

Melanie Bancilhon

m.bancilhon@email.gwu.edu | [mbancilhon96.github.io](https://github.com/mbancilhon96)

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

(under review)

The Anatomy of a Plea: How Uncertainty, Visualizations & Individual Differences Shape Plea Bargain Decisions.
Bancilhon M., Ottley A & Jordan. A.

Proceedings

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.
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 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

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
Student Awardee

Outreach & Service

Reviewing

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

2021, 2022 **Workshop Organizer & Program Committee**
As a member of student committee, I co-organized the Visualization for Communication (VisComm) workshop at IEEE VIS

Diversity, Equity & Inclusion

2021 - 2023 **Mentor - WashU First Gen Program**
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 **Graduate Student Senate Representative at WashU**
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 **Mentor - Tapia Conference**
I was a WashU representative, recruiter and mentor at the Tapia Conference

2021, 2022 **Mentor - BrightPath STEAM**
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)