

# Melanie Bancilhon

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## Research Interests

My research interests are at the intersection of Human-Computer Interaction, Data Visualization and Explainable AI. My thesis work focuses on investigating how visualizations can impact reasoning and decision-making under uncertainty. I leverage interdisciplinary approaches to evaluate decision-making across populations with varying cognitive traits. I am also interested in developing interactive interfaces that facilitate human-AI teaming with the goal of optimizing decision outcomes.

## Education

- 2019 - Present      **Washington University in St. Louis**  
Ph.D. in Computer Science  
*Advisor:* Dr. Alvitta Ottley
- 2015 - 2019      **Smith College**  
B.A. Computer Science; B.A. Art and Architecture

## Publications

- CHI '23      Why Combining Text and Visualization Could Improve Bayesian Reasoning: A Cognitive Load Perspective  
**Bancilhon M.**, Wright AJ., Sunwoo H., Crouser R J., Ottley A.  
*Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems.*
- In submission      DocSpect: A Mixed Initiative System to Optimize Reviewing Strategies in Contract Inspection  
**Bancilhon M.**, Siu A., Rossi R. and Lipka N.
- ICAPS '22      VizXP: A Visualization Framework for Conveying Explanations to Users in Model Reconciliation Problems  
Kumar A., Vasileiou S., **Bancilhon M.**, Ottley A. and Yeoh W.  
*In Proceedings of the International Conference on Automated Planning and Scheduling.*
- PLOS ONE '21      Streetonomics: Quantifying culture using street names.  
**Bancilhon M.**, Constantinides M., Bogucka EP., Aiello LM., Quercia D.  
*PLoS ONE 16(6): e0252869*

IEEE VIS '20            Let's Gamble: How a Poor Visualization Can Elicit Risk Behavior.  
**Bancilhon, M.**, Liu, Z., Ottley, A.  
*In 2020 IEEE Visualization Conference (VIS) (pp. 196-200)*

IEEE CG&A '20        Cartographic Design of Cultural Maps.  
Bogucka, E.P., Constantinides, M., Aiello, L.M, Quercia, D., So, W.,  
**Bancilhon, M.**  
*IEEE Transactions on Computer Graphics and Applications.*

## Book Chapter

In Print                Improving Evaluation Using Visualization  
Decision-Making Models: A Practical Guide.  
**Bancilhon, M.**, Padilla, L., Ottley, A.  
*Visualization Psychology. Springer Nature.*

## Peer Reviewed Workshop Papers & Posters

IEEE TVCG '20        Did You Get The Gist Of It? Understanding How Visualization  
Impacts Decision-Making.  
**Bancilhon, M.**, Ottley, A.  
*IEEE Transactions on Visualization and Computer Graphics.*

IEEE FailFest '20     Expectation Versus Reality: The Failed Evaluation of a  
Mixed-Initiative Visualization System.  
Ha, S., **Bancilhon, M.**, Ottley, A.  
*IEEE Transactions on Visualization and Computer Graphics.*

IEEE VIS '19            Icons are Best: Ranking Visualizations for Proportion  
Estimation.  
Liu, Z., **Bancilhon, M.**, Ottley, A.  
*IEEE Information Visualization.*

## Professional Experience

Summer '23            **IBM | Research Intern**  
*AI, Yorktown Heights*  
**Human-AI Collaboration for Microservice Recommendation:**  
- Conducted participatory interviews to investigate end user workflows

and shortcomings when using microservice recommendation tools.

- Developed a framework to augment a microservice recommendation algorithm by accounting for user interaction patterns.
- Designed, developed and evaluated an interactive interface rooted in end users' needs that captures user interaction to facilitate human-AI collaboration.

Summer '22

**Adobe | Research Intern**

*Document Intelligence, San Jose*

**A Mixed Initiative System to Optimize Reviewing Strategies in Contract Inspection:**

- Lead formative interviews to investigate the contract reviewing process across different roles and teams.
- Implemented and evaluated an interface that allows users to review AI-generated labels by adopting an impact-oriented approach.

Summer '18

**Nokia Bell Labs**

Social Dynamics Group, Cambridge UK

- Examined urban historical, cultural and societal patterns encoded in a city's network of street names using data mining techniques.

## Teaching Experience

Spring 2022

Visualization Design Studio  
*Columbia School of Nursing*  
Guest Lecture

Spring 2021

Predicting Human Decisions  
*Worcester Polytechnic Institute*  
Guest Lecture

Fall 2020

Introduction to Visualization  
*Washington University in St. Louis*  
Teaching Assistant

## Awards & Distinctions

2022

Recipient of Inclusivity and Diversity Scholarship to attend IEEE VIS

2019 - Present

Sigma Xi Honor Society

2018

Grace Hopper Celebration Scholar

2021 NSF SCH Workshop Smart Health in the AI and COVID Era  
*Student Awardee*

## **Professional Service**

2023 IEEE Transactions on Visualization and Computer Graphics (TVCG)  
*Reviewer*

2023 ACM CHI Conference on Human Factors in Computing Systems  
*Reviewer*

2023 ACM SIGCHI Conference on Computer-Supported Cooperative Work  
& Social Computing (CSCW)  
*Reviewer*

2022 IEEE Visualization Conference  
*Reviewer*

2022 IEEE Visualization for Communication (VisComm)  
*Student Committee Member*

2021 IEEE Visualization for Communication (VisComm)  
*Student Committee Member*

2020 IEEE Visualization for Communication (VisComm)  
*Reviewer*

## **Mentorship & University Service**

2022 WashU representative and mentor at the Tapia Conference

2020 - 2023 Department of Computer Science & Engineering,  
Washington University in St. Louis  
*Graduate Student Senate Representative*

2021 - 2023 WashU First Gen Program  
*Mentor*