Grace Guo

gguo31@g.harvard.edu | gracegsy.github.io | https://github.com/GraceGSy

Education

Georgia Institute of Technology *Atlanta, GA*

PhD in Human-Centered Computing *2024*

- Advised by Dr. Alex Endert

Carnegie Mellon University *Pittsburgh, PA*

BS in Cognitive Science and Human-computer Interaction *2018*

- QPA: 3.91, Dean's List High Honors

Awards

IBM PhD Fellowship *2023-2024*

IBM Research

Work Experience

Harvard University, School Of Engineering And Applied Sciences *Boston, MA*

Postdoctoral Fellow *July 2024 - Present*

- Collaborate with physicians at Harvard Medical School to develop new AI and visual analytics approaches to analyze highly multiplexed spatial data of tissues and tumors

International Business Machines Corporation (IBM) *Cambridge, MA*

Research Intern, Computational Healthcare *May 2023 - Aug 2023*

- Developed a novel approach for counterfactual explanation of AI image and video classification models in biomedical domains
- Built MiMICRI, an open source Python visual analytics tool for interactive generation of in-domain counterfactual cardiac MRI images
- Published and presented paper at ACM FAccT 2024

International Business Machines Corporation (IBM) *Cambridge, MA*

Research Intern, Computational Healthcare *May 2022 - Aug 2022*

- Collaborated with the IBM Healthcare Analytics team on causal inference problems
- Built Causalvis, an open source Python visualization package to support causal inference analysis
- Published and presented paper at ACM CHI 2023

Pacific Northwest National Laboratory *Richland, WA*

Research Intern, National Security Internship Program *May. 2020 - Aug 2020*

- 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

Singapore University of Technology and Design *Singapore*

Researcher, Meta-design Lab *Aug. 2018 - Aug. 2019*

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

Publications

Grace Guo, Lifu Deng, Animesh Tandon, Alex Endert, and Bum Chul Kwon. 2024. MiMICRI: Towards Domain-centered Counterfactual Explanations of Cardiovascular Image Classification Models. In *Proceedings of the 2024 ACM Conference on Fairness, Accountability, and Transparency (FAccT).* 1–14.

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 (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 (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 (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 (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 (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

MiMICRI: Towards Domain-centered Counterfactual Explanations of Cardiovascular Image Classification Models

Explainable AI

ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT). 2024.

Visualizing Intelligent Tutor Interactions for Responsive Pedagogy

Visual Tools for Education

17th International Conference on Advanced Visual Interfaces (AVI). 2024.

When We Augment Visualizations: A Design Elicitation Study of How We Visually Express Data Relationships

Visualization II

17th International Conference on Advanced Visual Interfaces (AVI). 2024.

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.

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 — *Atlanta, GA*

Georgia Institute of Technology — *Spring 2023*

CS7455: Issues in Human-Centered Computing — *Atlanta, GA*

Georgia Institute of Technology — *Spring 2022*

CS4873: Computing, Society and Professionalism — *Atlanta, GA*

Georgia Institute of Technology — *Summer 2021*

CS7450: Information Visualization — *Atlanta, GA*

Georgia Institute of Technology — *Fall 2020*

15-112: Fundamentals of Programming and CS — *Pittsburgh, PA*

Carnegie Mellon University — *Fall 2015, Spring 2016*

Skills

Frameworks and Libaries React, D3, WebGL, IPywidgets, Vue, Svelte, Pytorch

Programming Python, Javascript, C

Tools Git, Jupyter Lab, Adobe Suite

Research Quantitative Analysis, Interviews, Surveys, Expert Evaluations