

# Xiaoying Pu

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URL: [xiaoyingpu.github.io](http://xiaoyingpu.github.io)

## Research Areas

Information visualization, human-computer interaction, XAI

## Experiences

- 2017-      University of Michigan — *Ann Arbor, MI*  
            Ph.D. Candidate (2020-). Advisor: Matthew Kay, Ph.D.  
            Dissertation: *Integrating Visualization Grammars with Data Analysts' Conceptual Models*
- 2020      Microsoft Research — *New York City, NY*  
            Research Intern. Mentors: Jake Hofman, Ph.D. and Dan Goldstein, Ph.D.
- 2019      National Renewable Energy Lab — *Golden, CO*  
            Visualization Intern. Mentor: Kristi Potter, Ph.D.
- 2016      National Center for Atmospheric Research — *Boulder, CO*  
            Summer Intern in Parallel Computational Science. Mentor: Rick Brownrigg, Ph.D.
- 2014 - 2015      Bucknell University — *Lewisburg, PA*  
                    Undergraduate Researcher in Computer Science. Advisor: Evan Peck, Ph.D.  
                    Undergraduate Researcher in Geology. Advisor: Carl Kirby, Ph.D.

## Education

- 2020      M.S. in Computer Science and Engineering  
            University of Michigan — *Ann Arbor, MI*
- 2017      B.S. in Computer Science and Engineering  
            Bucknell University — *Lewisburg, PA*  
            *Summa cum laude*. Minor: Mathematics

## Grants, Honors & Awards

- 2020 Best Paper Honorable Mention, ACM CHI Conference on Human Factors in Computing Systems
- 2014-2017 President's Award for Distinguished Academic Achievement, Bucknell University
- 2016 GHC Scholar, Anita Borg Institute, \$900
- 2015 Travel Award, Explore Graduate Studies in CSE at University of Michigan, \$350
- Oral Presentation Award (top 4%), Susquehanna Valley Undergraduate Research Symposium, \$100
- Honorable Mention, Mathematical Contest in Modeling — COMAP
- Bucknell Program for Undergraduate Research, "Improving Computer-Mediated Decision-Making via Physiological Signals from Wearable Sensors", \$3000.
- 2014 Katherine Mabis McKenna Environmental Internship Program, "Feasibility of using freshwater mussels to monitor Ba and Sr contamination due to shale gas flowback water in Pennsylvania streams", \$3500 stipend + \$600 material.

## Publications & Presentations

IN PREPARATION

- 2022 **Pu, Xiaoying**, Abhraneel Sarma, Michael Correll, Eli T Brown, and Matthew Kay. Odds and Insights: Improving Evaluation of Decision-making Quality in Visual Analytics.

CONFERENCE PROCEEDINGS, FULLY REVIEWED AND ARCHIVAL

*Conferences are the main publication venues for computer science research.*

- 2021 **Pu, Xiaoying**, Sean Kross, Jake Hofman, Daniel Goldstein. Datamations: Animated Explanations of Data Analysis Pipelines. 2021. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (CHI 2021).
- 2020 **Pu, Xiaoying**, Matthew Kay. A Probabilistic Grammar of Graphics. 2020. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (CHI 2020). (Best Paper Honorable Mention, top 5%)
- Pesé, Mert D., **Xiaoying Pu**, and Kang G. Shin. 2020. SPy: Car Steering Reveals Your Trip

Route!. In *Proceedings on Privacy Enhancing Technologies* 2020.2: 155-174.

- 2018     **Pu, Xiaoying**, and Matthew Kay. The Garden of Forking Paths in Visualization: A Design Space for Reliable Exploratory Visual Analytics: Position Paper. In *2018 IEEE Evaluation and Beyond-Methodological Approaches for Visualization (BELIV)*. IEEE, 2018.

#### WORKSHOP PAPERS AND POSTERS, LIGHTLY REVIEWED AND NON-ARCHIVAL

- 2021     **Pu, Xiaoying** Matthew Kay, Steven M. Drucker, Jeffrey Heer, Dominik Moritz, and Arvind Satyanarayan. 2021. Special Interest Group on Visualization Grammars. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems (CHI 2021)*.

- 2019     **Pu, Xiaoying**. 2019. Visual analytics techniques for uncertainty in power systems simulation ensembles. In *VIS 2019 Application Spotlight — Visualization Paradigms in the Renewable Energy Space*.

**Pu, Xiaoying**, Matthew Kay, Michael Correll, Eli Brown. 2019. Unbiasing Visual Data Exploration in the Garden of Forking Paths. *CHI 2019 Workshop on Human-Centered Study of Data Science Work Practices*.

**Pu, Xiaoying**, Licheng Zhu, Matthew Kay, and Frederick Conrad. 2019. Designing for Pre-registration: a User-Centered Perspective. In *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI'19 Extended Abstracts)*, May 4-9, 2019, Glasgow, Scotland UK. ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/3290607.3312862>

- 2018     Kay, Matthew, **Xiaoying Pu**, and Frederick Conrad. 2018. Preregistration: Assessing Whether the Pledge Matches the Report. Presentation at the *APA Annual Convention, San Francisco, CA*.

- 2014     **Pu, Xiaoying** and C.S. Kirby. 2014. Feasibility of using freshwater mussels to monitor Ba and Sr contamination due to shale gas flowback water in Pennsylvania streams. *Geological Society of America Abstracts with Programs, Vol. 46, No. 6, p.315*.

## Teaching

### GRADUATE STUDENT INSTRUCTOR

Teaching discussion sections, designing homework assignments, and hosting office hours.

- WN 2021     EECS 203 - Discrete Mathematics

## UNDERGRADUATE TEACHING ASSISTANT

Assisted the instructor and answered student questions in labs.

SP 2016	CSCI 204L - Introduction to Computer Science II lab
	CSCI 206L - Computer Organization and Programming lab
FA 2016	CSCI 208L - Programming Languages lab
FA 2014	PHYS 211L - Classical & Modern Physics lab

## TEACHING TRAINING

SP 2017	UNIV 239 - Working with Writers: Theory and Practice
	Training course for working as a consultant at the Writing Center.

## Service

### PAPER REVIEWS

2022	CHI 2022 Papers, Special Recognitions for Outstanding Reviews
2021	TVCG 2021 papers
2021	VIS 2021 Papers, short papers, TREX workshop
2020	CHI 2020 Papers, Special Recognitions for Outstanding Reviews
2019	CHI 2019 Late Breaking Work, alt.chi
	VIS 2019 InfoVis Papers

### ORGANIZATIONS AND EVENTS

2022	Carillon Studio Concert: Broadening the Carillon Repertoire at the “Diversity and Belonging: Unsung Keyboard Stories” conference
	Performed two songs
2020	Earth Day 50 Teach Out, University of Michigan
	Performed a nature-themed carillon arrangement
2019-2020	Data Visualization Rackham Interdisciplinary Workshops, University of Michigan
	Student coordinator for a university-wide visualization speaker series
2018 - 2019	Middle school outreach program with GirlsEncoded, University of Michigan

SP 2016    President. Bucknell ACM Women-in-Computing Chapter  
2016        First Bucknell Admissions Outreach for promoting diversity

#### STUDENT MENTORING

2021        Sophia Wang  
              Undergraduate student at the University of Michigan

2020-2021   Daniel Wang  
              Undergraduate student at Northwestern University

2019-2020   Qiang Cheng, Statistics  
              Undergraduate student at the University of Michigan

2018–2019   Dillon Zaugg, Computer Science and Engineering  
              Undergraduate Research Opportunity Program (UROP) at the University of Michigan