

# 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 collaboration with the goal of optimizing decision outcomes.

## Education

2019 - Present	<b>Washington University in St. Louis</b> Ph.D. in Computer Science <i>Advisor:</i> Alvitta Ottley <i>Committee:</i> Cindy Xiong, Alexa Siu, Chien-Ju Ho, William Yeoh
2015 - 2019	<b>Smith College</b> B.A. Computer Science; B.A. Art and Architecture

## Publications

In submission	Why We Trust: The Viewer's Perspective on Trust in Data Visualization McKinley O., Pandey S., <b>Bancilhon M.</b> & Ottley A.
CHI '23	Why Combining Text and Visualization Could Improve Bayesian Reasoning: A Cognitive Load Perspective <b>Bancilhon M.</b> , Wright AJ., Sunwoo H., Crouser R.J. & Ottley A. <i>ACM Conference on Human Factors in Computing Systems (CHI)</i>
In submission	DocSpect: A Mixed Initiative System to Optimize Reviewing Strategies in Contract Inspection <b>Bancilhon M.</b> , Siu A., Rossi R. & Lipka N.
In submission	Human-Centered Design for Microservice Recommendation <b>Bancilhon M.</b> , Krishna R. & Rofrano J.
ICAPS '22	VizXP: A Visualization Framework for Conveying Explanations to

Users in Model Reconciliation Problems  
Kumar A., Vasileiou S., **Bancilhon M.**, Ottley A. & Yeoh W.  
*International Conference on Automated Planning and Scheduling (ICAPS)*

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.  
*IEEE Visualization Conference (VIS) Short Papers*

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 (CG&A)*

## Book Chapter

Springer 2023      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 VIS '23      Beyond English: Centering Multilingualism in Data Visualization  
Rakotondravony, N., Dhawka, P., & **Bancilhon, M.**  
*IEEE VIS Workshop on Visualization for Social Good*

IEEE TVCG '20      Did You Get The Gist Of It? Understanding How Visualization  
Impacts Decision-Making.  
**Bancilhon, M.** & Ottley, A.  
*IEEE VIS Workshop on Visualization Psychology*

IEEE VIS '20      Expectation Versus Reality: The Failed Evaluation of a  
Mixed-Initiative Visualization System.  
Ha, S., **Bancilhon, M.** & Ottley, A.  
*IEEE VIS Fail Fest: A Workshop on Celebrating the Scientific Value of Failure*

IEEE VIS '19      Icons are Best: Ranking Visualizations for Proportion  
Estimation.

## Professional Experience

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|------------|--|
| Summer '23 | <b>IBM   Research Intern</b><br><i>AI, Yorktown Heights</i><br><b>Human-AI Collaboration for Microservice Recommendation:</b> <ul style="list-style-type: none"><li>- Conducted qualitative interviews with software engineers to investigate their workflow and shortcomings when using microservice recommendation tools.</li><li>- Developed a framework to augment a microservice recommendation algorithm by accounting for user interaction patterns.</li><li>- Designed, developed and evaluated an interactive interface rooted in end users' needs that captures user interaction to facilitate human-AI collaboration.</li></ul> |
| Summer '22 | <b>Adobe   Research Intern</b><br><i>Document Intelligence, San Jose</i><br><b>A Mixed Initiative System to Optimize Reviewing Strategies in Contract Inspection:</b> <ul style="list-style-type: none"><li>- Lead formative interviews with knowledge workers across different roles and teams to investigate their contract reviewing process.</li><li>- Implemented and evaluated an interface that allows users to review AI-generated labels by adopting an impact-oriented approach.</li></ul>   |
| Summer '18 | <b>Nokia Bell Labs</b><br>Social Dynamics Group, Cambridge UK <ul style="list-style-type: none"><li>- Examined urban historical, cultural and societal patterns encoded in a city's network of street names using data mining techniques.</li></ul>  |

## Teaching Experience

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|-------------|--|
| Spring 2022 | Visualization Design Studio<br><i>Columbia School of Nursing</i><br>Guest Lecturer     |
| Spring 2021 | Predicting Human Decisions<br><i>Worcester Polytechnic Institute</i><br>Guest Lecturer |

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 (CHI)  
*Reviewer*

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

2022                      IEEE Visualization Conference (VIS)  
*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 <i>Graduate Student Senate Representative</i>
2021 - 2023	WashU First Gen Program <i>Mentor</i>