

Melanie Bancilhon

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Research Interests

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

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

In submission Why We Trust: The Viewer's Perspective on Trust in Data
Visualization
McKinley O., Pandey S., **Bancilhon M.** & Ottley A.

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)

In submission DocSpect: A Mixed Initiative System to Optimize Reviewing Strategies
in Contract Inspection
Bancilhon M., Siu A., Rossi R. & Lipka N.

- In submission Human-Centered Design for Microservice Recommendation
Bancilhon M., 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.
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 <i>Columbia School of Nursing</i> Guest Lecturer
Spring 2021	Predicting Human Decisions <i>Worcester Polytechnic Institute</i> Guest Lecturer
Fall 2020	Introduction to Visualization <i>Washington University in St. Louis</i> 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

2021, 2022	Workshop Organizer & Program Committee As a member of student committee, I co-organized the Visualization for Communication (VisComm) workshop at IEEE VIS
2020 - Present	Reviewer TVCG (2023), CHI (2023), CSCW (2023), VIS (2020, 2022)
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)