

Danielle Albers Szafir

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Professional Experience

- 2015–Present **Assistant Professor & Founding Faculty Member**
Department of Information Science, University of Colorado Boulder
Assistant Professor in the Department of Computer Science *by courtesy*
Assistant Professor in the Center for Research Data & Digital Scholarship *by courtesy*
Fellow in the Institute of Cognitive Science
- 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**
Aptio, Bellevue, WA

Education

- 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: Drs. 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 & four-time Dean's List Member
Graduated at age 20
Minor in Mathematics

Honors & Awards

- 2017 **Best Paper Award**
IEEE VIS Information Visualization for "Modeling Color Difference for Visualization Design"
- 2016 **Doctoral Dissertation Award Honorable Mention**
IEEE Visualization and Graphics Technical Committee VGP Doctoral Dissertation Award
- 2014 **MERL Best Student Paper Award**
IS&T 22nd Color and Imaging Conference for "Adapting Color Difference for Design"
- 2014 **MERI Best Presentation Award, Honorable Mention**
McPherson Eye Research Institute Symposium for "Lightness Constancy in Surface Visualization"
- 2013 **Best Poster Award**
IEEE VIS Scientific Visualization for "Lightness Constancy in Surface Visualization"
- 2013 **Doctoral Colloquium**
IEEE VIS

- 2010–2012 **Research Fellow**
BACTER Institute, University of Wisconsin-Madison
- 2007–2009 **NASA Space Grant Scholar**
NASA Space Grant
- 2007–2009 **Dean's List**
University of Washington

Publications

Note that *s* indicates student authors at the time of publication. Acceptance rates listed where available. Conferences are a primary publication venue in Computer & Information Sciences. IEEE VIS conference proceedings are published as an issue of *IEEE Transactions on Visualization and Computer Graphics*, and EuroVis conference proceedings are published as an issue of *Computer Graphics Forum*.

- Journal Publications **D. Albers Szafrir**, "Modeling Color Difference for Visualization Design." *IEEE Transactions of Visualization and Computer Graphics*, 2018 (to appear). In the Proceedings of IEEE VIS 2017.
> **Best Paper Award (Top paper of 170 submissions)**
> Acceptance Rate: 23.5%
- D. Albers Szafrir**, D. Stuffer^(s), Y. Sohail^(s), & M. Gleicher. "TextDNA: Visualizing Word Usage Patterns with Configurable Colorfields." *Computer Graphics Forum*, 35: 421–430, 2016. In the Proceedings of the Eurographics Conference on Visualization
> Acceptance Rate: 26%
- D. Albers Szafrir**, S. Haroz, M. Gleicher, & S. Franconeri. "Four Types of Ensemble Coding for Data Visualizations." *Journal of Vision*, 16(11): 1–19, 2016.
> 5th highest scoring *Journal of Vision* paper on Altmetrics
> In *Visualizing Data's Best of the Visualization Web*, May 2017
- D. Albers Szafrir**, A. Sarikaya^(s), & M. Gleicher. "Lightness Constancy in Surface Visualization." *IEEE Transactions on Visualization and Computer Graphics*, 22(9): 2107–2121, 2016.
- A. Sarikaya^(s), **D. Albers**, J. Mitchell, & M. Gleicher. "Visualizing Validation of Protein Surface Classifiers." *Computer Graphics Forum*, 33(3): 171–180, 2014. In the Proceedings of the Eurographics Conference on Visualization.
> Acceptance Rate: 25%
- 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. In the Proceedings of the IEEE Information Visualization Conference.
> Acceptance Rate: 25%
- M. Gleicher, **D. Albers**, R. Walker, I. Jusufi^(s), C. Hansen, & J. Roberts. "Visual Comparison for Information Visualization." *Information Visualization*, 10(4): 289–309, 2011.
- Refereed Conference Papers C. Diaz^(s), M. Walker^(s), **D. Albers Szafrir**, & D. Szafrir. "Designing for Depth Perceptions in Augmented Reality." In the *Proceedings of the International Symposium on Mixed and Augmented Reality (ISMAR)*, 2017.
> Acceptance Rate: 26%
- D. Albers Szafrir**, M. Stone, & M. Gleicher. "Adapting Color Difference for Design." In the *Proceedings of the IS&T 22nd Color and Imaging Conference*, 2014.
> **MERL Best Student Paper Award**
- M. Stone, **D. Albers Szafrir**, & 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*, 2014.
> Integrated into D3 as *d3-jnd* and *Tableau 10*
- D. Albers**, M. Correll^(s), & 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.
> Acceptance Rate: 23%

M. Correll^(s), **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.

> Acceptance Rate: 23%

Workshops & Colloquia¹ A. Daughton^(s), D. Pruss^(s), 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*. 2017 (under review).*

D. Albers Szafir & C. Fiesler. "A Crash-Course in P5." *NCWIT Aspirations in Computing Colorado Affiliate*. 2017.

> Hands-on workshop for 72 high school women

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.*

E. Alexander^(s) & **D. Albers Szafir**. "D3.js: Javascript for Data Visualization." *Second Annual Digital Humanities+Art Symposium: Going Public*. 2015.

M. Correll^(s), E. Alexander^(s), **D. Albers Szafir**, A. Sarikaya^(s), & M. Gleicher. "Navigating Reductionism and Holism in Evaluation." *BELIV '14: Beyond Time and Errors—Novel Evaluation Methods for Visualization*, 2014.*

D. Albers Szafir. "Thinking with Data." *Digital Humanities Research Network*, 2014.

D. Albers. "Perceptually Informed Scalable Sequence Comparison." *IEEE VIS Doctoral Colloquium*, 2013.*

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

Refereed Abstracts A. Kelly^(s), M. Whitlock^(s), B. Nickoloff^(s), A. Lam^(s), **D. Albers Szafir**, & S. Volda. "Becoming Butterflies: Interactive Embodiment of the Butterfly Lifecycle." *UbiComp Poster Proceedings*, 2017.

D. Pruss^(s), A. Daughton^(s), B. Arnot^(s), **D. Albers Szafir**, & M. Paul. "Content Analysis of Zika Related Tweets." *American Public Health Association Annual Conference*. 2017.

D. Albers Szafir. "The Effects of Size and Shape on Color Perception." *Vision Science Society Annual Meeting*, 2017.

D. Albers Szafir & M. Gleicher. "Visualization-Aware Color Design." *EuroVis Poster Proceedings*, 2016.

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

D. Albers, M. Correll^(s), M. Gleicher, & S. Franconeri. "Ensemble Processing of Color and Shape: Beyond Mean Judgments." *Journal of Vision*, 14(9), 2014.

D. Albers, A. Sarikaya^(s), & M. Gleicher. "Lightness Constancy in Surface Visualization." *Poster Abstracts of IEEE VIS*, 2013.

> [Best Poster Award, Scientific Visualization Track](#)

A. Sarikaya^(s), **D. Albers**, & M. Gleicher. "Understanding Performance of Protein Structural Classifiers." *Poster Abstracts of IEEE VIS*, 2013.

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

D. Albers & M. Gleicher. "Poster: Perceptual Principles for Scalable Sequence Alignment Visualization." *2010 IEEE Information Visualization Poster Proceedings*, 2010.

D. Albers & M. Gleicher. "Perceptual Principles for Scalable Sequence Alignment Visualization." *Proceedings of the 7th Symposium on Applied Perception in Graphics and Visualization*, 2010.

* indicates peer-review.

Panel Organization C. Nothelfer^(s), Z. Bylinskii^(s), M. Elliott^(s), C. Xiong^(s), & **D. Albers Szafir**. "Vision Science Meets Visualization." *IEEE VIS*. Phoenix, AZ, 2017.

Talks

Invited Talks & Panels Panelist, "Visualization and HPC." *Rocky Mountain High Performance Computing Conference*, Boulder, CO, 2017.

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

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

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

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

"Perceptually-Driven Visualization of Complex Data." Rochester Institute of Technology, Rochester, New York, 2015.

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

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

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

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

Intramural Talks "DH+Data: How the Digital Humanities shape and are shaped by Data Science." *Official Launch of the Center for Research Data and Digital Scholarship*, University of Colorado Boulder, 2017.

"Information Visualization: Designing with Data." *CU-Boulder Data Science Team*, University of Colorado Boulder, 2017.

"Perceptually-Driven Information Visualization." *Institute of Cognitive Science Seminar*, University of Colorado Boulder, 2015.

"An Introduction to Data Visualization." *Science Learner's Lunch*, University of Colorado Boulder, 2015.

"Perceptually-Driven Information Visualization." *CU Libraries Research Seminar*, University of Colorado Boulder, 2015.

"Perceptually-Driven Information Visualization." *Human-Centered Computing Seminar*, University of Colorado Boulder, 2015.

"Insights at a Glance: Visualization at UW-Madison." *MERI at a Glance*, McPherson Eye Research Institute, Madison, Wisconsin, 2014.

Press Coverage

"Why Visuals are the Most Important Thing in Brand Storytelling." *Native Advertising Institute*, 2014.

"A Day in the Lab: Information Science at CU Boulder." *ACM Interactions*, 2017.

"Grand Challenge expanded and enhanced by new projects." *CU Boulder Today*, 2016.

Funding

- Funded Grants Collaborative Analyst-Machine Perception for Robust Data Fusion
Amount: \$353,936
Agency: Air Force SMC-RSX
Role: Co-PI (PI: N. Ahmed, Aerospace Engineering, CU Boulder)
Duration: 06.2017–05.2018
- CRII: CHS: Data-Driven Automation of Color Encodings for Data Visualization
Amount: \$174,925
Agency: National Science Foundation
Role: PI
Duration: 09.2017–08.2020
- FieldView: Using Mobile Devices to Blend Data Collection and Analysis for Field Research
Amount: \$30,000
Agency: University of Colorado Boulder Innovative Seed Grant
Role: PI (Co-PI: Daniel Szafer, ATLAS Institute, CU Boulder)
Duration: 07.2016–12.2017
- Digital Humanities Research Network
Amount: \$7,500
Agency: Andrew W. Mellon Workshop Grant
Role: Coordinator (Lead Coordinators: Molly Wright Steenson, Journalism, UW-Madison & Catherine DeRose, English, UW-Madison)
Duration: 09.2014–08.2015
- Corporate Gifts Information Visualization Hackathon Sponsorship
Amount: \$10,000
Organization: Zayo Group
Role: PI
Date Received: 01.2017
- Fellowships IEEE VIS Doctoral Colloquium Travel Fellowship
Sponsor: IEEE VIS
Date Received: 10.2013
- BACTER Research Fellowship
Sponsor: Department of Energy & the BACTER Institute
Duration: 06.2010–05.2012
- NASA Space Grant Fellowship
Sponsor: NASA
Duration: 09.2007–06.2009

Teaching

- F. 2017 **INFO 3401: Information Exploration**
University of Colorado Boulder
First offering, required course for Information Science

I designed a new hands-on, project-driven course teaching principles of exploratory data analysis and information synthesis. Topics include data collection, fusion, and integrity; qualitative and quantitative analysis techniques; and visual and predictive analytics. The course synthesizes skills from earlier human-computer interaction, statistics, and computing courses to prepare students to solve applied data science problems.

Sp. 2017 **INFO 4602/5602: Information Visualization**

University of Colorado Boulder

First offering

Enrollment: 40 students (22 undergraduates and 18 graduates)

Mean Instructor Rating: 5.3/6.0

I designed a new project-based course focusing on concepts in information visualization and visual analytics. Topics include the history of visualization, visual perception, web development, and experiment design. Projects in the course enabled direct interaction between the students and local industry partners. The course was delivered to students from a diverse variety of fields, including Information Science, Computer Science, Social Science, Psychology, and Anthropology.

F. 2016 **INFO 1201: Computational Reasoning I**

University of Colorado Boulder, Co-Instructor: Stephen Voida

First offering, required course for the College of Media, Communication, and Information

Enrollment: 142 undergraduate students

Mean Instructor Rating: 5.00/6.00

I co-designed a new course teaching principles of computer science and introductory programming. The course satisfies the core technical competency objectives of the new College of Media, Communication, and Information by contextualizing lectures and assignments in fields relevant to students' areas of study, including data analysis and media manipulation. The course was delivered to students from a diverse variety of fields, including Information Science, Media Studies, Communication, Advertising, and Design.

F. 2009 **CS838: Human-Computer Interaction**

University of Wisconsin-Madison

Enrollment: 8 graduate students

Teaching Assistant for first offering

F. 2009 **CS 302: Introduction to Programming**

University of Wisconsin-Madison

Enrollment: 110 undergraduate students

Mean Instructor Rating: 4.58/5.00

Mentorship & Advising

Ph.D. Students

2017–Present **Stephen Smart**, Computer Science, University of Colorado Boulder

2016–Present **Matthew Whitlock**, Computer Science, University of Colorado Boulder

2016–Present **Michael Iuzzolino**, Computer Science, University of Colorado Boulder
> Co-advised with Daniel Szafir

Ph.D. Thesis Committee Membership

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

2015 **Khalid Alharbi**, Ph.D. Thesis, Department of Computer Science, University of Colorado Boulder
A Deep and Longitudinal Approach to Mining Mobile Applications, Advisor: Tom Yeh

Masters Students

2017–Present **Hayeong Song**, Computer Science, University of Colorado Boulder

2016–Present **Pratima Sherkane**, Computer Science, University of Colorado Boulder

2016–Present **Hemang Bansal**, Computer Science, University of Colorado Boulder

2016–2017 **Dasha Pruss**, Information Science, University of Colorado Boulder
> co-advised with Michael Paul
> Now at the University of Pittsburgh Philosophy of Science Ph.D. Program

2016–2017 **Praveen Devaraj**, Computer Science, University of Colorado Boulder

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

Undergraduate Students

- 2017–present **Michael Xiao**, Computer Science, University of Colorado Boulder
> *2017-2018 Discovery Learning Assistant*
- 2016–present **Tetsumichi Umada**, Computer Science, University of Colorado 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
> *Now at 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*
> *Now at Microsoft*
- 2013 **Benjamin Reddersen**, Computer Science, University of Wisconsin-Madison

Professional Activities & Service

Outreach

- 2016–present **Aspirations in Computing Colorado Affiliate Committee**
National Center for Women in Technology
- 2010–2015 **ACM-W Mentor**
Department of Computer Sciences, University of Wisconsin-Madison
- 2009 **Majors Fair Representative**
Department of Computer Sciences, University of Wisconsin-Madison
- 2009 **Department Guide**
Department of Computer Sciences, University of Washington

University Service

- 2017 - present **Advisory Board Member, Center for Research Data & Digital Scholarship (CRDDS)**
University of Colorado Boulder
- 2016 - present **Co-Chair, Digital Humanities Certificate Committee**
University of Colorado Boulder
> *Resulted in creation of a new interdisciplinary graduate certificate program*
- 2015 - present **Graduate Program Committee**
Department of Information Science, University of Colorado Boulder
- 2015 - present **Graduate Program Committee**
Department of Computer Science, University of Colorado Boulder
- 2016–present **Curriculum Committee: Computing Core**
Department of Information Science, University of Colorado Boulder
- 2016 - 2017 **External Programs Coordinator**
Department of Information Science, University of Colorado Boulder
- 2016 **Faculty Search Committee**
Leeds School of Business, University of Colorado Boulder
- 2015-2016 **Community and Diversity Committee**
College of Media, Communication, and Information, University of Colorado Boulder

- 2015-2016 **Research Data Advisory Committee**
University of Colorado Boulder
- 2015 **Curriculum Creation Committee**
Department of Information Science, University of Colorado Boulder
> *Designed novel undergraduate and graduate curricula in Information Science, focusing on the intersection of data, people, and technology. These curricula blend topics from computer science, social science, and data science, emphasizing broad application of these skills across different domains.*
- 2015 **Faculty Search Committee**
Department of Information Science, University of Colorado Boulder
- 2014–2015 **Digital Humanities Research Network Founding Member & Coordinator**
University of Wisconsin-Madison
- 2012–2015 **Visualization Reading Group Founder & Coordinator**
University of Wisconsin-Madison
- 2015 **Organizing Committee Member**
University of Wisconsin-Madison Digital Humanities+Art Symposium

Program Committee Membership

- 2017 Human Computer Interaction Consortium
> *Colorado Governing Board Representative*
- 2017 IEEE VIS Information Visualization
- 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

Grant Referee Service

- 2017 Reviewer Ad Hoc, Icelandic Research Foundation
- 2017 Reviewer, National Science Foundation
- 2015, 2017 Reviewer Ad Hoc, National Science Foundation

Journal & Conference Referee Service

- 2017 IEEE TVCG: IEEE Transactions on Visualization and Computer Graphics
- 2016–2017 EuroVis: Eurographics Conference on Visualization
- 2016–2017 ACM CHI: ACM Conference on Human Factors in Computing Systems
Special Recognition: 2016
- 2013–2017 IEEE Information Visualization
Special Recognition: 2014, 2015
- 2016–2017 IEEE LDAV: IEEE Symposium on Large Data Analysis and Visualization
- 2015–2017 IEEE VAST: Visual Analytics Science and Technology
- 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)

Professional & Academic Memberships

- 2010–Present ACM Member
- 2010–Present IEEE Member
- 2015, 2017 Vision Science Society Member
- 2014–2015 IS&T Student Member
- 2012–2015 WHCI+D Member
- 2008–Present Sigma Alpha Lambda Honor Society Member
- 2008–Present Phi Theta Kappa International Honor Society Member

Professional references available upon request.