Emily Wall, Ph.D.

My research involves decision making using data visualizations and visual analytics. I develop computational strategies to characterize human limitations in decision making (e.g., cognitive bias) and design interventions to promote reflective data analysis and decision making processes. I am an Assistant Professor in the Computer Science Department at Emory University. I completed my Ph.D. in Computer Science at Georgia Tech in 2020 and was a postdoctoral researcher at Northwestern University 2020-2021.

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edu

Google Scholar
LinkedIn

Math & Science
Center W302E
https://emilywall.pr
of

PDF of CV (last
updated: 2024-0404)

Appointments

2021- Assistant Professor
Department of Computer Science
(Affiliate) Center for Data Science
Emory University

20202021 Postdoctoral Researcher
Department of Computer Science
Northwestern University

University of Georgia summa cum laude

Education

Ph.D. in Computer Science

Georgia Institute of Technology

Thesis: Detecting and Mitigating Human Bias in Visual Analytics

Committee: Alex Endert, John Stasko, Polo Chau, Brian Fisher, Wenwen Dou

B.S. in Computer Science & Mathematics

Honors & Awards

2023	Arts and Social Justice, Fellow
2020	VGTC Best Dissertation, Honorable Mention
2019	GVU Foley Scholar , Recipient, Georgia Institute of Technology
2019	D.E. Shaw Exploration Fellowship, Recipient
2019- 2020	Siemens FutureMaker Fellowship, Recipient
2018	GVU Foley Scholar , Finalist, Georgia Institute of Technology
2017	Graduate Student Symposium, Participant, AT&T Labs
2017	Doctoral Colloquium, Participant, IEEE VIS
2017- 2020	Graduate Fellowship for STEM Diversity (GFSD), Recipient
2017	NSF Graduate Research Fellowship Program, Honorabl Mention
2017	Department of Defense SMART Fellowship, Recipient (Declined)
2015- 2019	<u>President's Fellowship</u> , Recipient, Georgia Institute of Technology

Publications

Journal Articles

Unmasking Dunning-Kruger Effect in Visual Reasoning & Judgment M. Chen, Y. Liu, and *E. Wall*

IEEE Transactions on Visualization and Computer Graphics (Proc. VIS'24), 2024.



Belief Decay or Persistence? A Mixed-Method Study on Belief Movement Over Time

S. Gupta, A. Karduni, and *E. Wall Computer Graphics Forum (Proc. EuroVis'23)*, 2023.

PDF | ⊞ Talk | ▶ Video FF

A Qualitative Interview Study of Distributed Tracing Visualisation:

A Characterisation of Challenges and Opportunities

T. Davidson, E. Wall, and J. Mace

IEEE Transactions on Visualization and Computer Graphics (Proc. VIS'23), 2023.



(Best Paper, runner up) VisHiker's Guide to Evaluation: Competing Considerations in Study Design

E. Wall, C. Xiong, and Y-S. Kim

IEEE Computer Graphics and Applications, 2022.

PDF

VIBE: A Design Space for VIsual Belief Elicitation in Data Journalism

S. Mahajan, B. Chen, A. Karduni, Y-S. Kim, and *E. Wall Computer Graphics Forum (Proc. EuroVis'22)*, 2022.

🖺 PDF | 🚨 Slides

Left, Right, and Gender: Exploring Interaction Traces to Mitigate Human Biases

E. Wall, A. Narechania, A. Coscia, J. Paden, and A. Endert IEEE Transactions on Visualization and Computer Graphics (Proc. VIS'21), 2021.

PDF | ⊞ Talk | ▶ Video | ▶ Video FF

Lumos: Increasing Awareness of Analytic Behavior during Visual Data Analysis

A. Narechania, A. Coscia, *E. Wall*, and A. Endert *IEEE Transactions on Visualization and Computer Graphics (Proc. VIS'21)*, 2021.

 PDF |
 System & Code | I Talk | ▶ Video | ➤ Video | F

VitaLITy: Promoting Serendipitous Discovery of Academic Literature with Transformers & Visual Analytics

A. Narechania, A. Karduni, R. Wesslen, and *E. Wall IEEE Transactions on Visualization and Computer Graphics (Proc. VIS'21)*, 2021.

 PDF |
 Image: System & Code | Image: System | I

A Heuristic Approach to Value-Driven Evaluation of Visualizations

E. Wall, M. Agnihotri, L. Matzen, K. Divis, M. Haass, A. Endert, and J. Stasko

IEEE Transactions on Visualization and Computer Graphics (Proc. InfoVis'18), 2019.

🖺 PDF | 🖽 Talk | 🏶 Website | 🝽 Video FF

Podium: Ranking Data Using Mixed-Initiative Visual Analytics

E. Wall, S. Das, R. Chawla, B. Kalidindi, E. Brown, and A. Endert *IEEE Transactions on Visualization and Computer Graphics (Proc. VAST'17)*, 2018.

 PDF | I Talk | ▶ Video | ▶ Video FF | □ Demo

AxiSketcher: Interactive Nonlinear Axis Mapping of Visualizations through User Drawings

B.C. Kwon, H. Kim, *E. Wall*, J. Choo, H. Park, and A. Endert *IEEE Transactions on Visualization and Computer Graphics (Proc.*

Conference Proceedings

Exploring the Capability of LLMs in Performing Low-Level Visual Analytic Tasks on SVG Data Visualizations

Z. Xu and E. Wall

IEEE Information Visualization (VIS) Short Papers, 2024.

🖺 PDF

Trust Junk and Evil Knobs: Calibrating Trust in Al Visualization

E. Wall, L. Matzen, M. El-Assady, P. Masters, H. Hosseinpour, A.

Endert, R. Borgo, P. Chau, A. Perer, H. Schupp, H. Strobelt, and L. Padilla

IEEE Pacific Visualization Conference, 2024.

PDF

Let's Get Vysical: Perceptual Accuracy in Visual & Tactile Encodings

Z. Xu, K. Williams, and E. Wall

IEEE Information Visualization (VIS) Short Papers, 2023.

🖺 PDF | 🖿 Supplemental | 🖪 Talk | ▶ Video FF

Toward a Design Space for Mitigating Cognitive Bias in Vis

E. Wall, J. Stasko, and A. Endert

IEEE Information Visualization (VIS) Short Papers, 2019.

🖺 PDF | 🖿 Supplemental | 🖽 Talk | ▶ Video FF

A Markov Model of Users' Interactive Behavior in Scatterplots

E. Wall, A. Arcalgud, K. Gupta, and A. Jo

IEEE Information Visualization (VIS) Short Papers, 2019.

PDF | E∃Talk | ▶ Video FF

A Formative Study of Interactive Bias Metrics in Visual Analytics Using Anchoring Bias

E. Wall, L. Blaha, C. Paul, and A. Endert

Proceedings of the 17th IFIP TC 13 International Conference on Human-Computer Interaction (INTERACT'19), 2019.

 PDF | ▶ Video

Using Expert Patterns in Assisted Interactive Machine Learning: A Study in Machine Teaching

E. Wall, S. Ghorashi, and G. Ramos

Proceedings of the 17th IFIP TC 13 International Conference on Human-Computer Interaction (INTERACT'19), 2019.



Warning, Bias May Occur: A Proposed Approach to Detecting Cognitive Bias in Interactive Visual Analytics

E. Wall, L. Blaha, L. Franklin, and A. Endert

IEEE Visual Analytics Science and Technology (VAST), 2017.

 PDF | I Talk | ▶ Video | ▶ Video FF

Supporting Team-First Visual Analytics through Group Activity Representations

S.K. Badam, Z. Zeng, *E. Wall*, A. Endert, and N. Elmqvist *Graphics Interface*, 2017.

PDF | ► Video

Refereed Workshop Papers

Visualization and Automation in Data Science: Exploring the Paradox of Humans-in-the-Loop

J. Rogers, M. Anastacio, J. Bernard, M. Chakhchoukh, R. Faust, A. Kerren, S. Koch, L. Kotthoff, C. Turkay, and *E. Wall Workshop on Visualization in Data Science (VDS, at VIS'24)*, 2024.

PDF

VITALITY 2: Reviewing Academic Literature Using Large Language Models

H. An, A. Narechania, E. Wall, and K. Xu Workshop on Natural Language and Visualization (NLVIZ, at VIS'24), 2024.

PDF

Visual Salience to Mitigate Gender Bias in Recommendation Letters

Y. Da, M. Chen, B. Altschuler, Y. Bu, and *E. Wall* Workshop on Visualization for Social Good (VIS4Good, at VIS'23), 2023.

🖺 PDF | 🖿 Supplemental | 🖪 Talk

Perception of Skill in Visual Problem Solving: An Analysis of Interactive Behaviors, Personality Traits, and the Dunning-Kruger Effect

M. Chen and E. Wall

Workshop on TRust and EXpertise in Visual Analytics (TREX, at VIS'22), 2022.

PDF

COVID-19 Health Equity Dashboard - Addressing Vulnerable Populations

S. Liu, *E. Wall*, S. Patel, and Y. Park

Visualization for Communication (VisComm, at VIS'20), 2020.

PDF

Four Perspectives on Human Bias in Visual Analytics

E. Wall, L. Blaha, C. Paul, K. Cook, and A. Endert DECISIVe: Workshop on Dealing with Cognitive Biases in Visualizations (at InfoVis'17), 2017.

PDF

Book Chapters

Four Perspectives on Human Bias in Visual Analytics

E. Wall, L. Blaha, C. Paul, K. Cook, and A. Endert *Cognitive Biases in Visualizations*, Ed. G. Ellis, Springer, 2018, Chapter 3, pp. 29-42.

■ Book | **■** Chapter

Theses

Detecting and Mitigating Human Bias in Visual Analytics

Emily Wall

Georgia Tech, School of Interactive Computing Ph.D. Thesis. April 2020.

■ PDF

Grants & Funding

Role: PI

Funded: \$30,000

Research

2024-	Promoting Metacognition in Visual Analytics
2029	NSF CAREER Award
	Role: PI
	Funded: \$643,965 (Emory)
2023-	Advancing Visualization Decision Support through
2027	Mitigating Confirmation Bias
	NSF IIS-HCC
	Role: PI
	Co-PI: Dr. Cindy Xiong
	Funded: \$683,097 (Emory) / \$1,198,084 (total)
2023- 2026	Toward Interventions For Equitable University Admissions
	With Visual Analytics
	Emory Office of Provost: Racial Justice/Racial Equity
	Role: PI
	Co-PI: Dr. Wesley Longhofer Funded: \$148,850
2023- 2024	Developing Behavior Change Interventions for
	Responsible Data Science
	Emory University Research Committee

Developing an Immersive Cognitive Task for Expanding
the Assessment of Memory in Pediatrics
Pediatric Research Alliance Pilot Grant
Role: Co-I
Co-Pls: Dr. Daniel Drane, Dr. Ammar Kheder, Noah Okada,

Dr. Joshua Chern, and Dr. Donald Bearden

A Novel Web-based Decision Aid Tool for Reducing COVID-

2023 19 Vaccine Hesitancy

Funded: \$50,000

HealthCare Innovation Seed Grant

Role: Co-I

Co-Pls: Dr. Ambar Kulshreshtha, Dr. Shivani Patel, Dr. Piyush

Kumar

Funded: \$24,995

Other

2022-

Student Travel Support for the Doctoral Colloquium at

IEEE Visualization (IEEE VIS) 2024

NSF IIS Travel Award

Role: PI

Funded: \$25,000

²⁰²³ Scholarly Writing And Publishing (SWAP) Fund Award

Spring

Emory University Funded: \$2,250

Purpose: hire editor to assist with NSF CAREER proposal

writing

2023 Pedagogy Mini Grant

Spring

Human-Computer Interaction (CS 485/584), Emory

University Funded: \$350

Purpose: purchase Google cardboard for a virtual reality

design module

^{2022 Fall} Pedagogy Mini Grant

Information Visualization (CS 485/584), Emory University

Funded: \$350

Purpose: fund user study incentives for course projects that

are pursuing publication

Teaching

Instructor

Spring Human-Computer Interaction (CS 485 / 584) (29 students)
Emory University

Fall 2023	Information Visualization (CS 441 / 541) (36 students) Part of the Arts & Social Justice Program Emory University
Spring 2023	Human-Computer Interaction (CS 485 / 584) (34 students) Emory University
Fall 2022	Information Visualization (CS 485 / 584) (41 students) Emory University
Spring 2022	Human-Computer Interaction (CS 485 / 584) (40 students) Emory University
Fall 2021	Information Visualization (CS 485 / 584) (26 students) Emory University

Guest Lecturer

Mar 2024	Information Visualization
	Environmental Health Seminar: Impact Evaluation of Global and Environmental Health Programs and Projects (EH 590R), Emory University
Oct 2023	Visual Analytics Human-Al Interaction (CS 485/585), Emory University
Feb 2023	Accessibility and Universal Design in HCI Affordable and Sustainable Healthcare Technologies (BMI 585), Emory University
Nov 2022	Bias in Data-Driven Decision Making: Perception, Cognition, and Metacognition Introduction to Information Visualization (CS 4460), Georgia Institute of Technology
Oct 2021	Visual Analytics Data Visualization (CompSci 765), University of Wisconsin
Feb 2019	Introduction to Javascript Introduction to Information Visualization (CS 4460), Georgia Institute of Technology
Dec 2017	Cognition in Visualization Information Visualization (CS 7450), Georgia Institute of Technology
Nov 2017	Visual Analytics Information Visualization (CS 7450), Georgia Institute of Technology
Jun 2017	Visualization Design: Do's and Don'ts Introduction to Information Visualization (CS 4460), Georgia Institute of Technology

Presentations

Invited Talks

Cognition & Visualization @ Emory: A Visualization Viewpoint on Mitigating Metacognitive Deficits

- > *March 2024*. Scientific Computing and Imaging (SCI) Institute at University of Utah.
- > September 2022. Emory SON Center for Data Science.
- > September 2022. ATLAS Institute at University of Colorado Boulder.

Good and Bad Biases in Innovation, Decision Making, and Beyond

> November 2023. Emory Center for Mind, Brain, and Culture.

Bias in Visualization: Considering Equity through Research

> November 2021. Object Perception, visual Attention, and visual Memory (OPAM) conference. Watch

As We Are: Detecting and Mitigating Human Bias in Visual Analytics

- > *April 2021*. University of Utah, Data Science Seminar. Virtual Seminar.
- > *October 2020*. Pacific Northwest National Laboratory. Virtual Brown Bag.
- > September 2020. Emory University. Atlanta, GA. 🛂 Abstract
- > May 2020. CMU & AFRL, Center for Excellence on Human-Machine Teaming. Virtual Brown Bag.
- > May 2020. Siemens. Virtual Brown Bag.
- > *March 2020*. Cornell University, Info Science Colloquium. Ithaca, NY. 🔄 Abstract
- > February 2020. University of Washington, Allen School Colloquium. Seattle, WA. 🔄 Watch
- > February 2020. Emory University. Atlanta, GA. 🛂 Abstract
- > February 2020. New York University. New York, NY. 🗗 Abstract
- > February 2020. University of Wisconsin. Madison, WI.

Left, Right, and Gender: Mitigating Implicit Human Bias in Visual Analytics

> January 2020. Georgia Institute of Technology, GVU Brown Bag. Atlanta, GA. 🔄 Watch

The Interactive Analytics Library: Treating Interaction as Data

> May 2017. Pacific Northwest National Laboratory. Richland, WA.

Other Posters and Demonstrations

Warning, Bias May Occur: Detecting and Mitigating Cognitive Bias in Visual Analytics (Poster & Demo)

- > *October 2019*. Georgia Institute of Technology, GVU Demo Showcase. Atlanta, GA.
- > June 2019. Summer Institute on Bounded Rationality. Berlin,

Germany.

> *April 2019*. Georgia Institute of Technology, GVU Demo Showcase. Atlanta, GA.

Warning, Bias May Occur: A Proposed Approach to Detecting Cognitive Bias in Interactive Visual Analytics (Demo)

- > April 2018. CRA-W Grad Cohort. San Francisco, CA.
- > *April 2018*. Georgia Institute of Technology, GVU Demo Showcase. Atlanta, GA.
- > *April 2017*. Georgia Institute of Technology, GVU Demo Showcase. Atlanta, GA.

Podium: Ranking Data Using Mixed-Initiative Visual Analytics (Poster & Demo)

- > *April 2018*. Georgia Institute of Technology, GVU Demo Showcase. Atlanta, GA.
- > *April 2017*. Georgia Institute of Technology, GVU Demo Showcase. Atlanta, GA.
- > April 2018. CRA-W Grad Cohort. San Diego, CA.
- > *April 2016*. Georgia Institute of Technology, GVU Demo Showcase. Atlanta, GA.

Students

Graduate Advisees

- Yanan DaPh.D. Computer Science and Informatics, Emory University
- Ziwei DongPh.D. Computer Science and Informatics, Emory University
- 2019- Shrey Gupta (co-advised w/ Avani Wildani)
 Ph.D. Computer Science and Informatics, Emory University
- Shiyao LiPh.D. Computer Science and Informatics, Emory University
- Mengyu (Bonnie) ChenPh.D. Computer Science and Informatics, Emory University
- Thomas DavidsonPh.D. Computer Science and Informatics, Emory University

Undergraduate Honors Thesis Advisees

2024 Tommy Skodje

Thesis: An Eye-Tracking Toolkit for Evaluating Memory in Epilepsy Patients

B.S. Honors Computer Science, Emory University (after Emory: M.S. student)

Thesis Committee (Undergraduate)

²⁰²⁴ Yijun Liu

Thesis: CodeCuddle: Automating Inclusive Web Design with Large Language Model B.S. High Honors Computer Science, Emory University

2024 Cole Smith

Thesis: Urinary RNA Biomarkers in Extracellular Vesicles from Post-DRE Urine to Predict Aggressive Prostate Cancer B.S. Highest Honors Chemistry, Minor Computer Science, Emory University

²⁰²³ Elijah Chou

Thesis: Measuring creativity in computer programming: A code distance approach

B.S. Highest Honors Computer Science, Emory University (after Emory: M.S. student, Emory)

2023 Chen Gong

Thesis: Evaluating Speaker Diarization in Transcripts: A Textbased Approach with the TDER Metric and the TranscribeView System B.S. Highest Honors Computer Science, Emory University (after Emory: M.S. student)

²⁰²³ Alexandra Li

Thesis: Signaface: Face Generation for SSL/TLS Certificate Change Detection

B.S. Highest Honors Computer Science, Emory University (after Emory: Ph.D. student, CMU)

Noah Okada

Thesis: Development of Immersive Cognitive Tasks for Use in Human Memory Research

B.S. Highest Honors Computer Science and Neuroscience, Emory University (after Emory: Ph.D. student, CalTech)

²⁰²³ Peyton Robertson

Thesis: Vulnerability Detection: A Machine Learning Approach to Identifying Security Vulnerabilities In Code B.S. Honors Computer Science, Emory University (after Emory: Cybersecurity Engineer, Microsoft)

²⁰²³ Sierra Talbert

Thesis: Human.exe: Generating Critical Theories of Humanity in Human-Computer Interaction B.S. Highest Honors Women, Gender, and Sexuality Studies and Computer Science, Emory University (after Emory: Ph.D. student, UCLA)

2023 Kevin Wu

Thesis: CONSchema: Schema matching with semantics and constraints

B.S. Honors Computer Science, Emory University (after Emory: Software Engineer, Capital One)

2023	Ruby Wu Thesis: ClusT: Interactive Visualization Tool for Deep
	Constrained Clustering on Tweets B.S. Honors Computer Science, Emory University (after Emory: M.S. student, CMU)
2023	Zach Zaiman Thesis: AudioStrike: Acoustic Identification of Keystrokes to Enhance End-to-End Session Integrity B.S. Highest Honors Computer Science, Emory University (after Emory: Software Engineer, Microsoft)
2022	Christina Chance Thesis: Accuracy of African American Vernacular English for Closed Captioning on Zoom B.S. Honors Computer Science, Emory University (after Emory: Ph.D. student, UCLA)
Ment	toring
2023-	Audrey Bu, B.S. Quantitative Sciences (Sociology Track) & Mathematics, Emory University, Class of 2025 Measuring gender and racial biases in university admissions
2022- 2023	Yijun Liu , B.S. Quantitative Sciences, Emory University, Class of 2024 Detecting Dunning-Kruger Effect in data visualization
2022- 2023	Zhongzheng Xu, B.S. Computer Science, Emory University, Class of 2023 (after Emory: M.S. student, Brown) Visual and tangible data accessibility
2021- 2023	Randy Truong, B.S. Computer Science and Quantitative Sciences, Emory University, Class of 2023 (after Emory: Pacific Northwest National Laboratory) Eliciting affective response using visualization and sonification
2021- 2022	Zhou (Serena) Fang, B.S. Quantitative Sciences, Emory University, Class of 2022 (after Emory: M.S. Biomedical Informatics, Harvard) Incorporating topic modeling in a visual analytic system for conducting literature reviews
2021- 2022	Yiping (Jessie) Liang, B.S. Computer Science and Applied Math, Emory University, Class of 2022 Conducting user study and evaluation for assessing impact of data representation on confirmation bias

Star Liu, B.S. Quantitative Sciences, Emory University, Class

Developed system for <u>visualizing health inequities</u> during the COVID-19 pandemic, first author of case study on

COVID-19 Health Equity Dashboard

2020-

2021

of 2021

Service

Professional Service

2024 Associate Editor

Journal of Visualization and Interaction (JoVI)

²⁰²¹⁻ Organizing Committee

2024 Doctoral Colloquium Chair, VIS 2024

Elections Chair, VIS 2021-2023

Program Committee Member

ACM FAccT, 2023

IEEE VIS, 2021-2023

BELIV Workshop on "Designing and Evaluating

Visualizations for an Ethical, Inclusive, and Responsible

Future", 2022

EuroVis, 2022, 2024

ACM CHI, 2022, 2024

Vis4Good Workshop at IEEE VIS, 2021

IEEE VIS Short Papers, 2020

VISxAl Workshop at IEEE VIS, 2019

CHI Late Breaking Work, 2018

> Organizer

Visualization for Social Good Workshop at IEEE VIS 2023

Visualization for Social Good Workshop at IEEE VIS 2022

TRust and EXpertise in Visual Analytics (TREX) Workshop

at IEEE VIS 2021

TRust and EXpertise in Visual Analytics (TREX) Workshop

at IEEE VIS 2020

> Panelist

Establishing and Thriving in an Academic Career @ IEEE

VIS, 2023

What is a Visual Analytics contribution, and how is it

changing? @ IEEE VIS, 2023

Women in Tech Panel, Emory Data Science Club and

ProgramHers, 2023

Equity in Vision Science at Object Perception, visual

Attention, and visual Memory (OPAM) conference, 2021

Advancing Visualization Inclusion and Diversity (AVID)

Workshop at IEEE VIS, 2017

> Reviewer (Papers)

Nature: 2023

IEEE VIS: 2017-2024

CHI: 2018-2024

Universal Access in the Information Society (UAIS): 2023

FAccT: 2023

TVCG: 2018-2023 EuroVis: 2020-2024 ACM TiiS: 2022

Cognitive Research: 2022

CG&A: 2021 CSCW: 2021

International Journal of Human-Computer Studies: 2019

KDD IDEA: 2017 VAST Challenge: 2016

> Reviewer (Funding)

Austrian Science Fund (FWF): 2023

Natural Sciences and Engineering Research Council of

Canada: 2022

National Science Foundation: 2021

> Session Chair

Questioning Data and Data Bias @ IEEE VIS 2022 Guidelines and Accessibility @ EuroVIS 2022 Interaction and Animation @ IEEE VIS 2020

Other Committees

VISxAl Best Paper Award Selection Committee: 2021 CHI Best Paper Award Selection Committee: 2022

Institutional Service

2020-**Graduate Admissions Committee** 2024 Computer Science Department, Emory University 2023-**Honors Program Selection Committee** 2024 Computer Science Department, Emory University 2020-**Faculty Search Committee** 2021 Computer Science Department, Emory University **Panelist** DEI Statement Panel, Emory University, 2021 Innovations in Online Teaching Panel, Emory University, 2021

Selected Media

Nov
2019
A Reflection on VIS2019: Or, How Doomed Are We?
Medium Blog Post, Multiple Views on Visualization
Research Explained. ■ Read
by Michael Correll

Nov
2019
Highlights from IEEE VIS 2019, Uncharted Software Blog.
■ Read
by Rosa Romero-Gómez

May 2019 Battling Bias. Ep. 3, Tech Unbound Podcast. Listen with Josh Preston

Other Professional Activities

Oct 2023	Atlanta Visualization Meetup, Co-Host Georgia Tech
Sep 2023	Human-Centered Approaches for Provenance in Automated Data Science Dagstuhl, Wadern, Germany
Aug 2022	Interactive Visualization for Fostering Trust in ML Dagstuhl, Wadern, Germany
Aug 2022	Emory CFDE Summer Teaching Intensive Emory University
Jun 2022	Visualization Summer Camp Atlantic City, NJ
Fall 2021	Emory CFDE Grantseekers' Institute Emory University
Oct 2021, June 2020	Emory College Online Teaching Strategies (ECOTS) Emory University
Aug 2021	Visualization Summer Camp Minneapolis, MN
Oct 2019	NextProf Nexus Workshop Atlanta, GA
Jun 2019	Summer Institute on Bounded Rationality Berlin, Germany
Apr 2018	CRA-W Grad Cohort Workshop San Francisco, CA
Oct 2016	Grace Hopper Celebration of Women in Computing Houston, TX
Apr 2016	CRA-W Grad Cohort Workshop San Diego, CA