

Ali Sarvghad

Senior Data Visualization Researcher

Adjunct Faculty at University of Massachusetts Amherst

Co-director of [HCI-VIS Lab](#)

Center for Data Science Affiliate

UMass Public Interest Technology Fellow, 2023

140 Governors Dr, Amherst, MA, 01002

asarv@cs.umass.edu

<http://groups.cs.umass.edu/asarv>

October 2024

RESEARCH

Drawing on my expertise in Exploratory Visual Analytics, Provenance-Driven Systems, Privacy-Preserving Data Visualization, Graphical Perception, and AI-enhanced Visual Text Analytics, my mission is to advance data visualization's trustworthiness and inclusivity by investigating diverse audience interactions with visualizations and developing innovative interventions tailored to their needs.

EDUCATION

- 2016 Ph.D. in Computer Science, University of Victoria, Victoria, BC.
- 2009 Master of Software Engineering, University of Malaya, KL, Malaysia.
- 2007 Bachelor of Computer Science, University Science Malaysia, KL, Malaysia.

ACADEMIC AWARDS & HONORS

- 2024 **Honorable Mention Award**, ACM Conference on Human Factors in Computing (CHI)
- 2022 **Best Paper Award**, Eurographics Conference on Visualization (EuroVis)
- 2022 **Honorable Mention Award**, ACM Conference on Human Factors in Computing (CHI)
- 2021 **Honorable Mention Award**, ACM Designing Interactive Systems (DIS)
- 2020 **Best Paper Award**, Computer Supported Cooperative Work and Social Computing (CSCW)
- 2010 **Best Paper**, IEEE Visual Analytics Science and Technology (VAST)
- 2006 **Honors Bachelor's Degree** in Computer Science

RESEARCH POSITIONS

- 2019-2024 Research Assistant Professor, University of Massachusetts Amherst, Amherst, MA.
- 2018-2019 Senior Researcher, University of Massachusetts Amherst, Amherst, MA
- 2016-2018 Postdoctoral Researcher, UCSD, San Diego, CA.
Advisor: Nadir Weibe
- 2009-2016 Research Assistant, University of Victoria, Victoria, BC, Canada.
Advisor: Melanie Tory
- 2006-2008 Research Assistant, University of Malaya, KL, Malaysia.
Advisor: Albert Yeap

GRANT SUPPORT

National Science Foundation (NSF), SATC: CORE: Medium: “Principles and Algorithms for Visual Data Exploration Under Differential Privacy,” (Co-PI), in collaboration with Gerome Miklau & Narges Mahyar, Award Period: 7/1/20 - 6/30/24, **\$1,191,106**

National Science Foundation (NSF), S&CC Planning Grant: “MAPPING INSTABILITY: Building an Intelligent Community Agent Platform for Understanding the Impact of Large-Scale Crisis on Small Town Communities,” (Co-PI), with Pari Riahi & Narges Mahyar, Award Period: 01/01/21 - 07/31/23, **\$146, 941**

UMass Interdisciplinary Faculty Research Award, “Sustaining the Creative Arc: Implementing a Cross-Disciplinary Analysis and Problem-Solving Method for Design Thinking” (PI), with Pari Riahi & Yahya Modarres-Sadeghi, Award Period: 06/1/20 - 06/30/21, **\$40,000**

UMass ADVANCE Collaborative Research Seed Grants, “MAPPING INSTABILITY: The Effects of the Pandemic on the Civic Life of a Small Town.” (Co-PI), with Pari Riahi & Narges Mahyar, Award Period: 11/11/20 - 11/11/21, **\$15,000**

UMass ADVANCE Collaborative Research Seed Grants, “Towards Reducing Social Inequality in Local-level Public Participation by Giving Voice to Marginalized Populations” (Co-PI), with Ethan Zuckerman, Jane Funda, & Narges Mahyar, Award Period: 04/14/21 - 04/14/22, **\$12,000**

UMass Public Interest Technology Award: “Designing and Evaluating Voice-enabled Conversational Journaling for Parkinson’s Patients,” (PI)
Award Period: 4/1/23 – 10/30/23, **\$9000**

PUBLICATIONS

The premier visualization venues are *IEEE VIS* (formerly *IEEE Visualization*) and *EuroVis*. The highest quality journal is the *IEEE Transactions on Visualization and Computer Graphics (TVCG)*. Top-tier venues in human-computer interaction include the ACM conferences *CHI* and *CSCW*. Note that conferences represent a primary publication venue in Computer Science. For each publication, I have **highlighted** the names of my primary advisees in bold.

Refereed Journal Publications

[J8] **Liudas Panavas**, **Amit Sarker**, Sara Di Bartolomeo, Ali Sarvghad, Cody Dunne, Narges Mahyar, “Illuminating the Landscape of Differential Privacy: An Interview Study on the Use of Visualization in Real-World Deployments,” *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 11 pages, 2024.

[J7] **Liudas Panavas**, Tarik Crnovrsanin, Jane Damas, Johnathan Ullman, Ali Sarvghad, Melanie Tory, Cody Dunne, “Investigating the Visual Utility of Differentially Private Scatterplots,” *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 12 pages, 2023.

[J6] Erica Dewitt, Zhiqiu Jiang, **Mashrur Rashik**, **Kunjal Panchal**, Mahmood Jasim, Fey Thurber, Cami Quinteros, Ali Sarvghad, Narges Mahyar, Pari Riahi, “Mapping Instability: The Effects of the Pandemic on the Civic Life of a Small Town,” *Environments by Design, AMPS proceeding Series*, 12 pages, 2022.

[J5] Ali Sarvghad, **Rolando Franqui-Nadal**, Rebecca Reznik-Zellen, Ria Chawla, Narges Mahyar, “Scientometric Analysis of Interdisciplinary Collaboration and Gender Trends in 30 Years of IEEE VIS Publications”, *IEEE Transaction of Visualization and Computer Graphics (TVCG)*, 12 pages, 2022.

[J4] **Dan Zhang**, [Ali Sarvghad](#), Gerome Miklau. "Investigating Visual Analysis of Differentially Private Data." *IEEE Transactions on Visualization and Computer Graphics (TVCG)* 27, 10 pages, 2020.

[J3] [Ali Sarvghad](#), Melanie Tory, Narges Mahyar, "Visualizing Dimension Coverage to Support Exploratory Analysis," *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 10 pages, 2016.

[J2] [Ali Sarvghad](#), Bahador Saket, Alex Endert, Nadir Weibel. "Embedded merge & split: Visual adjustment of data grouping." *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 9 pages, 2018.

[J1] Narges Mahyar, [Ali Sarvghad](#), Melanie Tory. "Note-taking in co-located collaborative visual analytics: Analysis of an observational study." *Information Visualization* 11, no. 3: 190-204, 2012.

Refereed Conference Publications

[C15] **Zach While**, [Ali Sarvghad](#), "Dark Mode or Light Mode? Exploring the Impact of Contrast Polarity on Visualization Performance Between Age Groups," *IEEE VIS Short papers*, 4 pages, 2024.

[C14] **Jason Alexandor**, **Priyal Nanda**, Kai-Cheng Yang, [Ali Sarvghad](#), "Can GPT4-V Detect Misleading Visualizations?" *IEEE VIS Short papers*, 4 Pages, 2024.

[C13] **Zachary While**, Tanja Blaschek, Yujie Gong, Petra Isenberg, [Ali Sarvghad](#), "Glanceable Data Visualizations for Older Adults: Establishing Thresholds and Examining Disparities Between Age Groups," *ACM Conference on Human Factors in Computing (CHI)*, 26 pages, 2024.

🏆 Honorable Mention Award

[C12] **Mashrur Rashik**, Mahmood Jasim, Kostiantyn Kucher, [Ali Sarvghad](#), Narges Mahyar, "Beyond Text and Speech in Conversational Agents: Mapping the Design Space of Avatars," *ACM Designing Interactive Systems (DIS)*, 27 pages, 2024.

[C11] **Priyanka Nanayakkara**, Hyeok Kim, Yifan Wu, [Ali Sarvghad](#), Narges Mahyar, Gerome Miklau, Jessica Hullman, "Measure-Observe-Remeasure: An Interactive Paradigm for Differentially Private Exploratory Analysis," *IEEE Symposium on Security and Privacy (S&P)*, 17 Pages, 2024.

[C10] **Zachary While**, Jordan Crouser, [Ali Sarvghad](#), "GerontoVis: Data Visualization at the Confluence of Aging," *Eurographics Conference on Visualization (EuroVis)*, 9 pages, 2024.

[C9] Zhiqiu Jiang, **Mashrur Rashik**, **Kunjal Panchal**, Mahmood Jasim, [Ali Sarvghad](#), Pari Riahi, Fei Erika, and Narges Mahyar, "CommunityBots: Building and Evaluating a Community of Chatbots for Gathering Public Input," *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)*, 28 pages, 2023.

[C8] Eric PS Baumer, Mahmood Jasim, [Ali Sarvghad](#), Narges Mahyar, "Of Course it's Political! A Critical Inquiry into Underemphasized Dimensions in Civic Text Visualization", *Eurographics Conference on Visualization (EuroVis)*, 14 pages, 2022.

🏆 Best Paper Award

[C7] Cindy Xiong, [Ali Sarvghad](#), Cagatay Demiralp, Jake M. Hofman, Deniel G. Goldstien, "Investigating Perceptual Biases in Icon Arrays," *ACM Conference on Human Factors in Computing (CHI)*, 12 pages, 2022.

🏆 Honorable Mention Award

[C6] **Mahmood Jasim**, Christopher Collins, Ali Sarvghad, Narges Mahyar, "Supporting Serendipitous Discovery and Balanced Analysis of Unstructured Text with Interaction-Driven Metrics and Bias-Mitigating Suggestions," *ACM Conference on Human Factors in Computing (CHI)*, 31 pages, 2022.

[C5] **Mahmood Jasim**, Enamul Hoque, Ali Sarvghad, Narges Mahyar, "CommunityPulse: Facilitating Community Input Analysis by Surfacing Hidden Insights, Reflections, and Priorities," *ACM Designing Interactive Systems (DIS)*, 26 pages, 2021.

🏆 **Honorable Mention Award**

[C4] **Mahmood Jasim**, Pooya Khaloo, Somin Wadhwa, Amy X. Zhang, Ali Sarvghad, Narges Mahyar, "CommunityClick: Capturing and Reporting Community Feedback from Town Halls to Improve Inclusivity," *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)*, 31 pages, 2020.

🏆 **Best Paper Award**

[C3] Ali Sarvghad and Melanie Tory. "Exploiting analysis history to support collaborative data analysis." *Graphics Interface Conference (GI)*, 8 pages, 2015.

[C2] Narges Mahyar, Ali Sarvghad, Melanie Tory, Tyler Weeres. "Observations of record-keeping in co-located collaborative analysis." In *2013 46th Hawaii International Conference on System Sciences*, 9 pages. IEEE, 2013.

[C1] Narges Mahyar, Ali Sarvghad, Melanie Tory, "A Closer Look at Note Taking in the Co-located Collaborative Visual Analytics Process," *IEEE Visual Analytics Science and Technology (VAST 2010)*, 9 pages, 2010.

🏆 **Top 4 Best VAST Papers**

Refereed Workshop Papers

[W7] **Zach While**, Tanja Blaschek, Petra Isenberg, Ali Sarvghad, "Toward Understanding the Experiences of People in Late Adulthood with Embedded Information Displays in the Home", 4 pages, *AccessViz Workshop*, in conjunction with IEEE VIS 2024.

[W6] **Mahmood Jasim**, Ali Sarvghad, Narges Mahyar, "CommunityClick-Virtual: Multi-Modal Interactions for Enhancing Participation in Virtual Meetings", 5 pages, *Multimodal Experiences for Remote Communication Around Data Online (MERCADO) Workshop*, in conjunction with IEEE VIS 2023.

[W5] **Mahmood Jasim**, Amy X. Zhang, Ali Sarvghad, Narges Mahyar. "Inclusivity in Town Halls: Challenges, Paradigm Shift, and Opportunities," *Civic Technologies Workshop*, in conjunction with CSCW 2020, 5 pages, 2020.

[W4] Ali Sarvghad, Sanjay Mehta, Davey Smith, Nadir Weibel. "Visualizing Completeness Uncertainty to Support Medical Data Exploration and Analysis," *Visual Analytics for Health Care Workshop (IEEE VIS'17 companion)*, 2017.

[W3] Mahyar, Narges, Ali Sarvghad, Tyler Weeres, and Melanie Tory. "CoSpaces: workspaces to support co-located collaborative visual analytics." In *Workshop on Data Exploration for Interactive Surfaces DEXIS 2011*, 4 pages, 2011.

[W2] Narges Mahyar, Ali Sarvghad, Melanie Tory, "Roles of Notes in Co-located Collaborative Visualization," *Workshop on Collaborative Visualization on Interactive Surfaces (CoVis 2009)*, 4 pages, Oct. 2009.

[W1] Ali Sarvghad, Narges Mahyar, Melanie Tory, "History Tools for Collaborative Visualization," *Workshop on Collaborative Visualization on Interactive Surfaces (CoVis 2009)*, 4 pages, Oct. 2009.

Refereed Abstract, Poster & Demo Papers

[A2] **Mahmood Jasim**, Pooya Khaloo, Somin Wadhwa, Amy X. Zhang, Ali Sarvghad, Narges Mahyar. "CommunityClick: Towards Improving Inclusivity in Town Halls". In Companion Publication of the 2020 Conference on Computer Supported Cooperative Work and Social Computing (*CSCW'20 Companion*), ACM, pp. 37–41, 2020.

[A1] Ali Sarvghad and Melanie Tory. "Exploiting history to reduce interaction costs in collaborative analysis." *IEEE Conference on Visual Analytics Science and Technology (VAST)*, pp. 273-274, 2014.

Other Publications: Magazines & Commentary Papers

[OP2] **Iman Deznabi**, Tamanna Motahar, Ali Sarvghad, Madelina Fiterau, Narges Mahyar, "Impact of the COVID-19 Pandemic on the Academic Community: Results from a survey conducted at University of Massachusetts Amherst", *ACM Digital Government: Research and Practice 2.2*, pp. 1-12, 2021.

[OP1] Narges Mahyar, **Mahmood Jasim**, Ali Sarvghad, "Designing Technology for Sociotechnical Problems: Challenges & Considerations, *IEEE Computer Graphics, and Applications*," (Volume: 40, Issue: 6), pp. 76-87, 2020.

Dissertations & Theses

[DT2] Ali Sarvghad, Tracking and Visualizing Dimension Space Coverage for Exploratory Data Analysis. Ph.D. Dissertation. University of Victoria, 2014.

[DT1] Ali Sarvghad, Dynamic display of text using lexical chains. MSC Thesis. University of Malaya, 2008.

TEACHING EXPERIENCE

- Spring 2022 Data Visualization and Exploration (COMPSCI 570), UMass Amherst.
- Spring 2021 Data Visualization and Exploration (COMPSCI 570), UMass Amherst.
- Spring 2020 Data Visualization and Exploration (COMPSCI 590V), UMass Amherst.
- Spring 2019 Data Visualization and Exploration (COMPSCI 590V), UMass Amherst.

INVITED TALKS

- 2023 Eindhoven University of Technology
Department of Industrial Design
Title: "The Intersection of Human-Centered Design, Perception, and Computational Methods in Data Visualization," September 20
- 2022 University College London, UK
UCL Interaction Center (UCLIC)
Title: "Designing and Building Tools for Fostering Equity and Inclusion in Civic Decision-Making," December 14
- 2022 City, University of London, UK
School of Science and Technology
Title: "Designing and Building Tools for Fostering Equity and Inclusion in Civic

- Decision-Making,*" December 8
- 2022 INRIA, Paris, France
Title: "*Designing and Building Tools for Fostering Equity and Inclusion in Civic Decision-Making,*" December 5
- 2022 University of North Carolina Chapel Hill, USA
School of Information and Library Science (SILS)
Title: "*Designing and Building Tools for Fostering Equity and Inclusion in Civic Decision-Making,*" November 14
- 2019 Institute of Data Science, UMass Amherst, USA
Title: "Embedded Data Visualizations," December 23
- 2018 UMass Amherst, USA
College of Information and Computer Sciences
Title: "Visualization and Interaction Techniques for Supporting Exploratory Data Analysis," December 2018
- 2018 Virginia Tech, USA
Department of Computer Science
Title: "Visualization and Interaction Techniques for Supporting Data Exploration and Analysis," April 2018

PROFESSIONAL ACTIVITIES

Organizing Committee

- 2024 IEEE VIS Conference, Community, Elections, and Meetups Co-chair
- 2023 IEEE VIS Conference, Elections Co-chair

Program Committee Member

- 2025 ACM Conference on Human Factors in Computing Systems (CHI)
- 2024 IEEE Computer Graphics and Applications
- 2024 IEEE VIS Papers
- 2023 IEEE VIS Papers
- 2022 IEEE VIS, Short Papers
- 2017 IEEE VIS, Short Papers
- 2016 Graphics Interface (*GI*)
- 2015 DEXIS, Workshop on Data Exploration for Interactive Surfaces, in conjunction with Interactive Tabletops and Surfaces (*ITS*)

Invited Workshop

- 2023 Data Visualization for Effective Science Communication with a Diverse Audience (co-lead with Narges Mahyar, 80 participants)
- Organized by the University of Massachusetts Center for Clinical and Translational Science (UMCCTS) with the UMass Amherst Public Engagement Project

Reviewer

- 2014-2024 IEEE Visualization Conference (VIS)
- 2016-2023 ACM Human Factors in Computing Systems (*CHI*)
- 2021-2023 IEEE Transactions on Visualization and Computer Graphics (TVCG)
- 2018, 2022 IEEE Computer Graphics and Applications (CG&A)

2018	IEEE PacificVis
2014-2019	Human-Computer Interaction Journal
2019	Creativity and Cognition (C&C)
2018	ACM International Conference on Interactive Surfaces (ISS)
2018	Designing Technologies to Support Human Problem Solving
2018	Visual Analytics in Healthcare (VAHC)
2015	Graphics Interface (<i>GI</i>)

Internal Service

2022	Executive Committee Member (Elected position)
2021-2024	Awards Committee Member
2020	Informatics Faculty Recruiting Committee Member
2020, 2022	Ph.D. Admission Committee Member

SUPERVISION & MENTORSHIP

Ph.D. Student Supervision, UMass Amherst

Sarmistha Sarna Gomasta, Fall 2023 – present
 Amit Sarkar, Fall 2022 – present (co-advised with Narges Mahyar)
 Mashrur Rashik, Fall 2021– present (co-advised with Narges Mahyar)
 Zachary While, Summer 2020 – present

Ph.D. Thesis Committee, UMass Amherst

Mahmood Jasim, 2019 - 2022
 Dan Zhang, 2019-2020

Synthesis Project, UMass Amherst

Joie Wu, Spring 2021- Spring 2022

Independent Study, UMass Amherst

Amit Sarker, spring 2024
 Mashrur Rashik, Spring 2024
 Priyan Nanda, Spring 2024
 Henry Wheeler-Klaineberg, Spring 2024
 Niya Sharoff, Fall 2023
 Mashrur Rashik, Spring 2023
 Amit Sarker, Spring 2023
 Ssiyyam Kochar, Spring 2023
 Ximing Wang, Fall 2021
 Xinzhi Liang, Fall 2021
 Chenhao Huang, Spring 2020

Undergraduate Supervision (Honors Thesis), UMass Amherst

Adam Bentahar, Honors Thesis Advisor, Spring 2023
 Ajan Prabakar, Honors Thesis Advisor, Spring 2022
 Gabriela Campos, Honors Thesis Advisor, Fall 2020

Graduate Research Advising, UMass Amherst

Hao Jin, MSc. Computer Science (Northeastern University), Spring 2023
Lekha Harishchandra, MSc. Computer Science, Spring 2023- present
Shilpa Sweth, MSc. Computer Science, Summer 2022- present
Madhu Samhitha Vangara, MSc. Computer Science, Fall 2022
Owen Declene, MSc. Computer Science, Summer 2022

Undergrad Research Advising, UMass Amherst & Other

Aishwarya Vishnubhotla, Computer Science, Fall 2024 - present
Priyal Nanda, Computer Science, Summer 2023 - present
Jason Alexander, Computer Science, Summer 2023 - present
Shreyaa Nadagudy Srinivasan, Computer Science, Fall 2023 - present
Yaojia Lu, Computer Science (Holyoke College), Spring 2023
Yujie Gong, Computer Science (Smith College), Spring 2023
Samuel Yeh, Computer Science, Spring 2023
Luke Geel, Computer Science, Fall 2022
Saiyyam Kochar, Computer Science, Fall 2022
Niya Sharoff, Computer Science, Fall 2022 - present
Erin Song, Computer Science, Fall 2022
Samuel Jayachandran, Computer Science, Summer 2022
Sahil Mishra, Computer Science, Summer 2022
Rolando Franqui Nadal, Computer Science, Fall 2020-2021
Ria Chawla, Computer Science, Fall 2020-2021
Nikhil Gautam, Computer Science, Summer 2021
Anurag Gumidelli, Computer Science, Summer 2021
Sabrina Liang, Computer Science, Summer 2021
Adythia Kethu, Computer Science, Summer 2021
Meet Agrawal, Computer Science, Summer 2021
Tanishk Jain, Computer Science, Summer 2021

EXHIBITIONS AND CREATIVE ACTIVITIES

2022 **Data Physicalization Exhibition.** In collaboration with Profs. Pari Riahi (UMass Architecture) and Prof. Yahya Modarres-Sadeghi (UMass Engineering), we created an art installation of mechanic fluids data that represents the generation and dissipation of waves in liquids. The public exhibition ran from February 10 to March 10, 2022.

COMMUNITY OUTREACH AND VOLUNTEERING

2022 **Organizer & Instructor of Internet Course for Seniors, Amherst, MA.** In collaboration with the Town of Amherst Senior Center, I organized, co-designed, and taught a digital literacy course for seniors, teaching the fundamentals of internet use and security. This was a 5-week course offered twice during the summer of 2022.

2019-
present **Civic Technology Deployment in the Town of Amherst, MA.** We have frequently deployed public engagement and data collection and analysis tools (e.g., CommunityClick [JC8]) designed and developed by our research team at HCI-VIS lab to assist Town of Amherst officials in engaging the public in data collection and discussion of critical topics and issues.

- 2020 **Campus-Wide COVID-19 Survey, UMass Amherst.** We conducted a UMass-wide survey to understand the impact of COVID-19 on our community, including students, staff, and faculty. Our results were disseminated across the UMass community and helped the Office of Campus Life and Wellbeing benchmark loneliness and well-being to ground strategic plans and develop interventions to address mental health crises for the student body.
- 2008-2011 **Organizer & Instructor of Internet Course for Seniors,** University of Victoria, Computer Science Volunteer Program. Taught skills for navigating Internet use and security.