

Grace Guo

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I am interested in research at the intersection of AI, visualization and human-computer interaction. My current research focuses on developing visual analytics tools for explainable AI and causal inference.

Education

Georgia Institute of Technology

PHD IN HUMAN-CENTERED COMPUTING

- Advised by Dr. Alex Endert

Atlanta, GA

Current

Carnegie Mellon University

BS IN COGNITIVE SCIENCE AND HUMAN-COMPUTER INTERACTION

- QPA: 3.91, Dean's List High Honors

Pittsburgh, PA

2018

Awards

IBM PhD Fellowship

IBM RESEARCH

2023-2024

Work Experience

Georgia Institute of Technology, School of Interactive Computing

GRADUATE RESEARCH ASSISTANT

- Advised by Dr. Alex Endert

Atlanta, GA

Aug 2019 - 2024 (projected)

International Business Machines Corporation (IBM)

RESEARCH INTERN, COMPUTATIONAL HEALTHCARE

- Developed visual analytics tools for domain-driven counterfactual explanations of AI model predictions of disease phenotypes from cardiac imaging and videos
- Manuscript under review at ACM FAccT 2024

Cambridge, MA

May 2023 - Aug 2023

International Business Machines Corporation (IBM)

RESEARCH INTERN, COMPUTATIONAL HEALTHCARE

- Worked with the IBM Healthcare Analytics team on causal inference problems
- Developed Causalvis, an open source Python visualization package to support causal inference analysis
- Manuscript published and presented at ACM CHI 2023

Cambridge, MA

May 2022 - Aug 2022

Pacific Northwest National Laboratory

RESEARCH INTERN, NATIONAL SECURITY INTERNSHIP PROGRAM

- Designed and implemented DietParselantro, a Jupyter widget for textual data classification
- Implemented Vaine, a system for interactively estimating causal effects in natural experiments
- Manuscript (Vaine) published and presented at IEEE VIS 2021

Richland, WA

May. 2020 - Aug 2020

Singapore University of Technology and Design

RESEARCHER, META-DESIGN LAB

- Studied the role of data visualizations in industry decision making
- Created an open source svelte visualization toolkit for flexible, componentized data visualization

Singapore

Aug. 2018 - Aug. 2019

Publications

Grace Guo, Lifu Deng, Animesh Tandon, Alex Endert, and Bum Chul Kwon. 2024. Towards Domain-centered Counterfactual Explanations of Cardiovascular Image Classification Models. *In Proceedings of the 2024 ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT)*. 1–19.

Grace Guo, Aishwarya Mudgal Sunil Kumar, Adit Gupta, Adam Coscia, Chris MacLellan, and Alex Endert. 2024. Visualizing Intelligent Tutor Interactions for Responsive Pedagogy. *In Proceedings of the 2024 International Conference on Advanced Visual Interfaces (ACM AVI)*. 1–9.

Grace Guo, John Stasko, and Alex Endert. 2024. What We Augment When We Augment Visualizations: A Design Elicitation Study of How We Visually Express Data Relationships. *In Proceedings of the 2024 International Conference on Advanced Visual Interfaces (ACM AVI)*. 1–6.

Grace Guo, Dustin Arendt, and Alex Endert. 2024. Explainability in JupyterLab and Beyond: Interactive XAI Systems for Integrated and Collaborative Workflows. <https://arxiv.org/abs/2404.02081> (2024).

Anh-Ton Tran, **Grace Guo**, Jordan Taylor, Katsuki Chan, Elora Raymond, and Carl DiSalvo. 2024. Situating Data Sets: Making Public Data Actionable for Housing Justice. *In Proceedings of the 2024 CHI conference on human factors in computing systems (ACM CHI)*. 1–16.

Grace Guo, Ehud Karavani, Alex Endert, and Bum Chul Kwon. 2023. Causalvis: Visualizations for Causal Inference. *In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (ACM CHI)*. 1–20.

Grace Guo, Maria Glenski, ZhuanYi Shaw, Emily Saldanha, Alex Endert, Svitlana Volkova, and Dustin Arendt. 2021. Vaine: Visualization and ai for natural experiments. *In Proceedings of the 2021 IEEE Visualization Conference (IEEE VIS)*. IEEE, 21–25.

Fabian Sperrle, Mennatallah El-Assady, **Grace Guo**, Rita Borgo, D Horng Chau, Alex Endert, and Daniel Keim. 2021. A Survey of Human-Centered Evaluations in Human-Centered Machine Learning. *In Computer Graphics Forum*, Vol. 40. Wiley Online Library, 543–568.

Fabian Sperrle, Mennatallah El-Assady, **Grace Guo**, Duen Horng Chau, Alex Endert, and Daniel Keim. 2020. Should we trust (x) AI? Design dimensions for structured experimental evaluations. *arXiv preprint arXiv:2009.06433* (2020).

Austin P Wright, Zijie J Wang, Haekyu Park, **Grace Guo**, Fabian Sperrle, Mennatallah El-Assady, Alex Endert, Daniel Keim, and Duen Horng Chau. 2020. A comparative analysis of industry human-AI interaction guidelines. *arXiv preprint arXiv:2010.11761* (2020).

Ate Poorthuis, Lucas van der Zee, **Grace Guo**, Jo Hsi Keong, and Bianchi Dy. 2020. Florence: a Web-based Grammar of Graphics for Making Maps and Learning Cartography. *Cartographic Perspectives* 96 (2020), 32–50.

Talks

Situating Data Sets: Making Public Eviction Data Actionable for Housing Justice

POLITICS OF DATASETS

ACM Conference on Human Factors in Computing Systems (ACM CHI). 2024. (Upcoming)

Causalvis: Visualizations for Causal Inference

MAKING SENSE & DECISIONS WITH VISUALIZATION

ACM Conference on Human Factors in Computing Systems (ACM CHI). 2023.

Flexible and Expressive Augmentation of Domain Specific Visualizations

DOCTORAL COLLOQUIUM

IEEE Visualization Conference (IEEE VIS). 2022.

VAINE: Visualization and AI for Natural Experiments

AI+VIS

IEEE Visualization Conference (IEEE VIS). 2021.

Survey of Evaluations in Human-Centered Machine Learning: Dimensions for Measuring Trust, Interpretability and Explainability

STARs

EuroVis. 2021.

Teaching

CS4460: Introduction to Information Visualization

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Spring 2023

CS7455: Issues in Human-Centered Computing

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Spring 2022

CS4873: Computing, Society and Professionalism

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Summer 2021

CS7450: Information Visualization

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

Fall 2020

15-112: Fundamentals of Programming and CS

CARNEGIE MELLON UNIVERSITY

Pittsburgh, PA

Fall 2015, Spring 2016

Service

Reviewing

CHI 2024 Papers

VIS 2023 Full Papers

ChinaVis 2022 Papers

EuroVis 2022 Full Papers

CHI 2020 Late Breaking Works

VIS 2020 VAST Papers

Skills

Frameworks and Libraries React, D3, WebGL, IPywidgets, Vue, Svelte

Programming Python, Javascript, C

Tools Git, Jupyter Lab, Adobe Suite

Research Quantitative Analysis, Interviews, Surveys, Expert Evaluations