Post-doc, University of Utah, 2007–2008)
Louis Bavoil (M.S–thesis option, University of Utah, 2006)
Steven P. Callahan (M.S.–thesis option, University of Utah, 2005)
Shachar Fleishman (Post-doc, University of Utah, 2004–2005)
Sinesio Pesco (Post-doc, University of Utah, 2003–2004)

Dirce Uesu (Post-doc, University of Utah, 2003–2004)
Wagner Corrêa (Ph.D., Princeton University, 2003; Co-advised with Szymon Rusinkiewicz)
Ricardo Farias (Ph.D., SUNY-Stony Brook, 2001; Co-advised with Joseph Mitchell)
Tsung-Chin Ho (Ph.D., SUNY-Stony Brook, 2001; Co-advised with Joseph Mitchell)

Graduate Thesis Defense Committees (17)

Liang Zhou (Ph.D., University of Utah, 2014)
Otavio Braga (Ph.D., New York University, 2013)
Lei Wang (Ph.D., Stony Brook University, 2013)
Denis Kovacs (Ph.D., New York University, 2013)
Hoa Nguyen (Ph.D., University of Utah, 2011)
Mathias Schott (Ph.D., University of Utah, 2011)
Abe Stephens (Ph.D., University of Utah, 2011)
Andrew Kensner (Ph.D., University of Utah, 2009)
Jelka Stevanovic (Ph.D., University of Utah, 2009)
Luciano Barbosa (Ph.D., University of Utah, 2009)
Thiago Ize (Ph.D., University of Utah, 2009)
Aaron Knoll (Ph.D., University of Utah, 2008)
Guo-Shi Li (Ph.D., University of Utah, 2008)
Miriah D. Meyer (Ph.D., University of Utah, 2008)
Xianming Chen (Ph.D., University of Utah, 2007)
Jason F. Shepherd (Ph.D., University of Utah, 2007)
Joel D. Daniels II (M.S., University of Utah, 2005)

Other Advising and Mentoring

Mentor, J. Comba (Associate Professor, Federal University of Rio Grande do Sul, Brazil), September 2010–August 2011.
Mentor, L. G. Nonato (Associate Professor, University of São Paulo, Brazil), August 2008–July 2010.
P. Hendricks, since July 2009. NSF REU student.
P. Mates, since February 2009. NSF REU student.
C. Brooks, since September 2008. NSF REU student.
Undergraduate advisor, W. Tyler, since September-December 2005. NSF REU student.
Undergraduate advisor, E. Anderson, August 2004-January 2005. NSF REU student.
Undergraduate advisor, H. Vo, May 2004-May 2005. Continuing into Ph.D. program.
Undergraduate advisor, N. Smith, September 2005-March 2007. NSF REU student.
Undergraduate advisor, J. Callahan, Summer 2007-Summer 2008. NSF REU student.
Undergraduate advisor, H. Wang, December 2006-August 2008. Continuing into Ph.D. program.

Research mentor, M. Lizier, November 2007–July 2008.
Research Mentor, T. Ochotta, September 2006–February 2007.
Research mentor, F. Bernardon, June-September 2006.
Research mentor, Y. Lima, February-May, 2006.
Ph.D. advisor, W. Herrera-Jimenez, 01/2003-10/2003. Dropped for personal reasons.
Research mentor (with J. Freire), L. Rocha, April-November 2003.
Research mentor, AT&T Summer Internship Program, W. Corrêa (Princeton University), Summer 2002.
Research mentor, AT&T-Labs Fellowship Program, L. Lloyd, Summer 2002.

Research mentor, AT&T Summer Internship Program, S. Fleishman, Summer 2001.
Research mentor, AT&T URP (Under Represented Minority Program), B. Anthony, Summer 2000.

Selected Tutorials (20)

Provenance-Enabled Data Exploration and Visualization
IEEE Visualization 2009.
Provenance and Scientific Workflows: Supporting Data Exploration and Visualization
IEEE International Conference on e-Science 2008.
Visualization and Data Analysis with VisTrails
SciDAC (Scientific Discovery through Advanced Computing) 2008.
GPU-Based Volume Rendering of Unstructured Grids
SIBGRAPI 2005.
Multi-resolution Modeling, Visualization and Compression of Volumetric Data
Eurographics 2004.
IEEE Visualization 2003.
Out-Of-Core Algorithms for Scientific Visualization and Computer Graphics
IEEE Visualization 2003.
IEEE Visualization 2002.
High-Performance Visualization of Large and Complex Scientific Datasets
ACM/IEEE SC 2002.
Rendering and Visualization in Affordable Parallel Environments
IEEE Visualization 2001.
Eurographics 2001.
ACM SIGGRAPH 2000.
IEEE Visualization 2000.
ACM SIGGRAPH 1999.
Eurographics 1999.
Eurographics 1998.
Visibility, problems, techniques and applications
ACM SIGGRAPH 2001.
ACM SIGGRAPH 2000.
Eurographics 1999.
Advances in Volume Visualization
ACM SIGGRAPH 1998.

Selected Invited Talks

Visualization and Analysis of Urban Data
University of Illinois at Chicago, January 21st, 2016 **Distinguished Lecture Series**
AT&T Data Science, December 7th, 2015
International Symposium on Visual Computing (ISVC) 2015, December 15th, 2015 **Keynote**
EuroVis 2015, May 26th, 2015 **Keynote**
Visualization and The City: Projects in Urban Data Visualization and Sports Analytics
Data Visualization New York Meetup, November 17th, 2015
Building Tools for Urban Data Science
Chesapeake Large-Scale Analytics Conference, October 14th, 2015
Attempts at Building UrbanGIS Infrastructure
The First International Workshop on Smart Cities and Urban Analytics (UrbanGIS) 2015, November 3rd, 2015
Big Data Platforms for Urban Data

Center of Excellence in Wireless and Information Technology (CEWITT) 2015 Conference, October 19th, 2015
National Geospatial Intelligence agency/Argonne National Labs Megacities Workshop, September 10th, 2015

Exploring Big Urban Data
NYU Shanghai Big Data Symposium, November 21, 2014 **Keynote**
Shandong University, November 19th, 2014
ELLIIT Workshop 2014, Linkping University, Sweden, October 23rd, 2014 **Keynote**
American Express, April 7th, 2015

Urban Data Visualization
Dagstuhl, June 3rd, 2014
NII-Japan, March 10th, 2014

Big Data Research at the Center for Urban Science and Progress
IBM Research, February 11th, 2014

Measuring Visualization Correctness and Effectiveness
SIBGRAPI 2011 Brazilian Symposium on Computer Graphics and Image Processing, October 28th, 2011 **Keynote**

Geometry and Topology for Quadrilateral Mesh Processing and Verifiable Visualization
Symposium on Computational Geometry, June 16th, 2010 **Plenary Talk**
Federal University of Ceara, June 7th, 2010
University of Chicago, April 8, 2010

High-Quality Isosurfaces and Surface Re(Meshing)
Washington University, December 4th, 2009
Brown University, April 7th, 2009
Linköping University (Norrköping Campus), January 20th, 2009

Introduction to Computational Provenance
Workshop on Monte Carlo data evaluation, archiving and provenance, Inst. Theor. Physics, ETH, Nov. 2nd, 2008.

Introduction to VisTrails
Workshop on Monte Carlo data evaluation, archiving and provenance, Inst. Theor. Physics, ETH, Nov. 2nd, 2008.

VisTrails: Provenance and Data Exploration
Harvard University, April 9th, 2009
NIH National Biomedical Computation Resource (NBCR) Summer Institute 2008, August 4th, 2008.

Software Infrastructure for Exploratory Visualization and Data Analysis: Past, Present and Future
SciDAC (Scientific Discovery through Advanced Computing) 2008 (Featured Speaker), July 17th, 2008.

Visualization at the University of Utah
Linköping University, January 16th, 2009
Workshop on Interactive Data Visualization (co-located with SIBGRAPI 2007), October 7th, 2007.

Supporting Data Exploration through Visualization
Open Grid Forum 19, February 1st, 2007.
IBM T. J. Watson Research Center, October 27th, 2006.
International Fall School and Workshops, Universidad Nacional Autonoma de Mexico, October 18th, 2006.

Scalable Techniques for Scientific Visualization,
IEEE EMBS Chapter talk, University of Alberta, August 1st, 2007.
CIG Computational Geodynamics and Scientific Computing Workshop, UT-Austin, October 17th, 2006.
Microsoft eScience 2006, October 14th, 2006.

Surface Re(Meshing) and Applications
Federal University of Rio Grande do Sul, August 3rd, 2006.
Ayia Napa Summer Seminar 2006, June 29th, 2006.
IMPA-Brazil, June 14th, 2006.

VisTrails: Visualization meets Data Management
University of North Carolina at Chapel Hill, February 2nd, 2007.
TU-Kaiserlautern, June 23rd, 2006.

Managing Complex Visualizations
Harmon Pro Group Tech Conference, February 22nd, 2006.

Dynamic Level-Of-Detail Rendering of Unstructured Meshes
Dagstuhl Scientific Visualization, June 9th, 2005.
Point-Set Surfaces: An Update and Recent Work,
Lawrence Livermore National Laboratory, May 20th, 2005.
GPU-Based Scientific Visualization
University of Texas at Dallas, March 28th, 2005.
IBM T. J. Watson Research Center, November 22nd, 2004.
Brigham Young University, September 23rd, 2004.
GPU-Based Unstructured Volume Rendering
Technische Universität München, June 9th, 2004.
University of Sttugart, June 8th, 2004.
Using Points for Rendering and Modeling Surfaces
UC-Davis, March 5th, 2003.
UC-Berkeley, March 20th, 2003.
Dagstuhl Scientific Visualization, June 5th, 2003.
DIMACS Surface Reconstruction Workshop , April 30th, 2003.
Massive Polygonal Rendering
Arctic Region Supercomputer Center, Alaska, August 6th, 2003.
Direct Volume Rendering Techniques for Unstructured Grids
UC-Santa Barbara, March 13th, 2002.
Univ. of Pittsburgh, April 4th, 2002.
University of Miami, March 21st, 2002.
Rutgers University, March 8th, 2002.
UMass-Amherst, February 8th, 2002.
OGI-OHSU, January 31st, 2002.
External Memory Algorithms for Scientific Visualization
Michigan State University, December 3rd, 2001.
Surface Reconstruction Algorithms
Princeton University, November 12th, 2001.
The ZSWEEP Algorithm for Rendering Irregular Grids
LLNL, Livermore, October 12th, 2001.
Point-Set Surfaces
LLNL, Livermore, October 10th, 2001.
Rendering Irregular Grids
IMPA-Brazil, February 13th, 2001.
Towards Acquiring and Rendering Real-World Environments
AT&T Cambridge, Sept. 3rd, 2001.
Challenges in Scientific Visualization
New York University, New York City, December 17th, 1999.
Sorting Polyhedra and Applications
Bell Labs, Murray Hill, New Jersey, October 28th, 1999.
CNUCE – CNR, Pisa, Italy, September 3rd, 1999.
Rutgers University, New Jersey, April 22nd, 1999.

Service

Internal Service

New York University

- Tenure and Promotion Committee, School of Engineering
  - Chair (2015–)
  - Member (2011–)
- Advisory Committee, NYU Libraries
- Moore-Sloan Data Science Initiative
  - Executive committee
  - Sofftware Tools Workgroup (SWG) leader
- Interim Curriculum Advisory Committee, CUSP (2011)
- Curriculum Advisory Committee, Center for Data Science (2011)

School of Computing, University of Utah

- Director (founding), Graphics and Visualization Track, 2004–2009.
- Curriculum Committee
  - Member, 2004–2010.
  - Co-chair, 2007–2008.
- Member of Graduate Admissions Committee, 2005–2009.
- Member of Faculty Recruiting Committee (Theory sub-comittee), 2006.
- Coach, Utah Programming Team, 2004–2006
  - We won 2nd place in the 2006 ACM Rocky Mountain Regional Contest, and best in Utah.
  - We won 2nd place in the 2005 ACM Rocky Mountain Regional Contest, and best in Utah.
  - (With E. Praun.) We won 3rd place in the 2004 ACM Rocky Mountain Regional Contest, and best in Utah.

Scientific Computing and Imaging (SCI) Institute, University of Utah

- Associate Director, January 2008–May 2009.
- Member of Graduate Recruiting Committee, 2005–2010.
- Member of IT Committee, 2005.

External Service

Journal Editorialships

- Editorial Board, ACM Transactions on Spatial Algorithms and Systems (TSAS) (2013–).
- Associate Editor, IEEE Transactions on Big Data (2015–).
- Associate Editor, Computer Graphics Forum (2013–).
- Associate Editor, The Visual Computer (2011–).
- Co-Editor, Visualization Corner, Computing in Science and Engineering magazine (2007–2015).
- Associate Editor, Graphical Models (GMOD) (2010–2014).
- Editorial Board, Computer and Graphics (2008–2014).
- Guest Editor: Computing in Science and Engineering theme issue on Computational Provenance, 2008.
- Associate Editor, IEEE Transactions on Visualization and Computer Graphics (2002–2006).
- Guest Editor: IEEE Transactions on Visualization and Computer Graphics issue on IEEE Visualization 2006.
- Guest Editor: IEEE Transactions on Visualization and Computer Graphics issue on IEEE Visualization 2005.

Conference Chairing and Organization

- Best paper award selection committee, IEEE SciVIS 2014.
- Steering Committee, IEEE SciVIS (2013–).
- Best paper award selection committee, LDAV 2013.
- Program Co-chair, LDAV 2013.
- Program Co-chair, SIBGRAPI 2013.
- Program Co-chair, IEEE Symposium on Large-Scale Data Analysis and Visualization (LDAV) 2011.
- General Co-chair, IEEE VisWeek 2010.
- Conference chair, IEEE Visualization 2010.
- Co-organizer, CSCW 2010 workshop on "The Changing Dynamics of Scientific Collaborations"
- Visualization area co-chair, 5th International Symposium on Visual Computing, 2009.
- Co-organizer, CHI 2009 workshop on "The Changing Face of Digital Science: Workshop on New Practices in Scientific Collaborations."
- Papers Co-chair, IEEE Visualization 2006.
- Papers Co-chair, IEEE Visualization 2005.

- Best paper award selection committee, IEEE Visualization 2006.
- Best paper award selection committee (chair), IEEE Visualization 2005.
- Best paper award selection committee, IEEE Visualization 2004.
- Papers Co-chair, IEEE/SIGGRAPH Symposium on Volume Visualization and Graphics 2004.
- Co-chair, IEEE Parallel & Large-Data Visualization & Graphics Symposium 2003.
- Co-organizer, DIMACS Implementation Challenge on Surface Reconstruction, 2003.
- Co-organizer, DIMACS Workshop on Visualization and Data Mining, 2002.

Reviewing and Other Committee Participation

- Reappointment committee for the Editor-in-Chief of IEEE Transactions on Visualization and Computer Graphics (2015).
- Reappointment committee for the Editor-in-Chief of IEEE/AIP Computing in Science and Engineering (2010).
- Search committee for the Editor-in-Chief of IEEE Computer Graphics and Applications (2009).
- NIH Panelist for Software Maintenance Panel (twice).
- NSF Panelist, 2002-04, 2006, 2007, 2008.
- Member, geometry subcommittee, NIfTI Data Format Working Group of the National Institutes of Health, 2005–.
- Member, MPEG-4 3D Model Coding (3DMC) standardization committee, 1998-9.
- Symposium Committee, ACM/IEEE Volume Visualization 2000.
- Reviewer for: National Science Foundation, MacArthur Fellows Program, Dutch National Science Foundation (NWO), ACM SIGGRAPH (papers and courses), IEEE Visualization, ACM SIGMOD, ACM/IEEE Volume Visualization, IEEE Transactions on Visualization and Computer Graphics, IEEE Computer Graphics and Applications, Eurographics, Visual Computer, IEEE Transactions on Networking, Graphics Interface, Symposium on Interactive 3D, and several other conferences, journals, and funding agencies.
- Book reviewer for Morgan-Kaufmann Publishers, AK Peters.
- Member of ACM, IEEE, Eurographics.

Program Committees (125+)

EG 2017
Pacific Graphics 2016
SPM 2016
SGP 2016
Eurovis 2016
EG 2016 Papers

I3D 2016 Papers
LDAV 2015
VAST 2015
Pacific Graphics 2015
Eurovis 2015
I3D 2015 Papers
SMI 2014
SciVIS 2014 Papers
VAST 2014 Papers
EuroVis Short Papers (EuroVis 2014 conference)
IEEE International Congress on Big Data
SIBGRAPI 2014 (27th Conference on Graphics, Patterns and Images).
PG 2014
GMP 2014
EuroVis 2014 Papers
I3D 2014
The 2nd International Workshop on Urban Computing (UrbComp 2013)
IEEE Visualization 2013
IEEE Big Data 2013
Third Joint 3DIM/3DPVT Conference (3D Imaging, Modeling, Processing, Visualization & Transmission)
SIAM Conference on Geometric and Physical Modeling (GD/SPM13)
Shape Modeling International 2013 (SMI'13)
EuroVis Workshop on Reproducibility, Verification, and Validation in Visualization (EuroRVVV)
EuroVis 2013 Short Papers
Symposium on Geometry Processing 2013
International Conference on 3D Web Technology (Web3D 2013)
Pacific Graphics 2013
Symposium on Interactive 3D Graphics and Games 2013 (I3D 2013)
Large Data Analysis and Visualization Symposium (LDAV) 2012
IEEE Visualization 2012
International Conference on 3D Web Technology (Web3D 2012)
2012 Symposium on Solid and Physical Modeling
EuroVis 2012 Short Papers
Geometric Modeling and Processing (GMP 2012)
Short papers program – Eurographics 2012
ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D) 2012
Papers program – Eurographics 2012
IEEE International Conference on Shape Modeling and Applications (SMI) 2012
ICDE 2012 "Research – Scientific data and data visualization" track.
2011 ACM International Web3D Conference
2011 SIAM/ACM Joint Conference on Geometric and Physical Modeling
Symposium on Geometry Processing 2011
3DIMPVT 2011
EuroVis 2011
Eurographics Symposium on Parallel Graphics and Visualization 2011 (EGPGV 2011)
10th Eurographics Parallel Graphics and Visualisation (EGPGV) Symposium
XXI Brazilian Symp on Computer Graphics and Image Processing (SIBGRAPI) 2010
2010 SIAM/ACM Joint Conference on Geometric and Physical Modeling

EuroVis 2010
International Meeting High Performance Computing for Computational Science (VECPAR'10)
Symposium on Geometry Processing 2010
IEEE International Conference on Shape Modeling and Applications (SMI) 2010
Symposium on 3D Data Processing, Visualization, and Transmission (3DPVT) 2010
First International Workshop on Semantic Web and Provenance Management 2009 (SWPM)
XX Brazilian Symp on Computer Graphics and Image Processing (SIBGRAPI) 2009
1st International Workshop on Provenance in Practice 2009 (PPW09)
Symposium on Geometry Processing 2009
VizMining 2009 Workshop at the 2009 SIAM International Conference on Data Mining
EuroVis 2009
Eurographics 2009 Symposium on Parallel Graphics and Visualization (EGPGV'09)
2009 SIAM/ACM Joint Conference on Geometric and Physical Modeling
IEEE International Conference on Shape Modeling and Applications (SMI) 2009
ACM Multimedia 2008 Technical Demonstrations
Knowledge-Assisted Visualization (KAV) 2008
International Symposium on Volume Graphics 2008 (VG08)
XIX Brazilian Symp on Computer Graphics and Image Processing (SIBGRAPI) 2008
Symposium on 3D Data Processing, Visualization, and Transmission (3DPVT) 2008
2nd International Provenance and Annotation Workshop (IPAW 2008)
ACM SIGGRAPH 2008 Papers Program
ACM Solid and Physical Modeling Symposium (SPM) 2008
IEEE International Conference on Shape Modeling and Applications (SMI) 2008
EuroVis 2008
International Conference on Computer Animation and Social Agents (CASA) 2008
Symposium on Geometry Processing 2008
Knowledge-Assisted Visualization (KAV) 2007
Pacific Graphics 2007
IEEE Visualization 2007
6th International Workshop on Volume Graphics (VG 2007)
3rd International Symposium on Visual Computing (ISVC 07)
ACM SIGGRAPH 2007 Sketches & Posters Program
XVIII Brazilian Symp on Computer Graphics and Image Processing (SIBGRAPI) 2007
7th Eurographics Workshop on Parallel Graphics and Visualization (EGPGV), 2007
Symposium on Geometry Processing 2007
Eurographics 2007
2nd International Symposium on Visual Computing (ISVC 06)
5th International Workshop on Volume Graphics (VG 2006)
3rd Ibero-American Symposium on Computer Graphics (SIACG 2006)
Symposium on 3D Data Processing, Visualization, and Transmission (3DPVT) 2006
Computer Graphics International 2006
Symposium on Point-Based Graphics 2006
Shape Modelling International 2006
Symposium on Geometry Processing 2006
XVIII Brazilian Symp on Computer Graphics and Image Processing (SIBGRAPI) 2006
6th Eurographics Workshop on Parallel Graphics and Visualization (EGPGV), 2006
Pacific Graphics 2005
XVII Brazilian Symp on Computer Graphics and Image Processing (SIBGRAPI) 2005

Symposium on Point-Based Graphics 2005
Symposium on Geometry Processing 2005
International Workshop on Volume Graphics 2005
Shape Modelling International 2005
7th Brazilian Symposium on Virtual Reality 2004
XVII Brazilian Symp on Computer Graphics and Image Processing (SIBGRAPI) 2004
Symposium on 3D Data Processing, Visualization, and Transmission (3DPVT) 2004
Pacific Graphics 2004
Second Symposium on Geometry Processing 2004
Fifth Eurographics Symposium on Parallel Graphics and Visualization 2004
Symposium on Point-Based Graphics 2004
Solid Modelling International 2004
Sixth Brazilian Virtual Reality Symposium (SVR) 2003
IEEE Visualization 2003
Symposium on Geometry Processing, 2003
IEEE Visualization 2002
ACM/IEEE Volume Visualization 2002
Fifth Brazilian Virtual Reality Symposium (SVR) 2002
International Workshop on 3D Digitization (3DD) 2002
Eurographics Workshop on Parallel Graphics and Visualization 2002
1st Ibero-American Symposium on Computer Graphics 2002
IEEE Visualization 2001
IEEE Parallel & Large-Data Visualization & Graphics Symposium 2001
International Workshop On Volume Graphics 2001
IEEE Visualization 2000