# Carlos Eduardo Scheidegger

University of Arizona
Gould-Simpson Building, 1040 E. 4th Street.
Tucson, AZ, 85721
cscheid@email.arizona.edu
Google Scholar: https://cscheid.net/google-scholar.html

phone: (520) 621-4326
https://cscheid.net


---

## Research Interests

- Data Visualization, Machine Learning, Data Analysis

## Education and Professional Experience

- Associate Professor. August 2020 – present
  Department of Computer Science
  University of Arizona.
- Assistant Professor. August 2014 – August 2020
  Department of Computer Science
  University of Arizona.
- Senior Member of Technical Staff. October 2009 – August 2014.
  AT&T Labs – Research
  Information Visualization Department, Big Data Organization.
- PhD, Computing, January 2005 – October 2009
  University of Utah
  Advisor: Prof. Cláudio Silva
- B.S., Computer Science cum laude, January 1999 – March 2004
  Universidade Federal do Rio Grande do Sul (Brazil)
  Advisor: Prof. João Comba

## Honors and Awards

- National Science Foundation, NSF IIS Core Medium, "III: Medium: Collaborative Research: Evaluating and Maximizing Fairness in Information Flow on Networks", IIS-1955162. U$ 250,410.00, 2020–2022.
- National Science Foundation, NSF IIS Core Small, "An end-to-end pipeline for interactive visual analysis of big data", IIS-1815238. U$ 499,997.00, 2018–2021.
- National Science Foundation, NSF IIS Core Medium, "Topological Data Analysis for Large Network Visualization", IIS-1513651. U$ 268,933.00, 2015–2019.
- Best Paper Awards: Honorable Mention, IEEE VIS 2014; Honorable Mention, IEEE VIS 2013; Honorable Mention, Eurovis 2013; Winner, IEEE International Conference on Shape Modeling and Applications, 2008; Winner, IEEE VIS 2007.

- IBM PhD Student Fellowship, 2007, 2008.
- School of Computing Distinguished TA Award, 2005.
- Brazilian Computer Society Distinguished Student Award, 2004.
- Graduated cum laude in Computer Science, total combined GPA of 3.75, 2004.
- First place, Entrance exam, Computer Science, Federal University of Rio Grande do Sul, 1999.

## Journal Publications

[1] *The (Im)-possibility of fairness: different value systems require different mechanisms for fair decision making*. S. Friedler, C. Scheidegger, S. Venkatasubramanian. (Research Highlight at the) Communications of the ACM, 64(4):136–143, 2021.

[2] *The ANTARES astronomical time-domain event broker*. The ANTARES collaboration. The Astronomical Journal, 161(3):107, 2021.

[3] *Impact of Cognitive Biases on Progressive Visualization*. M. Procopio, A. Mosca, C. Scheidegger, E. Wu, R. Chang. IEEE Transactions on Visualization and Computer Graphics, 2021, to appear.

[4] *A Structured Review of Data Management Technology for Interactive Visualization and Analysis*. L. Battle, C. Scheidegger. IEEE Transactions on Visualization and Computer Graphics. (Proceedings of VIS 2020) 2021, to appear.

[5] *A Classification Algorithm for Time-domain Novelties in Preparation for LSST Alerts. Application to Variable Stars and Transients Detected with DECam in the Galactic Bulge*. M. Soraisam, A. Saha, T. Matheson, C.-H. Lee, G. Narayan, A. Vivas, C. Scheidegger, N. Oppermann, E. W. Olszewski, S. Sinha, S. R. DeSantis, ANTARES collaboration,. The Astrophysical Journal, 892(2):112, 2020.

[6] *Visualizing Neural Networks with the Grand Tour*. M. Li, Z. Zhao, C. Scheidegger. Distill, 5(3), 2020.

[7] *Persistent Homology Guided Force-Directed Graph Layouts*. A. Suh, M. Hajij, B. Wang, C. Scheidegger, P. Rosen. IEEE Transactions on Visualiation and Computer Graphics, 26(1):697–707, 2020.

[8] *Selective Wander Join: Fast Progressive Visualizations for Data Joins*. M. Procopio, C. Scheidegger. E. Wu, R. Chang. Informatics, 6(1), 2019.

[9] *Looks Good to Me: Visualizations as Sanity Checks*. M. Correll, M. Li, G. Kindlmann, C. Scheidegger. IEEE Transactions on Visualization and Computer Graphics. 25(1):830–839, 2018.

[10] *DimReader: Axis lines that explain non-linear projections*. R. Faust, D. Glickenstein, C. Scheidegger. IEEE Transactions on Visualization and Computer Graphics. 25(1):481–490, 2018.

[11] *Machine-learning-based Brokers for Real-time Classification of the LSST Alert Stream*. G. Narayan, T. Zaidi, M. Soraisam, Z. Wang, M. Lochner, T. Matheson, A. Saha, S. Yang, Z. Zhao, J. Kececioglu, C. Scheidegger, R. Snodgrass, T. Axelrod, T. Jenness, R. Maier, S. Ridgway, R. Seaman, E. Evans, N. Singh, C. Taylor, J. Toeniskoetter, E. Welch, S. Zhu. The Astrophysical Journal Supplement Series, 236(1), IOP Publishing, 2018.

[12] *Auditing black-box models for indirect influence*. P. Adler, C. Falk, S. Friedler, T. Nix, G. Rybeck, C. Scheidegger, B. Smith, S. Venkatasubramanian. Knowledge and Information Systems, 54(1):95–122, 2018.

[13] *A Vector Field Design Approach to Animated Transitions*. Y. Wang, D. Archambault, C. Scheidegger, H. Qu. IEEE Transactions on Visualization and Computer Graphics. 24(9):2487–2500, 2018.

[14] *Cartogram Visualization for Bivariate Geo-Statistical Data*. S. Nusrat, M. Alam, C. Scheidegger, S. Kobourov. IEEE Transactions on Visualization and Computer Graphics. 24(10):2675–2688, 2018

[15] *SynMap2 & SynMap3D: Web-based whole-genome synteny browsers*. A. Haug-Baltzell, S. Stephens, S. Davey, C. Scheidegger, E. Lyons. SynMap2 and SynMap3D: web-based whole-genome synteny browsers. Bioinformatics, btx144, 2017.

[16] *Gaussian Cubes: Real-Time Data Modeling for Interactive Exploration of Large Multidimensional Datasets*. Z. Wang, A. Bhaskar, Y. Wei, N. Ferreira, C. Scheidegger. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE VIS 2016, 22% acceptance rate)

[17] *Hashedcubes: Simple, Low Memory, Real-Time Visual Exploration of Big Data*. C. Pahins, S. Stephens, C. Scheidegger, J. Comba. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE VIS 2016, 22% acceptance rate)

[18] *Comparing Node-Link and Node-Link-Group Visualizations From An Enjoyment Perspective*. B. Saket, C. Scheidegger, S. Kobourov. Computer Graphics Forum, (Proceedings of EuroVis 2016), 2016.

[19] *A Simple Approach for Boundary Improvement of Euler Diagrams*. P. Simonetto, D. Archambault, C. Scheidegger. IEEE Transactions on Visualization and Computer Graphics, 22(1):678–687, 2016. (Proceedings of IEEE VIS 2015, 21% acceptance rate)

[20] *Map-based Visualizations Increase Recall Accuracy of Data*. B. Saket, C. Scheidegger, S. Kobourov, K. Börner. Computer Graphics Forum, 34(3), 2015. (Proceedings of EuroVis 2015, 32% acceptance rate)

[21] *An Algebraic Process for Visualization Design*. G. Kindlmann, C. Scheidegger. IEEE Transactions on Visualization and Computer Graphics., 20(12):2181–2190, 2014. **Honorable Mention for Best Paper Award**. (Proceedings of IEEE VIS 2014, 23% acceptance rate)

[22] *Visual Embedding – A Model for Visualization*. C. Demiralp, C. Scheidegger, G. Kindlmann, D. Laidlaw, J. Heer. IEEE Computer Graphics & Applications, 34(1):10–15, 2014.

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

[24] *Nanocubes for Real-Time Exploration of Spatiotemporal Datasets*. L. Lins, J. Klosowski, C. Scheidegger. IEEE Transactions on Visualization and Computer Graphics, 19(12):2456–2465, 2013. **Honorable mention for Best Paper award**. (Proceedings of IEEE VIS 2013, 25% acceptance rate)

[25] *Vector Field k-Means: Clustering Trajectories by Fitting Multiple Vector Fields*. N. Ferreira, J. Klosowski, C. Scheidegger, C. Silva. Computer Graphics Forum, 32(3):201–210, 2013. **Honorable mention for Best Paper award**. (Proceedings of EuroVis 2013, 28% acceptance rate)

[26] *Drawing Large Graphs by Low-Rank Stress Majorization*. M. Khoury, Y. Hu, S. Krishnan, C. Scheidegger. Computer Graphics Forum, 31(3):975–984, 2012. (Proceedings of EuroVis 2012, 26% acceptance rate)

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

[28] *Combining Predictors for Recommending Music: the False Positives' approach to KDD Cup track 2*. S. Balakrishnan, R. Wang, C. Scheidegger, A. MacLellan, Y. Hu, A. Archer, S. Krishnan, D. Applegate, G. Ma, S. Au. JMLR: Workshop and Conference Proceedings, 18:1–15, 2012.

[29] *Verifiable Visualization for Isosurface Extraction*. T. Etiene, C. Scheidegger, L. G. Nonato, M. Kirby, C. Silva. IEEE Transactions on Visualization and Computer Graphics. 15(6):1227–1234, 2009. (Proceedings of IEEE Visualization 2009, acceptance rate: 27%)

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

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

[32] *Revisiting Histograms and Isosurface Statistics*. C. Scheidegger, J. Schreiner, B. Duffy, H. Carr, C. Silva. IEEE Transactions on Visualization and Computer Graphics, 14(6):1659–1666, 2008. (Proceedings of IEEE Visualization 2008, acceptance rate: 25%)

[33] *Edge Groups: an Approach for Understanding the Mesh Quality of Marching Methods*. C. Dietrich. C. Scheidegger, J. Comba, L. Nedel, C. Silva. IEEE Transactions on Visualization and Computer Graphics, 14(6):1651–1658, 2008. (Proceedings of IEEE Visualization 2008, acceptance rate: 25%)

[34] *VisComplete: Automating Suggestions for Visualization Pipelines*. D. Koop, C. Scheidegger, S. Callahan, J. Freire, C. Silva. IEEE Transactions on Visualization and Computer Graphics, 14(6):1691–1698, 2008. (Proceedings of IEEE Visualization 2008, acceptance rate: 25%)

[35] *Querying and Creating Visualizations by Analogy*. C. Scheidegger, H. Vo, D. Koop, J. Freire, C. Silva. IEEE Transactions on Visualization and Computer Graphics, 13(6):1560–1567, 2007. **Best paper award**. (Proceedings of IEEE Visualization 2007, acceptance rate: 26%)

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

[37] *High Quality Extraction of Isosurfaces from Regular and Irregular Grids.* J. Schreiner, C. Scheidegger, C. Silva. IEEE Transactions on Visualization and Computer Graphics, 12(5):1205–1212, 2006. (Proceedings of IEEE Visualization 2006, Acceptance rate: 28%)

[38] *Direct (Re)Meshing for Efficient Surface Processing.* J. Schreiner, C. Scheidegger, S. Fleishman, C. Silva. Computer Graphics Forum, 25(3):527–536, 2006. (Proceedings of Eurographics 2005, Acceptance rate: 16%)

[39] *Practical CFD simulations on the GPU using SMAC.* C. Scheidegger, J. Comba, R. Cunha. Computer Graphics Forum, 24(4):715–728, 2005.

[40] *Computation on GPUs: from a programmable pipeline to an efficient stream processor*. J. Comba, C. Dietrich, C. Pagot, C. Scheidegger. Revista de Informática Teórica e Aplicada, 10(1):41–70, 2003.

## Conference Publications

[41] *Shapley Residuals: Quantifying the limits of the Shapley value for explanations.* I.E. Kumar, C. Scheidegger, S. Venkatasubramanian, S. Friedler. ICML Workshop on Workshop on Human Interpretability in Machine Learning (WHI), 2020.

[42] *Problems with Shapley-value-based explanations as feature importance measures*. I.E. Kumar, S. Venkatasubramanian, C. Scheidegger, S. Friedler. Proceedings of ICML, 2020. arXiv:2002.11097.

[43] *Disentangling Influence: Using disentangled representations to audit model predictions*. C. Marx, R. Phillips, S. Friedler, C. Scheidegger, S. Venkatasubramanian. Advances in Neural Information Processing Systems, 4498–4508, 2019.

[44] *Gaps in Information Access in Social Networks*. B. Fish, A. Bashardoust, S. Friedler, C. Scheidegger, S. Venkatasubramanian. The Web Conference (formerly WWW), 2019.

[45] *A comparative study of fairness-enhancing interventions in machine learning*. S. Friedler, C. Scheidegger, S. Venkatasubramanian, S. Choudhary, E. Hamilton, D. Roth. Proceedings of the ACM Conference on Fairness, Accountability, and Transparency, 2019.

[46] *Fairness in Representation: quantifying stereotyping as a representational harm*. M. Abbasi, S. Friedler, C. Scheidegger, S. Venkatasubramanian. SIAM SDM, 2019.

[47] *Probabilistic Obfuscation through Covert Channels*. J. Stephens, B. Yadegari, C. Collberg, S. Debray, C. Scheidegger. IEEE EuroS&P 2018.

[48] *Visual Detection of Structural Changes in Time-Varying Graphs Using Persistent Homology*. M. Hajij, C. Scheidegger, B. Wang, P. Rosen. IEEE PacificVis 2018.

[49] *Decision making with limited feedback: Error bounds for predictive policing and recidivism prediction*. D. Ensign, S. Friedler, S. Neville, C. Scheidegger, S. Venkatasubramanian. ALT, 2018.

[50] *Runaway Loops in Predictive Policing*. D. Ensign, S. Friedler, S. Neville, C. Scheidegger, S. Venkatasubramanian. Conference on Fairness, Accountability, and Transparency, 2018.

[51] *Auditing Black-box Models for Indirect Influence*. P. Adler, C. Falk, S. Friedler, G. Rybeck, C. Scheidegger, B. Smith, S. Venkatasubramanian. Proceedings of IEEE International Conference on Data Mining, 2016. (Regular paper, acceptance rate: 8.5%)

[52] *Certifying and Removing Disparate Impact*. M. Feldman, S. Friedler, J. Moeller, C. Scheidegger, S. Venkatasubramanian. Proceedings of KDD'15, the 21th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2015 (Acceptance rate: 20%).

[53] *Collaborative Visual Analysis with RCloud* G. Woodhull, S. Urbanek, C. Scheidegger, S. North. IEEE VIS 2015 (VAST conference paper).

[54] *Towards Understanding Enjoyment and Flow in Information Visualization*. B. Saket, S. Kobourov, C. Scheidegger. EuroVis 2015 (short paper).

[55] *Multilevel Agglomerative Edge Bundling for Visualizing Large Graphs*. E. Gansner, Y. Hu, S. North, C. Scheidegger. IEEE Pacific Visualization Symposium, 2011 (Acceptance rate: 32%).

[56] *The Provenance of Workflow Upgrades*. D. Koop, C. Scheidegger, J. Freire, C. Silva. International Provenance and Annotation Workshop, 2010.

[57] *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, C. Silva. IEEE International Conference on e-Science 2008.

[58] *Toward Provenance-Enabling ParaView*, S. P. Callahan, J. Freire, C. Scheidegger, C. Silva, H. Vo. Second International Provenance and Annotation Workshop (IPAW 2008).

[59] *Optimal Bandwidth Selection for MLS Surfaces*, H. Wang, C. Scheidegger, C. Silva. Proceedings of Shape Modelling International (SMI), 2008. **Best paper award**.

[60] *Examining Statistics of Workflow Evolution Provenance: A First Study*, L. Lins, D. Koop, E. Anderson, S. P. Callahan, E. Santos, C. Scheidegger, J. Freire, C. Silva. Proceedings of the 20th International Conference on Scientific and Statistical Database Management (SSDBM), 2008.

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

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

[63] *Managing Rapidly-Evolving Scientific Workflows.* J. Freire, C. Silva, S. Callahan, E. Santos, C. Scheidegger, H. Vo. Proceedings of the International Provenance and Annotation Workshop (IPAW), 2006. Invited paper.

[64] *Managing the evolution of dataflows with VisTrails.* S. Callahan, J. Freire, E. Santos, C. Scheidegger, C. Silva, H. Vo. Proceedings of the IEEE Workshop on Workflow and Data Flow for Scientific Applications (SciFlow), 2006.

[65] *VisTrails: Visualization Meets Data Management.* S. Callahan, J. Freire, E. Santos, C. Scheidegger, C. Silva, H. Vo. Demo, ACM SIGMOD 2006.

[66] *VisTrails: Enabling Interactive Multiple-View Visualizations*. L. Bavoil, S. Callahan, P. Crossno, J. Freire, C. Scheidegger, C. Silva, H. Vo, Proceedings of IEEE Visualization, pages 135-142, 2005 (Acceptance rate: 33%).

[67] *Triangulating Point-Set Surfaces With Bounded Error.* C. Scheidegger, S. Fleishman, C. Silva. Proceedings of the third Eurographics/ACM Symposium on Geometry Processing, pages 63-72, 2005 (Acceptance rate: 25%).

[68] *Boolean Operations on Surfel-Bounded Solids Using CBSP-Trees.* M. Farias, C. Scheidegger, J. Comba, L. Velho. Proceedings of SIBGRAPI 2005 (XVIII Brazilian Symposium on Computer Graphics and Image Processing).

[69] *Navier-Stokes on Programmable Graphics Hardware using SMAC.* C. Scheidegger, J. Comba, R. Cunha, Proceedings of XVII SIBGRAPI – II SIACG 2004, pages 208-315, 2004.

## Other

[70] *Clustering via Information Access in a Network* H. Beilinson, N. Ulzii-Orshikh, A. Bashardoust, S. Friedler, C. Scheidegger, S. Venkatasubramanian. Arxiv, arXiv:2010.12611.

[71] *NeuralCubes: Learned Structures for Visual Data Exploration*. Z. Wang, D. Cashman, M. Li, J. Li, M. Berger, J. Levine, R. Chang, C. Scheidegger. Arxiv, arXiv:1808.08983.

[72] *Advances in Visual Computing*, Bebis, G., Boyle, R., Parvin, B., Koracin, D., Porikli, F., Skaff, S., Entezari, A., Min, J., Iwai, D., Sadagic, A., Scheidegger, C., Isenberg, T. (Eds.), (Proceedings of ISVC 2016, the 12th International Symposium on Visual Computing), Springer, 2017.

[73] *On the (Im)possibility of Fairness*. S. Friedler, C. Scheidegger, S. Venkatasubramanian. Arxiv, arXiv:1609.07236.

[74] *Interactive Visualization of Big Data*. C. Scheidegger. Book chapter, in *Handbook of Big Data*. P. Bühlemann, P. Drineas, M. Kane, M. van der Laan (eds.). 2015.

[75] *VisTrails.* J. Freire, D. Koop, E. Santos, C. Scheidegger, C. Silva, and H. Vo. Book chapter, in *Architecture of Open Source Applications, Vol. 1*. A. Brown, G. Wilson (eds.). 2011.

[76] *Provenance of Exploratory Tasks in Scientific Visualization: Management and Applications*. C. Scheidegger. Thesis. 2009.

[77] *Direct Volume Rendering: A 3D Plotting Technique for Scientific Data.* S. Callahan, J. Callahan, C. Scheidegger, C. Silva. IEEE/AIP Computing in Science and Engineering, 10(1):88–92, 2008.

[78] *A Unified Projection Operator for MLS Surfaces.* T. Ochotta, C. Scheidegger, J. Schreiner, Y. Lima, R. M. Kirby, C. Silva. SCI Institute Tech Report UUSCI-2007-006.

[79] *Visualization in Radiation Oncology: Towards Replacing the Laboratory Notebook.* E. Anderson, S. Callahan, G. T. Y. Chen, J. Freire, E. Santos, C. Scheidegger, C. Silva, H. Vo. *Manuscript.*

[80] *Using Provenance to Streamline Data Exploration through Visualization.* S. Callahan, J. Freire, E. Santos, C. Scheidegger, C. Silva, H. Vo. *Manuscript.*

[81] *GPUs como processadores de propósito geral.* (In portuguese: GPUs as general purpose processors) C. Scheidegger. B.Sc. thesis. Advisor: Prof. Dr. J. Comba. December 2003.

## Software contributions

- *Nanocubes*. One of the developers of nanocubes, an in-memory data-structure for fast spatiotemporal aggregation queries. Available at http://github.com/laurolins/nanocube.
- *RCloud*. One of lead designers and developers of Rcloud, an open-source environment for writing and sharing exploratory data analysis scripts in R over a web browser. Available at http://github.com/att/rcloud.
- *Lux*. Lead designer and developer of Lux, an open-source domain-specific language for writing WebGL programs. Available at http://github.com/cscheid/lux.
- *VisTrails*. Until 2009, one of the lead designers and developers of VisTrails, an open source provenance-aware system for exploratory scientific workflows and visualization. Available at http://www.vistrails.org.
- *Afront*. One of the developers of Afront, a program to generate well-shaped triangle meshes out of many different types of input data. Available at http://afront.sourceforge.net.
- *Macet*. One of the developers of Macet, a variant of Marching Cubes geared towards generation of high-quality meshes. Available at http://www.sci.utah.edu/~cscheid/vis2008/edge_groups .
- *PGHFlow*. Lead designer and developer for PGHFlow, a system for solving the uncompressible Navier-Stokes equations on programmable graphics hardware. Available at http://www.sci.utah.edu/~cscheid/smac.

## Service

**Journal Reviewer** ACM Transactions on Graphics, IEEE Transactions on Visualization and Computer Graphics, Computer Graphics Forum, IEEE Computer Graphics and Applications, International Journal of Computational Geometry and Applications.

**Conference Reviewer** ACM SIGGRAPH, EG Geometry Processing, Eurographics conference, IEEE Visualization, IEEE Information Visualization, ACM Conference on Information and Knowledge Management, IEEE Big Data, SIAM International Conference on Data Mining.

**Program Committees** ACM Conference on Information and Knowledge Management, 2012 and 2013. IEEE Big Data, 2013 and 2014, VPA 2014 and 2015. IEEE InfoVis 2015, 2016, 2017, 2020. IEEE VAST 2018. IEEE SciVis 2016, 2017, 2020. HILDA 2018, 2019.

**Papers co-chair** ISVC 2016, Visualization Track. Visual Data Science, 2017.

**Events** Co-organizer, Dagstuhl seminar "Connecting Visualization and Data Management Research", held on November 2017. Co-chair, DSIA 2015 and 2017: Data Systems for Interactive Analysis, colocated at IEEE VIS 2015 and 2017. Co-Chair, EuroRV3 2015: the EuroVis Workshop on Reproducibility, Verification, and Validation in Visualization. Co-organizer, FATML 2015: Fairness, Accountability and Transparency in Machine Learning (colocated at ICML 2015). Steering Committee, FAT*, the conference on Fairness, Accountability, and Transparency. Steering Committee, DSIA, Data Systems for Interactive Analysis.

**NSF** Panel participant for grant reviews, NSF IIS 2011, 2015, 2017, 2020.

## Invited Talks and Presentations

- *Topological Data Analysis: the promise behind the hype (or the hype behind the promise?).* Invited talk at Yale Biostatistics Seminar, April 2019.
- *Data Science, Humanely*. Colloquium at NYU Tandon, March 2019.
- *Data Science, Humanely*. Colloquium at Worcester Polytechnic University, November 2018.
- *Data Science, Humanely*. Colloquium at Tufts University, November 2018.
- *Batch vs Interactive Learning: What can go wrong?*. Invited talk at Fair Representations and Fair Interactive Learning, organized by the Computing Community Consortium, Mar 18 2018.
- *Auditing Black Box Models*. Tutorial presented at FAT conference, Feb 23 2018.
- *Collaborative Data Analysis on the Web with RCloud*. Invited Talk at ASA (American Statistical Association) Chicago chapter's Annual Conference, Apr 1st 2016.
- *Exploratory Visualization for Big Data*. Colloquium at University of Chicago, Apr. 2nd 2014
- *Exploratory Visualization for Big Data*. Colloquium at University of Arizona, Jan. 28th 2014
- *Verifying Isosurface Extraction*. Keynote at Graduate Student Research Day, SUNY Stony Brook, Apr. 29th 2011
- *Provenance in Scientific Visualization*. Colloquium at Rutgers University, Apr. 23rd 2009
- *Provenance in Scientific Visualization*. Colloquium at Washington University in St. Louis, Apr. 10th 2009
- *Provenance in Scientific Visualization*. Invited talk at the Computation Institute at the University of Chicago, Apr. 8th 2009

- *Provenance in Scientific Visualization*. Invited talk at AT&T Research, Florham Park, NJ, Feb. 26th 2009
- *Provenance in Scientific Visualization*. Colloquium at Brown University, Feb. 23rd 2009

## Detailed Professional Experience

- *Associate Professor, Department of Computer Science, University of Arizona*. August 2020 – present.
- *Assistant Professor, Department of Computer Science, University of Arizona*. August 2014 – August 2020.
- *Senior Member of Technical Staff at AT&T Labs – Research*. October 2009 – August 2014.
- *Intern at VisTrails Inc*. Supervisor: Dr. Steven Callahan. Summer 2008.
- *Research Intern at the IBM Watson Research Center*. Supervisor: Dr. Wagner T. Correa. Summer 2006.
- *Research Intern at Lawrence Livermore National Laboratories*. Research topics: Point-based graphics and computational topology. Supervisor: Dr. Valerio Pascucci. Summer 2005.
- *Teaching Assistant for CS3510: Algorithms and Data Structures*. Supervisor: Prof. Cláudio Silva. Jan 2005 – May 2005.
- *Research Intern at the University of Utah*. Topics: Point-based graphics and algorithms. Supervisor: Prof. Cláudio Silva. May 2004 – Aug 2004.
- *Undergraduate Research Assistant*. Research topics: Applied computational geometry and GPU-based algorithms. Supervisor: Prof. João Comba. Department of Computer Science, Federal University of Rio Grande do Sul. Aug 2002 – Dec 2004.
- *Undergraduate Research Assistant*. Research topics: Computer-Aided Design, Geographical Information Systems. Supervisor: Prof. Benamy Turkienicz. Department of Architecture, Federal University of Rio Grande do Sul. Feb 2001 – Jul 2002.

## Language Skills

- English: fluent
- Brazilian Portuguese: native