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CONTACT INFORMATION	<a href="mailto:xpu@umich.edu">xpu@umich.edu</a> <a href="https://xiaoyingpu.github.io">xiaoyingpu.github.io</a>
RESEARCH INTERESTS	Uncertainty visualizations, visual analytics, human-computer interaction.
EDUCATION	<p><b>University of Michigan</b>, Ann Arbor, MI</p> <p>Ph.D. pre-candidate in Computer Science and Engineering 2017- <b>Bucknell University</b>, Lewisburg, PA</p> <p>B.S., <a href="#">Computer Science and Engineering</a>, 4.0/4.0. 2013 - 2017</p>
RESEARCH EXPERIENCES	<p><b>Graduate Student Research Assistant</b> Fall 2017 -          Advisor: Matthew Kay, Ph.D. (School of Information)          Computer Science and Engineering, University of Michigan, Ann Arbor, MI          Member of the <a href="#">Midwest Uncertainty Collective</a>.</p> <p><i>Research projects:</i></p> <ul style="list-style-type: none"> <li>• Using Bayesian hierarchical models to study decision-making aided by uncertainty visualizations in MTurk experiments.</li> <li>• Designing and implementing a probabilistic grammar of graphics.</li> <li>• Proposed a design space for reliable exploratory visual analytics.</li> <li>• Conducted a qualitative interview study to understand the use of preregistration.</li> </ul> <p><b>Computer Science (Visualization) Intern</b> Summer 2019          Mentor: Kristi Potter, Ph.D.          Insight Center          National Renewable Energy Laboratory (NREL), Golden, CO</p> <ul style="list-style-type: none"> <li>• Context: energy systems (power grid) integration research.</li> <li>• Iteratively prototyped interactive visualizations with scientists.</li> <li>• Designed two new visual representations for dynamical system concepts.</li> <li>• Reviewed uncertainty visualization techniques applied to visual analytics.</li> </ul> <p><b>Summer Internship in Parallel Computational Science</b> Summer 2016  <i>Visualization, interdisciplinary collaboration</i>          Advisor: Rick Brownrigg, Ph.D.          Computational and Information Systems Lab (CISL)          National Center for Atmospheric Research (NCAR), Boulder, CO</p> <ul style="list-style-type: none"> <li>• Examined and cleaned climate model outputs with NCL and GDAL.</li> <li>• Visualized climate model similarity with multidimensional scaling.</li> <li>• Used an MIQP optimizer to achieve a non-overlapping layout.</li> <li>• Collaborated closely with NCAR climate scientists.</li> </ul>

## Undergraduate Researcher

May 2015 - Dec 2015

*Physiological computing, human-computer interaction*

Advisor: Evan M. Peck, Ph.D.

Department of Computer Science at Bucknell University

- Extended and optimized a physiological computing framework.
- Adopted MQTT protocol for streaming data across platforms.
- Used machine learning (Weka) to classify real-time cognitive load.
- Designed protocol to quantify implicit bias in decision-making.

## Undergraduate Researcher

Summer 2014

*Environmental geochemistry*

Advisor: Carl S. Kirby, Ph.D.

Department of Geology & Environmental Geosciences at Bucknell University

- Collected and analyzed field water quality data.
- Used freshwater mussels as biomarkers for heavy metal contaminants.
- Analyzed high spatial resolution *in-situ* concentration of Barium and Strontium in thin-sections from electron probe microanalysis (EPMA).

## PUBLICATION

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

## UNDER REVIEW

**Xiaoying Pu**, and Matthew Kay. 2019. A Probabilistic Grammar of Graphics. *CHI 2020*.

## IN PRESS

Mert Pese, **Xiaoying Pu**, Kang Shin. 2019. SPy: Car Steering Reveals Your Trip Route! *Proceedings on Privacy Enhancing Technologies (PoPETs)*.

## PRESENTATIONS

**Xiaoying Pu**, Licheng Zhu, Matthew Kay, and Frederick Conrad. 2019. Designing for Preregistration: a User-Centered Perspective. In *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI19 Extended Abstracts)*, May 4-9, 2019, Glasgow, Scotland UK. ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/3290607.3312862>

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

**Xiaoying Pu**. 2016. Visualizing Intermodel Comparison of Climate Simulations. *SIParCS program student presentations*.

**Xiaoying Pu** 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. (Poster presentation at 2014 Geological Society of

America Annual Meeting in Vancouver, BC.)

IN PREPARATION	C.S. Kirby and <b>Xiaoying Pu</b> , Feasibility of using freshwater mussels to monitor Ba and Sr contamination due to shale gas flowback water in Pennsylvania streams. Environmental Science & Technology or Applied Geochemistry.	
AWARDS	GHC Scholar — Anita Borg Institute	Oct. 2016
	Competitive stipend for attending the Grace Hopper Celebration, \$900	
	Oral Presentation Award (top 4%)	Aug. 2015
	Susquehanna Valley Undergraduate Research Symposium, \$100	
	Honorable Mention	Feb. 2015
	Mathematical Contest in Modeling — COMAP	
HONOR SOCIETIES	Tau Beta Pi Phi Beta Kappa (7 out of 900)	
GRANTS	Bucknell Program for Undergraduate Research	Summer 2015
	“Improving Computer-Mediated Decision-Making via Physiological Signals from Wearable Sensors”, \$3000.	
	Katherine Mabis McKenna Environmental Internship Program	Summer 2014
	“Feasibility of using freshwater mussels to monitor Ba and Sr contamination due to shale gas flowback water in Pennsylvania streams.”, \$3500 stipend + \$600 material.	
GRADUATE COURSEWORK	<ul style="list-style-type: none"><li>• Probability and Distribution Theory</li><li>• Natural Language Processing</li><li>• Machine Learning</li><li>• Social Computing Systems</li><li>• Principles of Real-time Computing</li><li>• Advanced Topics in Computer Architecture</li><li>• Carillon Performance &amp; Literature</li></ul>	
REVIEW EXPERIENCE	<ul style="list-style-type: none"><li>• CHI 2020 Papers, CHI 2019 Late Breaking Work, CHI 2019 alt.chi</li><li>• VIS 2019 InfoVis Papers</li></ul>	
TEACHING EXPERIENCES	<b>Undergraduate Teaching Assistant</b> <ul style="list-style-type: none"><li>• CSCI 208L - Programming Languages lab</li><li>• CSCI 204L - Introduction to Computer Science II lab</li><li>• CSCI 206L - Computer Organization and Programming lab</li><li>• PHYS 211L - Classical &amp; Modern Physics lab</li></ul>	
		Fall 2016
		Spring 2016
		Spring 2016
		Fall 2014

SERVICE	Data Visualization Rackham Interdisciplinary Workshop	Fall 2019 -
	Middle school outreach program with GirlsEncoded	Winter 2018 - Winter 2019
	President. Bucknell ACM Women-in-Computing Chapter	Spring 2016
	First Bucknell Admissions Outreach for promoting diversity	Jan. 2016
SKILLS	<ul style="list-style-type: none"> <li>• R, C/C++, Java, Python, Verilog, and MATLAB.</li> <li>• Statistical modeling, experimental design, applied machine learning, visualization, computer networks, and qualitative interview.</li> </ul>	