

# Danielle Albers Szafir

## University of Colorado Boulder

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### Professional Experience


- 2015–Present **Found Assistant Professor**  
Department of Information Science, University of Colorado Boulder  
Affiliate Faculty in the Department of Computer Science  
Affiliate Faculty in the Center for Research Data & Digital Scholarship  
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, Madison, WI
- 2009 **Software Development Intern**  
Boston Scientific, Redmond, WA
- 2008–2009 **Software Development Intern**  
Apptio, 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."  
Thesis Committee: 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
- 2016 **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 **Invited Participant**  
Genres of Scholarly Knowledge Production 2014

- 2014 **Honorable Mention for Best Presentation**  
McPherson Eye Research Institute Symposium
- 2013 **Best SciVis Poster Award**  
IEEE VIS for "Lightness Constancy in Surface Visualization"
- 2013 **Invited Participant**  
IEEE VIS Doctoral Colloquium
- 2010–2012 **Research Fellow**  
BACTER Institute, University of Wisconsin-Madison
- 2007–2009 **NASA Space Grant Scholar**  
NASA Space Grant, University of Washington 
- 2007–2009 **Dean's List Member**  
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 **[Best Paper Award]** D. Albers Szafir. "Modeling Color Difference for Visualization Design." *IEEE Transactions of Visualization and Computer Graphics*. In the Proceedings of IEEE VIS 2017. 2018.

> Acceptance Rate: 23.5%

D. Albers Szafir, D. Stuffer<sup>(s)</sup>, Y. Sohail<sup>(s)</sup>, and M. Gleicher. "TextDNA: Visualizing Word Usage Patterns with Configurable Colorfields." *Computer Graphics Forum*, 2016. In the Proceedings of the Eurographics Conference on Visualization

> Acceptance Rate: 26%

D. Albers Szafir, S. Haroz, M. Gleicher, and S. Franconeri. "Four Types of Ensemble Coding for Data Visualizations." *Journal of Vision*, 16(11), 2016.

> 5th highest scoring Journal of Vision paper on Altmetrics

> In Visualizing Data's Best of the Visualization Web, May 2017

D. Albers Szafir<sup>(s)</sup>, A. Sarikaya<sup>(s)</sup>, and M. Gleicher. "Lightness Constancy in Surface Visualization." *IEEE Transactions on Visualization and Computer Graphics*, 22(9), 2016.

A. Sarikaya<sup>(s)</sup>, D. Albers<sup>(s)</sup>, J. Mitchell, and M. Gleicher. "Visualizing Validation of Protein Surface Classifiers." *Computer Graphics Forum*, 33(3), 2014. In the Proceedings of the Eurographics Conference on Visualization.

> Acceptance Rate: 25%

D. Albers<sup>(s)</sup>, C. Dewey, and M. Gleicher. "Sequence Surveyor: Leveraging Overview for Scalable Genomic Alignment Visualization." *IEEE Transactions of Visualization and Computer Graphics*, 17(5), 2011. In the Proceedings of the IEEE Information Visualization Conference.

> Acceptance Rate: 25%

M. Gleicher, D. Albers<sup>(s)</sup>, R. Walker, I. Jusufi<sup>(s)</sup>, C. Hansen, and J. Roberts. "Visual Comparison for Information Visualization." *Information Visualization*, 10(4), 2011.

**Refereed Conference Publications** C. Diaz<sup>(s)</sup>, M. Walker<sup>(s)</sup>, **D. Albers Szafr**, and D. Szafr. "Designing for Depth Perceptions in Augmented Reality." *International Symposium on Mixed and Augmented Reality*, 2017.  
> Acceptance Rate: 26%

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

**[Best Student Paper Award]** **D. Albers Szafr**<sup>(s)</sup>, M. Stone, and M. Gleicher. "Adapting Color Difference for Design." *IS&T 22nd Color and Imaging Conference*, 2014.

M. Stone, **D. Albers Szafr**<sup>(s)</sup>, and V. Setlur. "An Engineering Model for Color Discriminability as a Function of Size." *IS&T 22nd Color and Imaging Conference*, 2014.  
> *Integrated into D3 as d3-jnd*

**D. Albers**<sup>(s)</sup>, M. Correll<sup>(s)</sup>, and M. Gleicher. "Task-Driven Evaluation of Aggregation in Time Series Visualization." *Proceedings of the 2014 Annual Conference on Human Factors in Computing Systems (CHI)*, 2014.  
> Acceptance Rate: 23%

M. Correll<sup>(s)</sup>, **D. Albers**<sup>(s)</sup>, S. Franconeri, and M. Gleicher. "Comparing Averages in Time Series Data." *Proceedings of the 2012 Annual Conference on Human Factors in Computing Systems (CHI)*, 2012.  
> Acceptance Rate: 23%

**Panel Organization** C. Nothelfer<sup>(s)</sup>, Z. Bylinskii<sup>(s)</sup>, M. Elliott<sup>(s)</sup>, C. Xiong<sup>(s)</sup>, & **D. Albers Szafr**. "Vision Science Meets Visualization." *IEEE VIS*. Phoenix, AZ, 2017. Panelists: Ronald Rensink, Steven Franconeri, Karen Schloss, Todd Horowitz, & Ruth Rosenholtz.

**Workshops & Colloq** **D. Albers Szafr** & C. Fiesler. "A Crash-Course in P5." *NCWIT Aspirations in Computing Colorado Affiliate*. 2017.  
> Hands-on workshop for 72 high school women

**D. Albers Szafr** & D. Szafr. "Cognitive Load in Visualization: Myths and Misconceptions." *Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization (C4PGV)*. 2016.\*

E. Alexander<sup>(s)</sup> and **D. Albers Szafr**<sup>(s)</sup>. "D3.js: Javascript for Data Visualization." *Second Annual Digital Humanities+Art Symposium: Going Public*. 2015.

M. Correll<sup>(s)</sup>, E. Alexander<sup>(s)</sup>, **D. Albers Szafr**<sup>(s)</sup>, A. Sarikaya<sup>(s)</sup>, and M. Gleicher. "Navigating Reductionism and Holism in Evaluation." *BELIV '14: Beyond Time and Errors—Novel Evaluation Methods for Visualization*, 2014.\*

**D. Albers Szafr**<sup>(s)</sup>. "Thinking with Data." *Digital Humanities Research Network*, 2014.

**D. Albers**<sup>(s)</sup>. "Perceptually Informed Scalable Sequence Comparison." *IEEE VIS Doctoral Colloquium*, 2013.\*

**D. Albers**<sup>(s)</sup> and Michael Gleicher. "Seeing Double: Crowdsourced Models of Color Discrimination." *Midgraph: Midwest Graphics Workshop*, 2012.

**In Preparation** A. Sarikaya, M. Gleicher, and **D. Albers Szafr**. "The Design of Visual Summaries." *IEEE Transactions of Visualization and Computer Graphics*.

M. Correll, **D. Albers Szafr**, S. Franconeri, and M. Gleicher. "Design Considerations for Visual Aggregation in Time Series Data."

Refereed Abstracts A. Kelly<sup>(s)</sup>, M. Whitlock<sup>(s)</sup>, B. Nickoloff<sup>(s)</sup>, A. Lam<sup>(s)</sup>, **D. Albers Szafr**, and S. Volda. "Becoming Butterflies: Interactive Embodiment of the Butterfly Lifecycle." *UbiComp Poster Proceedings*, 2017.

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

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

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

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

**[Best Poster Award] D. Albers** <sup>(s)</sup>, A. Sarikaya<sup>(s)</sup>, and M. Gleicher. "Lightness Constancy in Surface Visualization." *Poster Abstracts of IEEE VIS*, 2013.

A. Sarikaya<sup>(s)</sup>, **D. Albers** <sup>(s)</sup>, and M. Gleicher. "Understanding Performance of Protein Structural Classifiers." *Poster Abstracts of IEEE VIS*, 2013.

**D. Albers** <sup>(s)</sup>, C. Dewey, and M. Gleicher. "Sequence Surveyor: Leveraging Overview for Large-Scale Genomic Alignment Visualization." *Proceedings of VizBi 2011: Visualizing Biological Data*, 2011.

**D. Albers** <sup>(s)</sup> and M. Gleicher. "Poster: Perceptual Principles for Scalable Sequence Alignment Visualization." *2010 IEEE Information Visualization Poster Proceedings*, 2010.

**D. Albers** <sup>(s)</sup> and M. Gleicher. "Perceptual Principles for Scalable Sequence Alignment Visualization." *Proceedings of the 7th Symposium on Applied Perception in Graphics and Visualization*, 2010.

Dissertations **[Honorable Mention, Best Dissertation Award] D. Albers Szafr**. "Utilizing Color for Perceptually-Driven Data Visualization." *University of Wisconsin-Madison*, 2015.

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## 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, 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.

"Color & Size." *Developer's Seminar*. Tableau Software, Palo Alto, CA (joint work w. Maureen Stone and Vidya Setlur).

"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.

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## Press Coverage

"Why Visuals are the Most Important Thing in Brand Storytelling." *Native Advertising Institute*, 08.2014.

"A Day in the Lab: Information Science at CU Boulder." *ACM Interactions*, 07.2017.

"Grand Challenge expanded and enhanced by new projects." *CU Boulder Today*, 05.2016.

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## 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)

**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:** 09.2017–08.2019

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-I: Daniel Szafir)

**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 & Catherine DeRose)

**Duration:** 09.2014–08.2015

Corporate Information Visualization Hackathon Sponsorship

Gifts **Amount:** \$10,000

**Organization:** Zayo Group

**Role:** PI

**Date Received:** 01.2017

Fellowships **IEEE VIS Doctoral Colloquium**

**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

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## Teaching

F. 2017 **INFO 3401: Information Exploration**

*University of Colorado Boulder*

**First offering, required course for Information Science.**

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

*University of Colorado Boulder*

**Enrollment:** 48 students (22 undergraduates and 18 graduates)

**Mean Instructor Rating:** 5.3/6.0

First offering

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

*University of Colorado Boulder, Co-Instructor: Stephen Volda*

**Enrollment:** 142 undergraduate students

**Mean Instructor Rating:** 5.00/6.00

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

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*

Laboratory Instructor for four labs

**Enrollment:** 110 undergraduate students

**Mean Instructor Rating:** 4.58/5.00

2008–2009 **Mathematics and English Instructor**

*Kumon of Redmond*

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## **Mentorship & Advising**

### **Ph.D. Students**

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

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

2016–Present **Michael Iuzzolino** (w. Daniel Szafr), University of Colorado Boulder

### **Ph.D. Thesis Committee Membership**

2016 **Brett Roads**, Ph.D. Thesis, Advisor: Michael Mozer

*The Design of Efficient Training and Decision-Support Systems for Visual Categorization*

Department of Computer Science, University of Colorado Boulder

2015 **Khalid Alharbi**, Ph.D. Thesis, Advisor: Tom Yeh

*A Deep and Longitudinal Approach to Mining Mobile Applications*

Department of Computer Science, University of Colorado Boulder

### **Masters Students**

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

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

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

2016–2017 **Dasha Pruss** (w. Michael Paul), University of Colorado Boulder

*Now at the University of Pittsburgh Philosophy of Science Ph.D. Program*

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

2016–2017 **Yogitha Madhasu**, University of Colorado Boulder

*Now at VISA*

2016 **Shashidhar Prabhu**, University of Colorado Boulder

### **Undergraduate Students**

2017–present **Wil Braun**, Computer Science, University of Colorado Boulder

2016–present **Tetsumichi Umada**, Computer Science, University of Colorado Boulder

2016–present **Ryan Mustari**, Applied Mathematics & Economics, University of Colorado Boulder

*2016-2017 UROP Recipient*

2017 **Girishkumar Ramkumar**, Computer Science, University of Colorado Boulder

2016 **Alex Thompson**, Computer Science, University of Colorado Boulder

2016 **Connor McGuinness**, Computer Science, University of Colorado Boulder

*Now at Uber*

2015 **Yusef Suhail**, Computer Science, University of Wisconsin-Madison

2014 **Andrew Hermus** (w. Eric Alexander), Computer Science, University of Wisconsin-Madison

*Now at Microsoft*

2013 **Benjamin Reddersen**, Computer Science, University of Wisconsin-Madison



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## Professional Activities & Service

### Professional Outreach

- 2016–2017 **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 **Advisory Board Member, Center for Research Data & Digital Scholarship (CRDDS)**  
University of Colorado Boulder
- 2016–2017 **Co-Chair, Digital Humanities Certificate Committee**  
University of Colorado Boulder
- 2016–2017 **External Programs Coordinator**  
Department of Information Science, University of Colorado Boulder
- 2015 - 2017 **Graduate Program Committee**  
Department of Information Science, University of Colorado Boulder
- 2015 - 2017 **Graduate Program Committee**  
Department of Computer Science, University of Colorado Boulder
- 2016–2017 **Curriculum Committee: Computing Core**  
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 Committee**  
Department of Information Science, University of Colorado Boulder
- 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 (CISE)
- 2015, 2017 Reviewer Ad Hoc, National Science Foundation (CISE)

### Journal & Conference Referee Service

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

### Volunteer Positions

- 2009–2014 Web Manager, University of Wisconsin-Madison Women's Hockey Club
- 2011–2012 Assistant Practice Coach, Wisconsin Timberwolves Special Needs Hockey Team
- 2010 GRE Tutor, University of Wisconsin-Madison
- 2007–2008 Ice Hockey Officiating Mentor, Cascade Hockey Officiating Association

## Professional References

**Michael Gleicher, Professor**  
Department of Computer Sciences  
University of Wisconsin-Madison  
gleicher@cs.wisc.edu

**Maureen Stone, Research Scientist**  
Tableau Software  
mstone@tableausoftware.com

**Steven Franconeri, Associate Professor**  
Department of Psychology  
Northwestern University  
franconeri@northwestern.edu

**Kevin Ponto, Assistant Professor**  
Design Studies Department  
University of Wisconsin-Madison  
kbponto@wisc.edu