

# Melanie Bancilhon

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## Research Interests

Human-Computer Interaction, Data Visualization, Decision-Making, Human-AI Teaming

## Research Positions

2024 - Present      **Army Research Lab (ARL) Postdoctoral Fellow**  
Visual Search Lab, George Washington University  
Advisors: Kelvin Oie, Stephen Mitroff, Dwight Kravitz

## Education

2019 - 2024      **Washington University in St. Louis**  
Ph.D. in Computer Science  
*Advisor:* Alvitta Ottley

2015 - 2019      **Smith College**  
B.A. Computer Science; B.A. Art and Architecture

## Publications

### Proceedings

CHI '25      The Anatomy of a Plea: How Uncertainty, Visualizations &  
Individual Differences Shape Plea Bargain Decisions.  
**Bancilhon M.**, Ottley A. & Jordan. A.  
*ACM Conference on Human Factors in Computing Systems (CHI)*

HCII '25      Trust Calibration for Joint Human/AI Decision-making in Dynamic and  
Uncertain Contexts.  
Marusich L., Files B., **Bancilhon M.**, Rawal J., Raglin A.  
*27th International Conference on Human-Computer Interaction (HCII)*

- CHI '23                      Why Combining Text and Visualization Could Improve Bayesian Reasoning: A Cognitive Load Perspective  
**Bancilhon M.**, Wright A.J., Sunwoo H., Crouser R.J. & Ottley A.  
*ACM Conference on Human Factors in Computing Systems (CHI)*
- 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)*
- 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*

## Book Chapters

- Springer 2023                      Improving Evaluation Using Visualization Decision-Making Models: A Practical Guide.  
**Bancilhon, M.**, Padilla, L., Ottley, A.  
*In Visualization Psychology, Albers Szafir, D., Borgo, R., Chen, M., Edwards, D.J., Fisher, B., Padilla, L. (eds). Springer, Cham.*
- IntechOpen 2024                      Toward an Optimized Human-AI Reviewing Strategy for Contract Inspection  
**Bancilhon M.**, Siu A., Rossi R. & Lipka N.  
*The New Era of Business Intelligence, IntechOpen.*

## Articles

- 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 '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 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)*

## Poster Presentations

- VSS '25 Exploring Individual Differences in Reliance on AI-Assisted Visual Search.  
**Bancilhon, M.**, Siqu-Liu A., Platzer, V. Kravitz, D. Oie, K., Mitroff, S.
- IEEE VIS '19 Icons are Best: Ranking Visualizations for Proportion Estimation.  
Liu, Z., **Bancilhon, M.** & Ottley, A.  
*IEEE Visualization Conference (VIS) Posters*

## Professional Experience

- Summer '23 **IBM | Research Intern**  
*AI, Yorktown Heights*

### **Human-AI Collaboration for Microservice Recommendation:**

- Conducted qualitative interviews with software engineers to investigate their workflow and shortcomings when using current microservice recommendation tools.
- Developed a framework to augment an AI-based microservice recommendation algorithm by accounting for user interaction patterns.
- Designed and developed an interactive and transparent visual interface that captures user interaction to facilitate human-AI collaboration.
- Conducted observational and qualitative evaluation of interactive

interface.

Summer '22

**Adobe | Research Intern**

*Document Intelligence, San Jose*

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

- Lead formative interviews with knowledge workers responsible for reviewing contracts to gain insights into their workflow, processes and impact on business decisions.
- Developed an optimal contract reviewing strategy which aims to reduce contract annotation time while generating probabilistic business projections.
- Built an interactive explainable interface that supports the proposed optimal reviewing framework and allows users to view AI outcomes and confidence scores and override AI-generated labels.

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 Lecturer

Spring 2021

Predicting Human Decisions  
*Worcester Polytechnic Institute*  
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 <i>Student Awardee</i>

## Outreach & Service

### Reviewing

2025	EuroVis Short Papers
2024	Cognitive Research: Principles and Implications
2020, 2022	IEEE Visualization Conference
2023, 2024	ACM CHI Conference on Human Factors in Computing Systems
2023	ACM Conference on Computer-Supported Cooperative Work
2023	IEEE Transactions on Visualization and Computer Graphics

### Organizing

2024	<b>EuroVis Short Papers International Program Committee</b>
2021, 2022	<b>Workshop Organizer &amp; Program Committee</b> As a member of student committee, I co-organized the Visualization for Communication (VisComm) workshop at IEEE VIS

### Diversity, Equity & Inclusion

2021 - 2023	<b>WashU First Gen Program Mentor</b> I mentored undergraduate first generation college students at WashU. The mission of this program is to create and maintain an environment that supports and provides resources to first generation college students.
2020 - 2023	<b>Graduate Student Senate Representative at WashU</b> I served as the Graduate Student Senate representative of the Department of Computer Science and Engineering, where I facilitated communication between the department and the student body. I organized activities for the student body such as panel talks centered around topics such as Mental Health in STEM.

2022	<b>Tapia Conference Mentor</b> I was a WashU representative, recruiter and mentor at the Tapia Conference
2021, 2022	<b>Mentor - BrightPath STEAM</b> Gave lectures and led interactive data activities for the BrightPath STEAM academy whose mission is to increase the representation of black people in the arts and sciences.

## Technical Strengths

### Research Methodologies

Usability testing, Survey Design, Gamified Experiments, Participatory Design, Qualitative Interviews, Quantitative Data Analysis, Thematic Analysis, Mixed Design Methods, A/B testing

### Programming Languages

Web Development: HTML, Javascript, CSS; Data Analysis: Python, R; Others: Swift, SQL

### Frameworks and Tools

D3.js, Dash, Qualtrics

## Languages

French (native), English (fluent)