Danielle Albers Szafir

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Danielle Albers Szafir is an Assistant Professor in the Department of Computer Science at the University of North Carolina Chapel Hill. Prior to joining UNC, she was an Assistant Professor in the Department of Computer Science and ATLAS Institute at the University of Colorado Boulder. She received a B.S. in Computer Science at the University of Washington as a NASA Space Grant Scholar and a Ph.D. in Computer Sciences at the University of Wisconsin-Madison, where her dissertation received a VGTC Doctoral Dissertation Award Honorable Mention.

Szafir develops interactive visualization systems and techniques for exploring large and complex data in domains ranging from biology to the humanities. Her work focuses on increasing the scalability and comprehensibility of information visualization by quantifying perception and cognition for design. Active research topics include exploratory analytics, interactive machine learning, data literacy and accessibility, visual cognition, and immersive visualization using mixed reality and tangible interfaces. This work has received awards at IEEE VIS, IEEE VR, ACM CHI, and IS&T Color and Imaging. She was named to the Forbes 30 Under 30 Class of 2018 for Science and is the recipient of the VGTC Significant New Researcher Award and both an NSF CRII and CAREER award. Her work is funded by the NSF, NIH, U.S. Air Force, U.S. Space Force, and J.P. Morgan Chase.

Educational Background

2009–2015 Ph.D. in Computer Sciences, University of Wisconsin-Madison
Minor studies in Perceptual Psychology and Art History
Dissertation: "Utilizing Color for Perceptually-Driven Data Visualization"
Dissertation Committee: Profs. Michael Gleicher, Steven Franconeri, Bilge Mutlu, Robert Roth, & Kevin Ponto

2009–2011 Master of Science in Computer Sciences, University of Wisconsin-Madison

2007–2009 Bachelor of Science in Computer Science, University of Washington
NASA Space Grant Scholar & Dean's List Member
Minor in Mathematics

Employment History

2021–Present Assistant Professor, Computer Science, University of North Carolina Chapel Hill
Visiting Assistant Professor, ATLAS Institute, University of Colorado Boulder

2020–2021 Assistant Professor, Computer Science & ATLAS Institute, University of Colorado Boulder
Courtesy Appointments in Information Science, Aerospace Engineering, & the Center for Research Data & Digital Scholarship
Fellow in the Institute of Cognitive Science

2015–2019 Assistant Professor & Founding Faculty Member, Information Science, University of Colorado Boulder
Courtesy Appointments in Computer Science & the Center for Research Data & Digital Scholarship
Fellow in the Institute of Cognitive Science & ATLAS Institute

2010–2015 Research Assistant, Department of Computer Sciences, University of Wisconsin-Madison

2013 Research Intern, Tableau Software, Menlo Park, CA
2012 Software Development Intern, Google, Inc., Madison, WI
2009 Software Development Intern, Boston Scientific, Redmond, WA
2008–2009 Software Development Intern, Apptio, Bellevue, WA

Honors & Awards

2022 Significant New Researcher Award, *IEEE Visualization & Graphics Technical Committee*
2021 Early Career Research Fellow, *J.P. Morgan Chase AI Research Program*
2021 Best Paper Award, *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)*
2021 Best Paper Award Honorable Mention, *ACM SIGCHI Conference on Human Factors in Computing Systems (CHI)*
2021 NSF CAREER Award, *NSF Computer & Information Science & Engineering Directorate*
2020 Best Paper Award Honorable Mention, *IEEE VIS Information Visualization*
2020 Best Paper Award Nominee, *IEEE Conference on Virtual Reality (IEEE VR)*
2018 Forbes 30 Under 30 for Science, *Forbes Magazine*
2017 Best Paper Award, *IEEE VIS Information Visualization*
2016 Doctoral Dissertation Award Honorable Mention, *IEEE VGTC Visualization & Graphics Pioneers*
2014 MERL Best Student Paper Award, *IS&T 22nd Color and Imaging Conference*
2014 Best Presentation Award Honorable Mention, *McPherson Eye Research Institute*
2013 Best Poster Award, *IEEE VIS Scientific Visualization*
2010–2012 BACTER Institute Research Fellow
2007–2009 NASA Space Grant Scholar
2007–2009 Dean's List, University of Washington

Scholarly Works

Note that $^{(s)}$ indicates student co-authors at the time of publication for works published as a faculty member and $^{(a)}$ indicates direct advisees. Acceptance rates listed where available. Conferences are considered a primary publication venue for computer science (see Patterson et al. (1999) for details). Papers appearing in the IEEE VIS Conference are published as an issue of *IEEE Transactions on Visualization and Computer Graphics*, and papers in the Eurographics Conference on Visualization (EuroVis) are published as an issue of *Computer Graphics Forum*.

Refereed Journal Publications

J-23. S. Bae$^{(as)}$, R. Vanukuru$^{(s)}$, R. Yang$^{(s)}$, P. Gyory$^{(s)}$, E. Y. L. Do, & **D. Albers Szafir**. "Cultivating Visualization Literacy for Children through Curiosity and Play." *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 29.1 (2023): 257-267.
> Special Issue: Proceedings of IEEE VIS 2022. Acceptance Rate: 26.5%.

J-22. A. Warden$^{(s)}$, J. Witt, & **D. Albers Szafir**. "Visualizing Temperature Trends: Higher Sensitivity to Trend Direction with Single-Hue Palettes." *Journal of Experimental Psychology: Applied*, to appear.

J-21. M. Hong$^{(as)}$, J. Witt, & **D. Albers Szafir**. "The Weighted Average Illusion: Biases in Perceived Mean Position in Scatterplots." *IEEE Transactions on Visualization and Computer Graphics*, 28.1 (2022): 987-997.
> Special Issue: Proceedings of IEEE VIS 2021. Acceptance Rate: 25%.

J-20. K. Hall, A. Kouroupis$^{(s)}$, A. Bezerianos, **D. Albers Szafir**, & C. Collins. "Professional Differences: A Comparative Study of Visualization Task Performance and Spatial Ability Across Disciplines." *IEEE Transactions on Visualization and Computer Graphics*, 28.1 (2022): 654-664.
> Special Issue: Proceedings of IEEE VIS 2021. Acceptance Rate: 25%

J-19. M. Elliott[(s)], C. Xiong[(s)], C. Nothelfer, & **D. Albers Szafir**. "A Design Space of Vision Science Methods for Visualization Research." *IEEE Transactions on Visualization & Computer Graphics (TVCG)*, 27(2): 1117–1127, 2021.
> Special Issue: Proceedings of IEEE VIS 2020. Acceptance Rate: 25%
> Best Paper Honorable Mention (Top 5 papers of 250 submissions)

J-18. K. Reda & **D. Albers Szafir**. "Rainbows Revisited: Modeling Effective Colormap Design for Graphical Inference." *IEEE Transactions on Visualization & Computer Graphics (TVCG)*, 27(2): 1032–1042, 2021.
> Special Issue: Proceedings of IEEE VIS 2020. Acceptance Rate: 25%

J-17. K. Marriott, B. Lee, M. Butler, E. Cutrell, K. Ellis, C. Goncu, M. Hearst, K. McCoy, & **D. Albers Szafir**. "Inclusive Data Visualization for People with Disabilities: A Call to Action." *ACM Interactions*, 28(3): 47–51, 2021.

J-16. J. Muesing[(s)], N. Ahmed, L. Burks[(s)], M. Iuzzolino[(as)], & **D. Albers Szafir**. "Fully Bayesian Human-Machine Data Fusion for Robust Online Dynamic Target Characterization." *Journal of Aerospace Information Systems*, 18(2): 26–49, 2021.

J-15. **D. Albers Szafir**, F. Samsel, S. Zeller, & R. Saltus. "Enabling Crosscutting Visualization for Geoscience." *Computer Graphics & Applications*, 41(1): 49–57, 2021.

J-14. M. Whitlock[(as)], J. Mitchell[(as)], N. Pfeufer[(as)], B. Arnot[(as)], R. Craig[(as)], B. Wilson[(as)], B. Chung[(as)], & **D. Albers Szafir**. "MRCAT: In Situ Prototyping of Interactive AR Environments." *Lecture Notes in Computer Science,* 12190, 2020.
> Special Issue: Proceedings of HCII 2020: Virtual, Augmented and Mixed Reality Design and Interaction.

J-13. S. Smart[(as)], K. Wu[(as)], & **D. Albers Szafir**. "Color Crafting: Automating the Construction of Designer Quality Color Ramps." *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 26(1): 1215–1225, 2019.
> Special Issue: Proceedings of IEEE VIS 2019. Acceptance Rate: 25%

J-12. M. Whitlock[(as)], K. Wu[(as)], & **D. Albers Szafir**. "Designing for Mobile and Immersive Visual Analytics in the Field." *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 26(1): 503–513, 2019.
> Special Issue: Proceedings of IEEE VIS 2019. Acceptance Rate: 25%

J-11. B. Lee, K. Isaacs, **D. Albers Szafir**, G.E. Marai, C. Turkay, M. Tory, S. Carpendale, & A. Endert. "Broadening the Intellectual Diversity of Visualization Research Papers." *IEEE Computer Graphics & Applications*, 39(4): 78-85, 2019.

J-10. D. Pruss[(as)], Y. Fujinuma[(s)], M. Paul, A. Daughton[(s)], B. Arnot[(s)], **D. Albers Szafir**, & J. Boyd-Graber. "Zika discourse in the Americas: a multilingual topic analysis of Twitter." *PLOS ONE*, 14(5), 2019.

J-9. H. Song[(as)] & **D. Albers Szafir**. "Where's My Data? Evaluating Visualizations with Missing Data." *IEEE Transactions of Visualization and Computer Graphics*, 25(1): 914–924, 2019.
> Special Issue: Proceedings of IEEE VIS 2018. Acceptance Rate: 25.7%
> Featured in Visualizing Data's Best of the Visualization Web*, October 2018*

J-8. A. Sarikaya[(s)], M. Gleicher, & **D. Albers Szafir**. "Design Factors for Summary Visualization in Visual Analytics." *Computer Graphics Forum*, 37(3): 145–156, 2018.
> Special Issue: Proceedings of EuroVis 2018. Acceptance Rate: 29%

J-7. **D. Albers Szafir**."Modeling Color Difference for Visualization Design." *IEEE Transactions of Visualization and Computer Graphics*, 24(1): 392–401, 2018.
> Special Issue: Proceedings of IEEE VIS 2017. Acceptance Rate: 22.9%
> Best Paper Award (Top paper of 170 submissions)

J-6. **D. Albers Szafir**, D. Stuffer[(s)], Y. Sohail[(s)], & M. Gleicher. "TextDNA: Visualizing Word Usage Patterns with Configurable Colorfields." *Computer Graphics Forum*, 35(3): 421–430, 2016.
> Special Issue: Proceedings of EuroVis 2016. Acceptance Rate: 26%

J-5. **D. Albers Szafir**, S. Haroz, M. Gleicher, & S. Franconeri. "Four Types of Ensemble Coding for Data Visualizations." *Journal of Vision*, 16(11): 1–19, 2016.
> Featured in Visualizing Data's Best of the Visualization Web*, May 2017*

J-4. **D. Albers Szafir**, A. Sarikaya[(s)], & M. Gleicher. "Lightness Constancy in Surface Visualization." *IEEE Transactions on Visualization and Computer Graphics*, 22(9): 2107–2121, 2016.

J-3. A. Sarikaya, **D. Albers**, J. Mitchell, & M. Gleicher. "Visualizing Validation of Protein Surface Classifiers." *Computer Graphics Forum*, 33(3): 171–180, 2014.
> Special Issue: Proceedings of EuroVis 2014. Acceptance Rate: 25%

J-2. **D. Albers**, C. Dewey, & M. Gleicher. "Sequence Surveyor: Leveraging Overview for Scalable Genomic Alignment Visualization." *IEEE Transactions of Visualization and Computer Graphics*, 17(5): 2392–2401, 2011.
> Special Issue: Proceedings of IEEE VIS. Acceptance Rate: 25%

J-1. M. Gleicher, **D. Albers**, R. Walker, I. Jusufi, C. Hansen, & J. Roberts. "Visual Comparison for Information Visualization." *Information Visualization*, 10(4): 289–309, 2011.

Peer-Reviewed Archival Conference Papers

C-18. M. Hong[(as)], L. Marsh[(s)], J. Feuston, J. Rupport[(s)], J. Brubaker, & **D. Albers Szafir**. "Scholastic: Forging Human-AI Collaboration for Inductive and Interpretive Text Analysis." In the *Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology (UIST)*, 2022. Bend, Oregon.
> Acceptance Rate: 25.9%

C-17. S. Bae[(as)], **D. Albers Szafir**, & E. Do. "Exploring the Benefits and Challenges of Data Physicalization." In the *Proceedings of the Fifth European Tangible Interaction Studio (ETIS), 2022*. Toulouse, France.

C-16. S. Bae[(as)], C. Zheng, M.E. West[(as)], E. Do, S. Huron, & **D. Albers Szafir**. "Making Data Tangible: A Cross-disciplinary Design Space for Data Physicalization." In the *Proceedings of the 2022 Conference on Human Factors in Computing Systems (CHI 2022)*, 2022. New Orleans, LA.
> Acceptance Rate: 26.1%

C-15. M. Walker[(s)], Z. Chen[(s)], M. Whitlock[(as)], D. Blair[(as)], **D. Albers Szafir**, C. Heckman, & D. J. Szafir. "A Mixed Reality Supervision and Telepresence Interface for Outdoor Field Robotics." In the *Proceedings of the 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021. Prague, Czech Republic.
> Acceptance Rate: 45%

C-14. K. Wu[(as)], E. Petersen[(as)], T. Ahmad[(as)], D. Burlinson[(a)], E. S. Tanis, & **D. Albers Szafir**. "Understanding Data Accessibility for People with Intellectual and Developmental Disabilities." In the *Proceedings of the 2021 Conference on Human Factors in Computing Systems (CHI 2021)*, 2021. Yokohama, Japan.
> Acceptance Rate: 26.3%
> Best Paper Award (Top 1% of submissions)

C-13. W. Payne[(s)], Y. Bergner, M. West[(as)], C. Charp[(s)], R. B. Shapiro, **D. Albers Szafir**, E. Taylor, & K. DesPortes. "danceON: Culturally Responsive Creative Computing for Data Literacy." In the *Proceedings of the 2021 Conference on Human Factors in Computing Systems (CHI 2021)*, 2021. Yokohama, Japan.
> Acceptance Rate: 26.3%
> Best Paper Honorable Mention (Top 5% of submissions)

C-12. B. Ens, B. Bach, M. Cordeil, U. Engelke, M. Serrano, W. Willett, A. Prouzeau, C. Anthes, W. Büschel, C. Dunne, T. Dwyer, J. Grubert, J. Haga, N. Kirshenbaum[(s)], D. Kobayashi[(s)], T. Lin[(s)], M. Olaosebikan, F. Pointecker, D. Saffo[(s)], N. Saquib[(s)], D. Schmalstieg, **D. Albers Szafir**, M. Whitlock[(as)], & Y. Yang. "Grand Challenges in Immersive Analytics." In the *Proceedings of the 2021 Conference on Human Factors in Computing Systems (CHI 2021)*, 2021. Yokohama, Japan.
> Acceptance Rate: 26.3%

C-11. D. J. Szafir & **D. Albers Szafir**. "Connecting Human-Robot Interaction and Data Visualization." In the *Proceedings of the 2021 ACM/IEEE International Conference on Human-Robot Interaction (HRI 2021)*, 2021. Boulder, Colorado.
> Acceptance Rate: 23%

C-10. M. Whitlock[(as)], **D. Albers Szafir**, & K. Gruchalla. "HydrogenAR: Interactive Data-Driven Storytelling for Dispenser Reliability." In the *Proceedings of the International Symposium on Mixed and Augmented Reality (ISMAR)*, 2020. Ipojuca, Brazil.
> Acceptance Rate: 19%

C-9. M. Whitlock[(as)], S. Smart[(as)], & **D. Albers Szafir**. "Graphical Perception for Immersive Analytics." In the *Proceedings of IEEE Virtual Reality (VR)*, 2020. Atlanta, Georgia.
> Acceptance Rate: 21%
> Best Paper Nominee (Top 4.3% of submissions)

C-8. S. Smart[(as)] & **D. Albers Szafir**. "Measuring the Separability of Shape, Size & Color in Scatterplots." In the *Proceedings of the 2019 Conference on Human Factors in Computing Systems (CHI 2019)*, 2019. Glasgow, Scotland.
> Acceptance Rate: 23.8%

C-7. J. Muesing[(s)], L. Burks[(s)], M. Iuzzolino[(as)], J. Hatlelid, **D. Albers Szafir**, & N. Ahmed. "Fully Bayesian Human-Machine Data Fusion for Robust Dynamic Target Surveillance and Characterization." In the *Proceedings of AIAA SciTech Forum*, 2019. San Diego, California.

C-6. M. Whitlock[(as)], E. Hanner[(s)], J. Brubaker, S. Kane, & **D. Albers Szafir**. "Interacting with Distant Objects in Augmented Reality." In the *Proceedings of IEEE Virtual Reality*, 2018. Reutlingen, Germany.
> Acceptance Rate: 20.6%

C-5. C. Diaz[(s)], M. Walker[(s)], **D. Albers Szafir**, & D. J. Szafir. "Designing for Depth Perceptions in Augmented Reality." In the *Proceedings of the International Symposium on Mixed and Augmented Reality (ISMAR)*, 2017. Nantes, France.
> Acceptance Rate: 26%

C-4. **D. Albers Szafir**, M. Stone, & M. Gleicher. "Adapting Color Difference for Design." In the *Proceedings of the IS&T 22nd Color and Imaging Conference*, pp. 228–233, 2014. Boston, Massachusetts.
> MERL Best Student Paper Award

C-3. M. Stone, **D. Albers Szafir**, & V. Setlur. "An Engineering Model for Color Discriminability as a Function of Size." In the *Proceedings of the IS&T 22nd Color and Imaging Conference*, pp. 253–258, 2014. Boston, Massachusetts.
> Integrated into D3 as d3-jnd and Tableau 10

C-2. **D. Albers**, M. Correll, & M. Gleicher. "Task-Driven Evaluation of Aggregation in Time Series Visualization." In the *Proceedings of the 2014 ACM Annual Conference on Human Factors in Computing Systems (CHI 2014)*, pp. 551–560, 2014. Toronto, Ontario.
> Acceptance Rate: 23%

C-1. M. Correll, **D. Albers**, S. Franconeri, & M. Gleicher. "Comparing Averages in Time Series Data." In the *Proceedings of the 2012 ACM Annual Conference on Human Factors in Computing Systems (CHI 2012)*, pp. 1095–1104, 2012. Austin, Texas.
> Acceptance Rate: 23%

Books

B-1. M. Chen, B. Fisher, **D. A. Szafir**, R. Borgo, D. Edwards, & L. Padilla, editors. "Visualization Psychology." *Springer Nature*, 2023. (to appear)

Peer-Reviewed Workshop Papers

W-11. M. Whitlock[(as)] & **D. Albers Szafir**."Immersive Design Reviews through Situated Qualitative Feedback.." *Evaluating User Experiences in Mixed Reality Workshop at CHI 2021,* 2021. Yokohama, Japan.

W-10. M. Whitlock[(as)], D. Leithinger, D. Szafir, & **D. Albers Szafir**."Toward Effective Multimodal Interaction in Augmented Reality." *4th Workshop on Immersive Analytics: Envisioning Future Productivity for Immersive Analytics at ACM CHI 2020,* 2020. Honolulu, Hawaii.

W-9. K. Wu[(as)], E.S. Tanis, & **D. Albers Szafir**."Designing Communicative Visualization for People with Intellectual Developmental Disabilities." *Visualization for Communication (VisComm) at IEEE VIS 2019,* 2019. Vancouver, British Columbia.

W-8. H. Muthukrishnan[(as)] & **D. Albers Szafir**."Using Machine Learning and Visualization for Qualitative Inductive Analyses of Big Data." *Machine Learning from User Interaction (MLUI) at IEEE VIS 2019,* 2019. Vancouver, British Columbia.

W-7. M. Whitlock[(as)] & **D. Albers Szafir**."Situated Prototyping of Data-Driven Applications in Augmented Reality." *Interaction Design and Prototyping for Immersive Analytics at CHI 2019,* 2019. Glasgow, Scotland.

W-6. A. Daughton[(s)], D. Pruss[(as)], B. Arnot[(s)], **D. Albers Szafir** & M. Paul. "Characteristics of Behavior Discourse among Twitter Users Discussing Zika." 2nd *Social Media Mining for Health Applications Workshop & Shared Task at the 2017 American Medical Informatics Association Annual Symposium,* pp. 27–31, 2017. Atlanta, Georgia.

W-5. **D. Albers Szafir** & D. Szafir."Cognitive Load in Visualization: Myths and Misconceptions." *Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization (C4PGV),* 2016. Baltimore, Maryland.

W-4. **D. Albers Szafir**. "Considering Connectivity for Visualization Design." *Human-Computer Interaction Consortium Conference (HCIC),* 2016. Watsonville, California.

W-3. M. Correll, E. Alexander, **D. Albers Szafir**, A. Sarikaya, & M. Gleicher. "Navigating Reductionism and Holism in Evaluation." *BELIV '14: Beyond Time and Errors—Novel Evaluation Methods for Visualization*, pp. 23–26, 2014. Paris, France.

W-2. **D. Albers**. "Perceptually Informed Scalable Sequence Comparison." *IEEE VIS Doctoral Colloquium*, 2013. Atlanta, Georgia.

W-1. **D. Albers** & Michael Gleicher. "Seeing Double: Crowdsourced Models of Color Discrimination." *Midgraph: Midwest Graphics Workshop*, 2012. Chicago, Illinois.

Peer-Reviewed Abstracts

A-19. C. Zimincki[(s)], **D. Albers Szafir**, & K. Schloss. "Hue variation masks effects of lightness on interpretations of colormap data visualizations." To appear at *The Annual Meeting of the Vision Science Society (VSS),* 2023. St. Pete's Beach, FL.

A-18. G. J. Quadri[(a)] & **D. A. Szafir**. "Eliciting High-Level Visual Comprehension: A Qualitative Study." *Poster Abstracts of IEEE VIS*, 2022. Oklahoma City, OK.

A-17. J. Witt & **D. Albers Szafir**. "Ensemble Perception of Color: How is the Mean Perceived in Data Visualizations?" Presented at the *2022 Annual Meeting of the Vision Sciences Society*, 2022. St. Pete's Beach, FL.

A-16. M. Hoefer[(s)], B. Schumacher[(s)], **D. Albers Szafir**, & S. Voida. "Visualizing Uncertainty in Multi-Source Mental Health Data." *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems Late-Breaking Work*, 2022. New Orleans, LA.

A-15. S. Bae[(as)], R. Yang[(s)], P. Gyory[(s)], J. Uhr[(s)], **D. Albers Szafir**, & E. Do. "Touching Information with DIY Paper Charts & AR Markers." Presented at *ACM Conference on Interaction Design & Children (IDC), 2021*.

A-14. M. Shi[(s)], **D. Albers Szafir**, & E. Alexander. "A Survey of Data and Encodings in Word Clouds." Presented at *Digital Humanities*, 2020. Ottawa, Ontario

A-13. D. Burlinson[(a)] & **D. Albers Szafir**."Shape size judgments are influenced by fill and contour closure." Presented at the *Annual Meeting of the Vision Sciences Society (VSS)*, 2020. St. Pete's Beach, Florida.

A-12. E. S. Tanis, **D. Albers Szafir**, & K. Wu[(as)]."Accessible Data: Understanding Visualization Literacy and Graphical Perceptions of People with Intellectual and Developmental Disabilities." Presented at *American Association on Intellectual and Developmental Disabilities Annual Meeting (AAIDD)*, 2019. Minneapolis, Minnesota.

A-11. E. Alexander & **D. Albers Szafir.** "Exploring Crowding Effects on Font Size Encodings." Presented at *VisxVision @ IEEE VIS*, 2018. Berlin, Germany.

A-10. A. Kelly[(s)], M. Whitlock[(as)], B. Nickoloff[(s)], A. Lam[(s)], **D. Albers Szafir**, & S. Voida. "Becoming Butterflies: Interactive Embodiment of the Butterfly Lifecycle." In the *UbiComp Poster Proceedings*, pp. 93–96, 2017. Maui, Hawaii.

A-9. D. Pruss[(as)], A. Daughton[(s)], B. Arnot[(s)], **D. Albers Szafir**, & M. Paul. "Content Analysis of Zika Related Tweets." *American Public Health Association Annual Conference (APHA).* 2017. Atlanta, Georgia.

A-8. **D. Albers Szafir**. "The Effects of Size and Shape on Color Perception." *Vision Science Society Annual Meeting (VSS)*, 2017. St. Pete's Beach, Florida.

A-7. **D. Albers Szafir** & M. Gleicher. "Visualization-Aware Color Design." In the *EuroVis Poster Proceedings*, pp. 97–99, 2016. Groningen, Netherlands.

A-6. **D. Albers**, M. Correll, M. Gleicher, & S. Franconeri. "Ensemble Processing of Color and Shape: Beyond Mean Judgments." *Journal of Vision*, 14(9): 1056, 2014. St. Pete's Beach, Florida.

A-5. **D. Albers**, A. Sarikaya, & M. Gleicher. "Lightness Constancy in Surface Visualization." *Poster Abstracts of IEEE VIS*, 2013. Atlanta, Georgia.
> Best Poster Award, Scientific Visualization Track

A-4. A. Sarikaya, **D. Albers**, & M. Gleicher. "Understanding Performance of Protein Structural Classifiers." *Poster Abstracts of IEEE VIS*, 2013. Atlanta, Georgia.

A-3. **D. Albers**, C. Dewey, & M. Gleicher. "Sequence Surveyor: Leveraging Overview for Large-Scale Genomic Alignment Visualization." In the *Proceedings of VizBi 2011: Visualizing Biological Data*, 2011. Boston, Massachusetts.

A-2. **D. Albers** & M. Gleicher. "Poster: Perceptual Principles for Scalable Sequence Alignment Visualization." In the *IEEE Information Visualization Poster Proceedings*, 2010. Salt Lake City, Utah.

A-1. **D. Albers** & M. Gleicher. "Perceptual Principles for Scalable Sequence Alignment Visualization." In the *Proceedings of the 7th Symposium on Applied Perception in Graphics and Visualization*, pp. 164 2010. Los Angeles, California.

Panels, Tutorials, & Symposia

P-5. A. Satanarayan, **D. Albers Szafir**, C. Lee[(s)], A. Lundgard[(s)], & K. Wu[(as)]. "Towards Accessible Data Representations." Panel at *IEEE VIS 2021.* Virtual Conference, October 27, 2021.

P-4. F. Samsel, R. Saltus, S. Zeller, & **D. Albers Szafir**. "Optimizing Color's Potential: A Hands-On Tutorial on Color Tools and Strategies Enabling Effective Exploration, Knowledge Extraction and Communicate Your Data and Science." Tutorial at *AGU Fall Meeting.* Virtual Conference, 2020.

P-3. F. Samsel, **D. Albers Szafir**, & K. Schloss. "Theory and Application of Visualization Color Tools and Strategies." Tutorial at *IEEE VIS 2020.* Virtual Conference, 2020.

P-2. C. Nothelfer, Z. Bylinskii, M. Elliott, C. Xiong, & **D. Albers Szafir**. "Vision and Visualization: Inspiring Novel Research Directions in Vision Science." Symposium at *Vision Sciences Society Annual Meeting.* St. Pete's Beach, FL, 2018.

P-1. C. Nothelfer, Z. Bylinskii, M. Elliott, C. Xiong, & **D. Albers Szafir**. "Vision Science Meets Visualization." Panel at *IEEE VIS.* Phoenix, AZ, 2017.

Invited Articles

I-2. **D. Albers Szafir**. "The Good, the Bad, and the Biased: Five ways visualizations can mislead (and how to fix them)." *ACM Interactions*, 25(4): 26-33, 2018.
> Featured on the cover of the July/August issue

I-1. C. Fiesler, W. Aspray, L. Barker, J. Brubaker, L. Devendorf, B. Keegan, L. Palen, M. Paul, **D. Albers Szafir**, R. Roque, R. Robinson, A. Voida, & S. Voida. "Information Science at CU Boulder." *Interactions Magazine.* 24(4), pp. 18-20, 2017.

Dissertation

D-1. **D. Albers Szafir**. "Utilizing Color for Perceptually-Driven Data Visualization." *University of Wisconsin-Madison*, 2015.
> IEEE Visualization & Graphics Pioneers Doctoral Dissertation Award Honorable Mention
> Committee: Profs. Michael Gleicher (chair), Bilge Mutlu, Steven Franconeri, Robert Roth, & Kevin Ponto

Publications Under Review & In Revision

UR-6. K. Wu$^{(as)}$, M. Tran$^{(as)}$, V. Kourshik$^{(s)}$, E. Petersen$^{(as)}$, & **D. Albers Szafir**. "Data, Data, Everywhere: Uncovering Everyday Data Experience for People with Intellectual and Developmental Disabilities." Under review for *ACM CHI 2023*.

UR-5. C. Tseng$^{(as)}$, G.J. Quadri, Z. Wang$^{(s)}$, & **D. Albers Szafir**. "Measuring Categorical Perception in Color-Coded Scatterplots." Under review for *ACM CHI 2023*.

UR-4. M. D. Rahman$^{(s)}$, G.J. Quadri, **D. Albers Szafir**, & P. Rosen. "A Qualitative Evaluation and Taxonomy of Bar Chart Annotations." Under review for *ACM CHI 2023*.

UR-3. M. Shi$^{(s)}$, **D. Albers Szafir**, & E. Alexander. "A Qualitative Evaluation and Taxonomy of Bar Chart Annotations." Under review for *ACM CHI 2023*.

UR-2. C. Ware, M. Stone, & **D. Albers Szafir**. "Rainbow Colormaps are Not All Bad." Under review for *IEEE Computer Graphics & Applications*.

UR-1. Q. Zhang$^{(s)}$, A. Paruchuri$^{(s)}$, Y. Cha, J. Huang$^{(s)}$, J. Kandel$^{(as)}$, H. Jiang$^{(s)}$, A. Ilie, A. State, **D. Albers Szafir**, D. Szafir, & H. Fuchs. "Reconstruction of Human Body Pose and Appearance Using Body-Worn IMUs and a Nearby Camera View for Collaborative Egocentric Telepresence." Under review for *IEEE VR 2023*.

IR-5. M. Whitlock$^{(as)}$ & **D. Albers Szafir**. "CorrecText: Multimodal Corrective Text Entry in Augmented Reality." In revision for *ISMAR 2023*.

IR-4. J.K. Witt, **D. Albers Szafir**, Z. M. Labe, & E. Barnes. "Perceiving Internal Climate Variability: Signalling Change through Animation Decreases Performance." In revision for *IEEE Transactions on Visualization and Computer Graphics*.

IR-3. S. Naidu$^{(as)}$ & **D. Albers Szafir**. "Choosing Effective Highlight Colors for Scatterplots." In revision for *IEEE Transactions on Visualization and Computer Graphics*.

IR-2. S. Zeller, F. Samsel, G. Abram, & **D. Albers Szafir**. "Wave Colormaps: Harnessing Color Dynamics to Meet the Needs of Large Scientific Datasets." In revision for *IEEE Transactions on Visualization & Computer Graphics*.

IR-1. J. Witt & **D. Albers Szafir**. "Improving Empirical Studies of Visualizations with Measures of Sensitivity and Bias." In revision for *IEEE Transactions on Visualization and Computer Graphics*.

Press Coverage

"Highlights from IEEE VIS'20 with Miriah Meyer and Danielle Szafir." *Data Stories*, 2020.
"Visualizing Science: How Color Determines What We See." *Eos Science News*, 2020.

"A Snapshot of Current Trends in Visualization." *IEEE Computing Now*, 2018.

"30-Under-30: Science." *Forbes Magazine*, 2018.

"Why Visuals are the Most Important Thing in Brand Storytelling." *Native Advertising Institute*, 2017.

Invited Talks

Seminars & Colloquia

"Leveraging Visual Cognition in Data Visualization." *Visualisation Seminar*, The Alan Turing Institute, London, England. July 5, 2022.

"Driving Scalable Visualization through Perception and Cognition" *Computer Science Seminar*, University of North Carolina–Charlotte, Charlotte, NC. November 19, 2021.

"Driving Scalable Visualization through Perception and Cognition" *HCI Seminar*, Stanford University, Virtual Colloquium. November 5, 2021.

"Driving Scalable Visualization through Perception and Cognition" *Perception & Cognition in AI Seminar*, Adobe Research, Virtual Colloquium. April 8, 2021.

"Driving Scalable Visualization through Perception and Cognition" *Computer Science Seminar*, University of North Carolina–Chapel Hill, Virtual Colloquium. March 18, 2021.

"Driving Scalable Visualization through Perception and Cognition" *SFB-TRR 161 Seminar Series*, University of Stuttgart, Virtual Colloquium. November 9, 2020.

"Driving Scalable Visualization through Perception and Cognition" *Cognitive Science Seminar Series*, Colorado State University, Fort Collins, CO. March 6, 2020.

"Driving Scalable Visualization through Perception and Cognition" *Computer Science Seminar*, University of Nebraska-Lincoln. November 20, 2019.

"Driving Scalable Visualization through Perception and Cognition" *Data-to-Action Speaker Series*, Indiana University-Purdue University Indianapolis, Indianapolis, IN. November 8, 2019.

"Driving Scalable Visualization through Perception and Cognition" *Next in Data Visualization*, Radcliffe Institute for Advanced Study at Harvard University, Cambridge, MA. April 1, 2019.

"Driving Scalable Visualization through Perception and Cognition" *Rising Stars Seminar*, Tufts University, Medford, MA. September 20, 2018.

"Visualization and Perception Across Scales" *Learning from the Science of Cognition and Perception*, National Academy of Sciences, Washington, D.C. January 24, 2018.

"Perceptually-Driven Visualization of Complex Data." Rochester Institute of Technology, Rochester, NY. March 13, 2015.

"Perceptually-Driven Visualization of Complex Data." *Digital Arts Colloquium*, University of Iowa, Iowa City, IA. March 9, 2015.

"Perceptually-Driven Visualization of Complex Data." *Data @ ASU*, Arizona State University, Tempe, AZ. February 26, 2015.

"Perceptually-Driven Visualization of Complex Data." *Information Science Seminar*, University of Colorado Boulder, Boulder, CO. February 18, 2015.

"Color & Size." *Developer's Seminar,* Tableau Software, Palo Alto, CA. December, 2014.

Keynotes

"Perceptually-Driven Approaches for Visualizing Biological Data" *Rocky Mountain Genomics Hackcon*, BioFrontiers Institute, Boulder, CO. June 18, 2019.

"Facilitating a Dialogue between People & Data: Lessons in Designing for Big Data." *Rocky Mountain Special Libraries Association Mini-Conference*, Denver, CO. August 11, 2017.

Invited Panels

"Multiple Views: Visualization Research Explained." *Writing about Visualization*. IEEE VIS, October 25, 2021.

"Practical Considerations for Participant Compensation." *Wait... When Did We Sign Up to be Economists*. IEEE VIS, October 29, 2021.

Invited Moderator."Visualizing Uncertainty." Information+ Conference. September 27, 2021.

"Evolving the ABCs of Evaluation: Moving beyond A/ B testing to understand how we "see" data." *Vis Evaluation Moving into the Next Decade*, BELIV at IEEE VIS. October 25, 2020.

"What's Old is New: The Uselessness & Necessity of Replication" *A Roadmap for Replication in Visualization*, BELIV: Evaluation and Beyond–Methodological Approaches for Visualization. October 21, 2018.

"Visualization and HPC." *Rocky Mountain High Performance Computing Conference*, Boulder, CO. August 17, 2017.

"Assistant Professors Panel." *CRA New Computing Faculty Workshop*, San Diego, CA. August 8, 2017.

Invited Conference & Workshop Talks

"(Some) Visualization Challenges for People with Cognitive Disabilities," *MSR Workshop on Accessible Data Visualization.* Microsoft Research. January 14, 2020.

"Towards Accessible and Inclusive Visualization Design" *Coleman Conference for Cognitive Disabilities and Technology*, Coleman Institute, Westminster, CO. October 18, 2019. (with Keke Wu)

"Color Perception in Data Visualizations" *Vision and Visualization: Inspiring novel research directions in vision science*, Vision Sciences Society Annual Meeting, St. Pete's Beach, FL. May 18, 2018.

"Visualization for Pan- and Meta-genomics" *Visualization of Biological Data: Crossroads*, Schloss Dagstuhl Seminar Series, Wardern, Germany. April 21, 2018.

"Informing Visualization in the Humanities through Perception and Genomics." *Genres of Scholarly Knowledge Production*, Umeå University, Umeå, Sweden. December 12, 2014.

Miscellaneous

"Methods for Data Storytelling" *Boulder/Denver D3.js and Visualization Meet-Up* , Galvanize, Boulder, CO. August 2, 2018.

"How do we see data? Ensembles, Constancy, & Colors." *Information Visualization Meet-Up, Vision Science Society Annual Meeting*, St. Pete's Beach, FL. May 23, 2017.

"Enabling a Dialogue between People & Data: Lessons in Designing for Big Data." *Big Data Bootcamp*, Denver, CO. October 2, 2016.

Funding

Total Funding To Date: $6,869,424

Federal Grants

2022–2025 **SCH: An Augmented Reality Neurorehabilitation System for Monitoring and Management of Motor Symptoms of Parkinson's Disease**
National Institutes of Health Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science (NIH: SCH) #1R01HD111074-01
Investigators: Henry Fuchs (PI), Gedas Bertasius (Co-I), Nina Browner (Co-I), Michael Lewek (Co-I), Dan Szafir (Co-I), & Danielle Albers Szafir (Co-I).
Amount: $1,199,914

2021–2023 **Computing Innovation Fellows 2**
Computing Research Association #A22-0812-001
Investigator: Danielle Albers Szafir
Amount: $259,686
Additional Information: Funding co-authored by and written for the support of Dr. Ghulam Jialani Quadri's postdoctoral fellowship.

2021–2023 **Operator-Machine Collaborative Interface for Enhanced Data Fusion**
United States Space Force #BAA FA8810-17-C-0006
Investigators: Nisar Ahmed (PI), Danielle Albers Szafir (Co-PI), Lockheed Martin Space Systems (Subcontractor)
Amount: $1,178,715

2021–2026 **CAREER: HCC: Developing Perceptually-Driven Tools for Estimating Visualization Effectiveness**
National Science Foundation #2046725
Investigator: Danielle Albers Szafir
Amount: $549,851

2020–2023 **EAGER: Home-Based DIY Interactive Information Physicalization for Young Children and their Parents**
National Science Foundation #2040489
Investigators: Ellen Do (PI) & Danielle Albers Szafir (Co-PI)
Amount: $300,000

2019–2023 **Collaborative Research: Integrating Physical Computing and Data Science in Movement-Based Learning**
National Science Foundation STEM+Computing (STEM+C) #1933961
Investigators: R. Benjamin Shapiro (PI), Danielle Albers Szafir (Co-PI); Edd Taylor (Co-PI), & Michelle Ellsworth (Co-PI). Collaboration with New York University.
Amount: $433,290

2018–2023 **CHS: Medium: Scaling Qualitative Inductive Analysis through Computational Methods**
National Science Foundation #1764089
Investigators: Danielle Albers Szafir (PI), Jed Brubaker (Co-PI), Casey Fiesler (Co-PI), & Michael Paul (Co-PI)
Amount: $1,070,508
Additional Information: Formally acting as a Co-PI as of July 2021 due to move to UNC

2018–2023 **CHS: Medium: Data-Mediated Communication with Proximal Robots for Emergency Response**
National Science Foundation #1764092
Investigators: Daniel J. Szafir (PI), Danielle Albers Szafir (Co-PI), & Christoffer Heckman (Co-PI)
Amount: $1,194,056

2017–2018 **Collaborative Analyst-Machine Perception for Robust Data Fusion**
United States Air Force SMC-RSX
Investigators: Nisar Ahmed (PI) & Danielle Albers Szafir (Co-PI)
Subcontractor: Lockheed Martin Space Systems
Amount: $353,936

2017–2020 **CRII: CHS: Data-Driven Automation of Color Encodings for Data Visualization**
National Science Foundation #1657599
Investigator: Danielle Albers Szafir
Amount: $174,925

Intramural Grants

2018–2019 **Understanding Visual Analytics Approaches for People with Intellectual & Developmental Disabilities**
The Coleman Institute for Intellectual & Developmental Disabilities
Investigator: Danielle Albers Szafir (PI)
Amount: $46,034

2017 **Computing support for Digital Humanities at CU**
University of Colorado Boulder Innovative Seed Grant
Investigators: Vilja Hulden (PI), Danielle Albers Szafir, Orrie Gartner, Thea Lindquist, Jordan Boyd-Graber, Martha Palmer
Amount: $46,009

2016–2017 **FieldView: Using Mobile Devices to Blend Data Collection and Analysis for Field Research**
University of Colorado Boulder Innovative Seed Grant
Investigators: Danielle Albers Szafir (PI) & Daniel J. Szafir (Co-PI)
Amount: $30,000

2014–2015 **Digital Humanities Research Network**
Andrew W. Mellon Workshop Grant
Investigators: Molly Wright Steenson (PI), Catherine DeRose (PI), Danielle Albers Szafir, Eric Alexander, Joshua Armstrong, Mattie Burkert, Brandee Easter, Jesse Stommel, Mark Vareschi
Amount: $7,500

Industry Gifts

2021 Outstanding Research Faculty Early in their Career. J.P. Morgan Chase AI Research, $10,000.

2019 Information Visualization Hackathon Sponsorship. Zayo Group, $5,000.

2017 Information Visualization Hackathon Sponsorship. Zayo Group, $10,000.

Travel Grants

2017 Schloss-Dagstuhl NSF Support Grant. National Science Foundation.

2013 IEEE VIS Doctoral Colloquium Travel Fellowship. IEEE VIS.

Fellowships

2010–2021 BACTER Research Fellowship. Department of Energy & the BACTER Institute.

2007–2009 NASA Space Grant Fellowship. NASA.

Teaching

Courses Taught

Research-oriented independent studies are not included in this list. For courses at UNC, 100-500 level courses are undergraduate courses; 500-700 level courses are graduate courses. For courses at CU, 1000-4000 level courses are undergraduate courses; 5000-7000 level courses are graduate courses. Newly developed courses are indicated with a * and include any available catalog description.

Fall 2022 Family Leave. No classes taught.

Spring 2022 **COMP 790: Visualization Design Methods** (Syllabus)
Enrollment: 11 students

Fall 2021 **COMP 790: Information Visualization** (Syllabus)
Enrollment: 14 students

Spring 2021 **INFO 4602/5602: Information Visualization** (Syllabus)
Enrollment: 63 students (46 undergraduate, 17 graduate)

Fall 2020 **ATLS 4519/5519: Visualization Design Studies*** (Syllabus)
Enrollment: 11 students (7 undergraduate, 4 graduate)
Course Description: Data visualization combines artistic and cognitive principles to help people explore, communicate, and analyze large datasets. Developing effective visualizations often requires working closely with interdisciplinary teams to authentically reflect the needs of a data problem. This course will provide a hands-on introduction to common design methods for creating visualizations in different domains. Students will work with a variety of datasets to generate visualization solutions for different problems leveraging various design methodologies and media. Topics will include data sketching and crafting, task-driven design, cognitively-driven design, and workshop methods.

ATLS 5519: Research Methods* (Co-Instructors: Mirela Alistar & Ellen Do, Syllabus)
Required course for ATLAS Graduate Students
Enrollment: 13 students
Course Description: Research in creative technologies and design draws on methods and techniques from a broad set of fields. The objective of this course is to provide a primer for key methodological approaches used in the field. Students will investigate a broad set of techniques for conducting theoretical, design, and experimental research. They will explore how to formulate and investigate research questions using these methods. Topics covered will include basic research ethics, research project design, approaches to constructing theory, research through design techniques, and methods for experimental study.

Spring 2020 **INFO 3401: Information Exploration** (Syllabus)
Required course for Bachelors of Science in Information Science
Enrollment: 21 students

Fall 2019 **INFO 4602: Information Visualization** (Syllabus)
Enrollment: 32 students

INFO 5602: Information Visualization (Syllabus)
Enrollment: 20 students

Spring 2019 Family Leave. No classes taught.

Fall 2018 **INFO 3401: Information Exploration** (Syllabus)
Required course for Bachelors of Science in Information Science
Enrollment: 16 students

Spring 2018 **INFO 4602/5602: Information Visualization** (Syllabus)
Enrollment: 61 students (28 undergraduate and 33 graduate)

Fall 2017 **INFO 3401: Information Exploration*** (Syllabus)
Required course for Bachelors of Science in Information Science
Enrollment: 9 students
Course Description: Information empowers people to build deeper understandings of the world and make more informed decisions. However, the increasing volume and variety of available information makes it hard for people to make sense of that data. This course will allow you to build the skills necessary to work with stakeholders to explore and build novel insights through data. You will gain hands-on experience with different tools and techniques for exploring information, including statistical methods, qualitative analyses, and visual analytics. You will learn how to generate and synthesize new findings from data, combine information from multiple sources, and identify questions and findings that are directly relevant to people.

CSCI 4999/5999: Independent Study–Computer Graphics Crash Course*
15-week computer graphics intensive course for students conducting research in augmented reality
Enrollment: 2 students

Spring 2017 **INFO 4602/5602: Information Visualization*** (Syllabus)
Enrollment: 41 students
Course Description: Data is everywhere. Charts, graphs, and other types of information visualizations help people to make sense of this data. This course explores the design, development, and evaluation of these information visualizations. By combining aspects of design, computer graphics, HCI, and data science, you will gain hands-on experience with creating visualizations, using exploratory tools, and architecting data narratives. Topics include interactive systems, user-centered and graphic design, graphical perception and cognition, data storytelling, and insight building. Throughout this course, you will work directly with stakeholders to analyze data from a variety of domains and applications. Counts for credit in both INFO and CSCI.

Fall 2016 **INFO 1201: Computational Reasoning I*** (Co-Instructor: Stephen Voida, Syllabus)
Required course for the College of Media, Communication, and Information
Enrollment: 134 undergraduate students
Course Description: Introduces principles of computational thinking through the manipulation, transformation and creation of media artifacts, such as images, sound and web pages. Students will be exposed to a high-level overview of algorithms, functions, data structures, recursion and object-oriented computer programming through a series of assignments that emphasize the use of computation as a means of creative expression.

MOOCs

Launched 6.28.2021 **Fundamentals of Data Visualization***, University of Colorado Boulder Masters of Data Science Program on Coursera
Enrollment (as of 1.3.2023): 2,301 students (486 completed for credit)

Mentorship & Advising

Post-Doctoral Advisees

2022–Present **Ghulam Quadri**, University of North Carolina–Chapel Hill
> Computing Research Association Computing Innovation Fellow

2019–2020 **David Burlinson**, University of Colorado Boulder
> Now at Colorado PERA

Ph.D. Direct Advisees

2020–Present **Sandra Bae**, ATLAS Institute, University of Colorado Boulder
> Co-advised with Ellen Do

2019–Present **Matt Hong**, Computer Science, University of North Carolina at Chapel Hill

2019–Present **Keke Wu**, Computer Science, University of North Carolina at Chapel Hill
Master's Thesis: Designing Visualization as an Effective Tool of Communication

2016–2021 **Matthew Whitlock**, Computer Science, University of Colorado Boulder
> Dissertation: Immersive AR for Data-Driven Workflows
> Now at the National Institute for Standards and Technology (NIST)

Ph.D. Thesis Committee Membership

2022–Present **Haidong Yi**, Department of Computer Science, University of North Carolina–Chapel Hill
Set-Based Modeling and Applications in Single-Cell Bioinformatics
Advisor: Natalie Stanley

2022–Present **Md Asadullah Turja**, Department of Computer Science, University of North Carolina–Chapel Hill
Interpretable Human Brain Dynamics of Cognitive and Neuro-degenerative Processes using Graph Machine Learning
Advisor: Martin Styner

2022–Present **Siyuan Shan**
Department of Computer Science, University of North Carolina–Chapel Hill
Leveraging Related Instances for Better Prediction
Advisor: Junier Oliva

2021–Present **Samuel George**, Department of Computer Science, University of North Carolina–Chapel Hill
Title Forthcoming
Advisor: Prasun Dewan

2021–Present **Ahsan Mahmood**, Department of Computer Science, University of North Carolina–Chapel Hill
Anomaly Detection in Medical Imaging via Score Matching
Advisor: Martin Styner

2020–Present **Nicole Johnson**, ATLAS Institute, University of Colorado Boulder
Making Tactile Pictures More Available: Techniques, Communities and Neuroscience
Advisor: Tom Yeh

2021–2022 **Ali Raza**, Department of Computer Science, University of Colorado Boulder
Understanding and Supporting Equity in Science Classrooms with Visual Learning Analytics: A Novel Approach Using Student Electronic Exit Tickets (SEETs)
Advisor: Tammy Sumner

2020 **Vivian Lai**, Department of Computer Science, University of Colorado Boulder
Towards Enabling Better Human-AI Collaborations With Interactive Interfaces
Advisor: Chenhao Tan > *Comprehensive Exam Committee*

2018–2020 **Kirsten Strandjord**, Department of Aerospace Engineering, University of Colorado Boulder
GPS Urban Navigation Utilizing Direct Positioning and Shadow Matching Techniques
Advisor: Penina Axelrad

2018–2019 **Villiam Klein**, Department of Aerospace Engineering, University of Colorado Boulder
Advanced GNSS Multipath Model for GNSS Receivers On-Board the International Space Station
Advisor: Penina Axelrad

2018–2019 **Ashlynn Daughton**, Department of Information Science, University of Colorado Boulder
Accurately Harnessing the Internet for Epidemiological Models
Advisor: Michael Paul

2018 **Charles Luke Burks**, Department of Aerospace Engineering, University of Colorado Boulder
Active Collaborative Sensing, Learning, and Planning in Human-Robot Teams
Advisor: Nisar Ahmed

2018 **Reem Albaghli**, Department of Computer Science, University of Colorado Boulder
A Framework to Design and Evaluate Wearable Interactive Systems for Health
Advisor: Ken Anderson

2018 **Xiaolei Huang**, Department of Information Science, University of Colorado Boulder
> *Qualifying Exam Committee*

2017 **Brett Roads**, Department of Computer Science, University of Colorado Boulder
The Design of Efficient Training and Decision-Support Systems for Visual Categorization
Advisor: Michael Mozer

2016 **Khalid Alharbi**, Department of Computer Science, University of Colorado Boulder
A Deep and Longitudinal Approach to Mining Mobile Applications
Advisor: Tom Yeh

Graduate Student Direct Advisees

2022–Present **Jade Kandel**, Computer Science, University of North Carolina-Chapel Hill
2022–Present **Arran Zeyu Wang**, Computer Science, University of North Carolina-Chapel Hill
2021–Present **Chin Tseng**, Computer Science, University of North Carolina-Chapel Hill
2021–Present **Ian Thomas**, Computer Science, University of North Carolina-Chapel Hill
2021–2022 **Akshay Paruchuri**, Computer Science, University of North Carolina-Chapel Hill
> *Co-advised with Henry Fuchs*
2021–2022 **Komal Essarani**, Computer Science, University of North Carolina-Chapel Hill
> *Now at Oracle*
2020–2021 **Mary West**, Computer Science, University of Colorado Boulder
> *Co-advised with Ben Shapiro and Joel Swanson*
2020–2021 **Emma Petersen**, ATLAS Institute, University of Colorado Boulder
> ***Thesis:*** *AR Plastic Pollution Data Storytelling*
> *Now at Spectrum Research*
2020–2021 **Pratik Revankar**, Computer Science, University of Colorado Boulder
> *Now at Amazon*
2020 **Sagi Shaier**, Computer Science, University of Colorado Boulder

2020 **Sravanth Yajamanam**, Computer Science, University of Colorado Boulder
> Now at Cisco

2019-2020 **Hande Batan**, Information Science, University of Colorado Boulder
> Now a Ph.D. student at CU-Boulder

2019 **Soumyajyoti Bhattacharya**, Computer Science, University of Colorado Boulder
> Now at PayPal

2019 **Thanika Reddy**, Computer Science, University of Colorado Boulder
> Now at Microsoft

2018–2019 **Harshini Muthukrishnan**, Computer Science, University of Colorado Boulder
> Now at VMWare

2018–2019 **Tetsumichi Umada**, Computer Science, University of Colorado Boulder
> Now at NEC

2018–2019 **Sreesha Nath**, Computer Science, University of Colorado Boulder
> Now an Instructor at CU Boulder

2018–2019 **Supriya Naidu**, Computer Science, University of Colorado Boulder
*> **Thesis:** Empirically Modeling Highlight Colors for Data Visualization*
> Now an Instructor at CU Boulder

2017–2019 **Stephen Smart**, Computer Science, University of Colorado Boulder
> Now at Searchspring

2017–2018 **Justin Chin**, Computer Science, University of Colorado Boulder
> Now at Talespin

2017–2018 **Hayeong Song**, Computer Science, University of Colorado Boulder
*> **Thesis:** Measuring the Role of Visualization on Missing Values in Time Series Data*
> Now a Ph.D. Student at Georgia Tech

2016–2018 **Pratima Sherkane**, Computer Science, University of Colorado Boulder
> Now at U.S. Bank

2016–2018 **Hemang Bansal**, Computer Science, University of Colorado Boulder
> Now at Spectrum

2016–2018 **Michael Iuzzolino**, Computer Science, University of Colorado Boulder
> Co-advised with Daniel J. Szafir
> Now at Microsoft Research

2017 **Mridula Natarjan**, Computer Science, University of Colorado Boulder

2016–2017 **Praveen Devaraj**, Computer Science, University of Colorado Boulder
> Now at Amazon

2016–2017 **Yogitha Madhasu**, Computer Science, University of Colorado Boulder
> Now at VISA

2016–2017 **Dasha Pruss**, Information Science, University of Colorado Boulder
> Co-advised with Michael Paul
> Now a Ph.D. Student in the Philosophy of Science program at the University of Pittsburgh

2016 **Shashidhar Prabhu**, Computer Science, University of Colorado Boulder
> Now at Sensory, Inc.

M.S. Thesis Committee Membership

2022 **Husam Shaik**, Department of Computer Science, University of North Carolina–Chapel Hill
Visualizations of Activities of Daily Living for Parkinson's Patients using Egocentric Data
Advisor: Henry Fuchs

2019 **Jeremy Muesing**, Department of Aerospace Engineering, University of Colorado Boulder
Fully Bayesian Human-Machine Data Fusion for Robust Dynamic Target Surveillance and Characterization
Advisor: Nisar Ahmed

Undergraduate Students

2022–Present **Zhehao Wang**, Computer Science, University of North Carolina–Chapel Hill

2022–Present **Saishreeya Kantamsetty**, Computer Science, University of North Carolina–Chapel Hill

2022 **Charlotte Dorn**, Computer Science, University of North Carolina–Chapel Hill
2022 **Michelle Tran**, Computer Science, University of Colorado Boulder
2020–2022 **Lauren Marsh**, Computer Science, University of Colorado Boulder
2020–2022 **Kaiya Wahl**, Creative Technology & Design, University of Colorado Boulder
2022 **Joseph Kalbas**, Computer Science, University of North Carolina–Chapel Hill
2020–2022 **Tahmina Ahmad**, Computer Science, University of Colorado Boulder
> Thesis: Integration of Data Visualization into the Legal Field
2020 **David Blair**, Computer Science, University of Colorado Boulder
2019–2020 **Joshua Barber**, Computer Science, University of Colorado Boulder
> 2018-2019 Discovery Learning Assistant
2019–2020 **Keyuan Huang**, Computer Science, University of Colorado Boulder
> 2018-2019 Discovery Learning Assistant
2017–2018 **Michael Xiao**, Computer Science, University of Colorado Boulder
> Co-advised with J. Brubaker
> 2017-2018 Discovery Learning Assistant
2017–2018 **Ian Fawaz**, Computer Science, University of Colorado Boulder
> Co-advised with J. Brubaker
> 2017-2018 Discovery Learning Assistant
2016–2018 **Tetsumichi Umada**, Computer Science, University of Colorado Boulder
> Joined the Computer Science Master's Program at CU Boulder
2017 **Wil Braun**, Computer Science, University of Colorado Boulder
2017 **Girishkumar Ramkumar**, Computer Science, University of Colorado Boulder
2016–2017 **Ryan Mustari**, Applied Mathematics & Economics, University of Colorado Boulder
> 2016-2017 UROP Recipient
2016 **Alex Thompson**, Computer Science, University of Colorado Boulder
2016 **Connor Mcguinness**, Computer Science, University of Colorado Boulder
> Joined Uber
2015–2016 **Yusef Suhail**, Computer Science, University of Wisconsin-Madison
2014 **Andrew Hermus**, Computer Science, University of Wisconsin-Madison
> Co-supervised with Eric Alexander
> Joined Microsoft
2013 **Benjamin Reddersen**, Computer Science, University of Wisconsin-Madison

Capstone Team Supervision

2017–2018 MR-CAT: Mixed Reality Content Authoring Tool. B. Arnot, B. Chung, R. Craig, J. Mitchell, N. Pfeufer, & B. Wilson, Computer Science Senior Projects

Undergraduate Thesis Committee Membership

2019 **Catherine Diaz**, Department of Computer Science, University of Colorado Boulder
Perception of Virtual Objects that Receive Shadows in Augmented Reality
Advisor: Daniel J. Szafir

Service to the Professional Community

Organizing Committees

2019–present Co-Chair, VISxVISION Workshop on Novel Directions in Vision Science and Visualization Research at IEEE VIS
2019–present Co-Chair, VISxVISION Workshop: Novel Vision Science Research Directions in Visualization at the Vision Sciences Society Annual Meeting
2020–2022 General Co-Chair, IEEE VIS 2022
2020–2021 Abstracts Co-Chair, Symposium on Biological Visualization (BioVis@ISMB)
2020–2021 Co-Chair, IEEE VIS Doctoral Colloquium
2020 Co-Chair Visualization Psychology Workshop at IEEE VIS
2020 Best Short Paper Committee, EuroVis
2018–2019 Poster Chair, Symposium on Biological Visualization (BioVis@ISMB)

2019 InfoVis Best Poster Committee, IEEE VIS
2015 Co-Organizer, Going Public: Second Digital Humanities+Art Symposium.

Program Committee Participation

2021–2022 ACM CHI: ACM Conference on Human Factors in Computing Systems
2017–2019, 2021 IEEE VIS Information Visualization
2018, 2021 Information+
2017–2021 Human Computer Interaction Consortium
> Colorado Governing Board Representative
2020 BELIV 2020 Workshop at IEEE VIS
2018–2020 EuroVis: Eurographics Conference on Visualization
2018, 2020 EuroVis: Eurographics Conference on Visualization State-of-the-Art Reports (EuroVis STARs)
2019 ACM CHI: ACM Conference on Human Factors in Computing Systems
2017 VDS: Visual Data Science Symposium
2017 VISSOFT: IEEE Working Conference on Software Visualization
2016–2017 LDAV: IEEE Symposium on Large Data Analysis and Visualization
2014–2016 BioVis: Symposium on Biological Data Visualization

Editorships

2018–2020 Guest Editor, Journal of Vision Special Issue: Vision & Information Visualization

External Advisory Boards

2019–2020 Immersive Scholars Framework, Virginia Commonwealth University

Grant Referee Service

2021 Reviewer, National Institutes of Health
2021 Reviewer, National Science Foundation
2020 Reviewer, National Science Foundation
2018 Reviewer, National Science Foundation
2018 Reviewer, University of Colorado Boulder Research Innovation Office
> Served on review panels for two programs
2017 Reviewer Ad Hoc, Icelandic Research Foundation
2017 Reviewer, National Science Foundation
> Served on review panels for two programs
2015, 2017 Reviewer Ad Hoc, National Science Foundation

Journal & Conference Referee Service

2016–2022 ACM CHI: ACM Conference on Human Factors in Computing Systems
> Special Recognition: 2016, 2018, 2019, 2020, 2021
2017–2022 IEEE TVCG: IEEE Transactions on Visualization and Computer Graphics
2021 IEEE Conference on Virtual Reality
2021 Information Visualization
2021 Computer Graphics Forum
2016–2021 EuroVis: Eurographics Conference on Visualization
> Special Recognition: 2020
2020–2021 ISMAR: International Symposium on Mixed and Augmented Reality
2020 ACM UIST: ACM Symposium on User Interface Software and Technology
2020 APP: Attention, Perception, & Psychophysics
2020 Psychological Science
2020 JOSA A: Journal of the Optical Society of America A
2020 PLOS One
2013–2020 IEEE Information Visualization
> Special Recognition: 2014, 2015
2018–2019 PeerJ Computational Biology

2019 ACM Symposium on Applied Perception
2018 IEEE Computer Graphics & Applications
2018 Science Advances
2018 IEEE TBD: Transactions on Big Data
2018 Information+
2016–2017 IEEE LDAV: IEEE Symposium on Large Data Analysis and Visualization
2015–2017 IEEE VAST: Visual Analytics Science and Technology
2017 VDS: Visual Data Science Symposium
2017 VISSOFT: IEEE Working Conference on Software Visualization
2013–2016 BioVis: Symposium on Biological Data Visualization
2016 IEEE RO-MAN: IEEE Conference on Robot and Human Interactive Communication
2014, 2016 BMC Medical Informatics and Decision Making
2015–2016 Informatics
2015 Cartography and Geographic Information Science

Special Interest Group Meeting Organization

2023 Co-Organizer, *Inclusive Data Visualization*, Dagstuhl Seminar
2023 Co-Organizer, *Perception in Network Visualization*, Dagstuhl Seminar
2018 Co-Organizer, Broadening Intellectual Diversity of Visualization Research Papers, Meet-Up at IEEE VIS
2017, 2018 Co-Organizer, Visualization Meets Vision, Meet-Up at IEEE VIS

Outreach

2022–Present Co-Organizer, TOPICS Reading Group for Undergraduate Women in Computing
2018–present Founding Co-Editor, Multiple Views: Visualization Research Explained
2016–2019 Aspirations in Computing Colorado Affiliate Committee, National Center for Women in Technology
2018–2019, 2022 IEEE Diversity & Inclusivity Mentor
2010–2015 ACM-W Mentor, Department of Computer Sciences, University of Wisconsin-Madison

Service to the University

Departmental Service

2021–Present Admissions Committee, Department of Computer Science
2020–2021 Curriculum Committee, ATLAS Institute
2020–2021 Graduate Program Committee, Department of Computer Science
2020 TAM Director Search Committee, ATLAS Institute
2019–2020 Seminar Chair, Department of Information Science
2015–2019 Graduate Program Committee, Department of Information Science
2016–2018 Curriculum Committee: Computing Core, Department of Information Science
2018 Preliminary Exam Co-Chair, Department of Information Science
2015–2018 Graduate Program Committee, Department of Computer Science
> Liason for Information Science.
2017–2018 Faculty Search Committee, Department of Information Science
2015–2016 Faculty Search Committee, Department of Information Science
2016 - 2017 External Programs Coordinator, Department of Information Science
2015–2016 Curriculum Creation Committee, Department of Information Science
> With other founding faculty, designed novel B.S., M.S., and Ph.D. programs in Information Science, focusing on the intersection of data, people, and technology.
Fall 2009 Majors Fair Representative, Department of Computer Sciences, University of Wisconsin-Madison
Spring 2009 Department Guide, Department of Computer Sciences, University of Washington

College Service

2015–2016 Community & Diversity Committee, College of Media, Communication, & Information, University of Colorado Boulder

University Service

2017–2021 Advisory Board Member, Center for Research Data & Digital Scholarship (CRDDS)
2017–2020 Digital Humanities Certificate Committee Member
Spring 2018 Visualization Contest Judge, Center for Research Data & Digital Scholarship (CRDDS)
2016–2017 Co-Chair, Digital Humanities Certificate Committee
> Resulted in creation of a new interdisciplinary graduate certificate program
2016–2017 Faculty Search Committee, Leeds School of Business
2015–2016 Research Data Advisory Committee Member
2014–2015 Digital Humanities Research Network Founding Member & Coordinator, University of Wisconsin-Madison

Professional & Academic Memberships

2010–Present ACM Member
2010–Present IEEE Member
2017–Present Vision Science Society Member
2008–Present Sigma Alpha Lambda Honor Society Member
2008–Present Phi Theta Kappa International Honor Society Member
2014–2015 IS&T Student Member

Professional references available upon request.