Xiaoying Pu ***Curriculum vitae***

CONTACT INFORMATION [redacted] [redacted]
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EDUCATION

University of Michigan, Ann Arbor, MI

Ph.D. precandidate in Computer Science and Engineering 2017-

Bucknell University, Lewisburg, PA

B.S., Computer Science and Engineering, 4.0/4.0. 2013 - 2017

RESEARCH EXPERIENCES

Graduate Student Research Assistant Fall 2017 -

Uncertainty visualization, open science practices
Advisor: Matthew Kay, Ph.D.,
Department of Computer Science/School of Information
University of Michigan, Ann Arbor

Research projects:

- Proposed a design space for reliable exploratory visual analytics.
- Conducted a qualitative interview study to understand the use of preregistration.
- Systematizing the categorization and generation of uncertainty visualizations.
- Modeling the effectiveness of an uncertainty visualization with pilot data.

Summer Internship in Parallel Computational Science Summer 2016

Visualization
Advisor: Rick Brownrigg, Ph.D.,
Computational and Information Systems Lab (CISL),
National Center for Atmospheric Research (NCAR), Boulder, CO

- Visualized climate model similarity with multidimensional scaling.
- Used an MIQP optimizer to achieve a non-overlapping layout.
- Collaborated closely with NCAR climate scientists.

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

- Designed to use 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

Pu, X. and Kay M., "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).

Presentations

Kay, M., **Pu, X.**, and Conrad, F. "Preregistration: Assessing Whether the Pledge Matches the Report". Presentation at the APA Annual Convention, San Francisco, CA. August 2018.

Pu, X., "Visualizing Intermodel Comparison of Climate Simulations". SIParCS program student presentations. July 2016.

Pu, X., "Decision-making via Wearable Biosensors". Susquehanna Valley Undergraduate Research Symposium. Oral presentation. August 2015.

Pu, X. and Kirby, C.S., "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

Kirby, C.S. and **Pu, X.**, "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 — 2015
"Improving Computer-Mediated Decision-Making via Physiological Signals from Wearable Sensors", $3000.

Katherine Mabis McKenna Environmental Internship Program — 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

- Probability and Distribution Theory
- Natural Language Processing
- Machine Learning
- Social Computing Systems
- Principles of Real-time Computing

Teaching Experiences

Undergraduate Teaching Assistant

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

Service

Middle school outreach program with GirlsEncoded — Winter 2018 -
President. Bucknell ACM Women-in-Computing Chapter — Spring 2016
First Bucknell Admissions Outreach for promoting diversity — Jan. 2016

Skills

- C/C++, Java, Python, Verilog, MATLAB, R and LaTeX.
- Applied machine learning, networks, experimental design, qualitative interview, statistics and visualization.
- FPGA programming, CAD, 3D printing and laser-cutting.