Grace Guo

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Education

Georgia Institute of Technology *Atlanta, GA*
PhD Human-centered Computing *June 2024*

Carnegie Mellon University *Pittsburgh, PA*
BS Human-computer Interaction and Cognitive Science *May 2018*

Awards

IBM PhD Fellowship *2023-2024*

Experience

Harvard University *Boston, MA*
Postdoctoral Fellow *Current*
- 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

IBM Research *Cambridge, MA*
Research Intern *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
- MiMICRI was published and presented at ACM FAccT 2024

IBM Research Cambridge, MA
Research Intern 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
- Causalvis was published and presented at ACM CHI 2023

Pacific Northwest National Laboratory Richland, WA
Research Intern, National Security Internship Program May 2020 - Aug 2020
- Designed and implemented Jupyter widgets for textual data classification
- Designed and built VAINE, a system for interactively estimating causal effects in natural experiments
- VAINE was 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

[1] **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.

[2] **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.

[3] **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.

[4] **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).

[5] 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.

[6] **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.

[7] **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.

[8] 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.

[9] 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).

[10] 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).

[11] 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

Explainable AI *ACM FAccT, 2024*
MiMICRI: Towards Domain-centered Counterfactual Explanations of Cardiovascular Image
Classification Models

Visual Tools for Education *ACM AVI, 2024*
Visualizing Intelligent Tutor Interactions for Responsive Pedagogy

Visualization II *ACM AVI, 2024*
When We Augment Visualizations: A Design Elicitation Study of How We Visually Express Data
Relationships

Politics of Datasets *ACM CHI, 2024*
Situating Data Sets: Making Public Eviction Data Actionable for Housing Justice

Making Sense & Decisions with Visualization *ACM CHI, 2023*
Causalvis: Visualizations for Causal Inference

Doctoral Colloquium *IEEE VIS, 2022*
Flexible and Expressive Augmentation of Domain Specific Visualizations

AI+VIS *IEEE VIS, 2021*
VAINE: Visualization and AI for Natural Experiments

State-of-the-Art Reports (STARs) *EuroVis, 2021*
Survey of Evaluations in Human-Centered Machine Learning: Dimensions for Measuring Trust,
Interpretability and Explainability

Teaching

CS4460: Introduction to Information Visualization *Spring 2023*
Georgia Institute of Technology

CS7455: Issues in Human-Centered Computing *Spring 2022*
Georgia Institute of Technology

CS4873: Computing, Society and Professionalism *Summer 2021*
Georgia Institute of Technology

CS7450: Information Visualization *Fall 2020*
Georgia Institute of Technology

15-112: Fundamentals of Programming and CS *Fall 2015, Spring 2016*
Carnegie Mellon University