

Michelle Brachman

Human-Centered AI Researcher

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Google Scholar



Research Areas

Human-centered AI, trustworthy and responsible AI, agentic AI, complex systems, future of work, software development, novice and end-user programming, CS education

Experience

- Sept 2020 - **Research Scientist, Human-Centered AI, IBM Research**, Cambridge, MA.
Dec 2025
- ◇ Led teams researching human-AI interaction to support end-users and developers.
 - ◇ Building a taxonomy of agentic AI errors (in progress).
 - ◇ Explored needs, trust, and pain points of users interacting with an agentic AI chatbot through a think-aloud + interview study, leading to design recommendations for the BeeAI open-source project during early incubation and a paper.
 - ◇ Designed, executed, and analyzed a large-scale survey of knowledge worker use of Large Language Models to better understand worker use of and needs around generative AI, resulting in a paper, recommendations for product design and incubation teams, and coverage of the research in Undark.
 - ◇ Designed and executed a comparative study to evaluate user needs for explainability and transparency for a (pre-GenAI) natural-language-to-automation innovation for the IBM AppConnect product, leading to design recommendations that were translated into product, a paper, and patents (one granted, one application).
 - ◇ Mentored non-researchers, new hires, and interns, leading to one intern conversion and multiple publications.
- Sept 2018 - **Assistant Professor, Department of Computer Science, University of Massachusetts Lowell**, Lowell, MA.
Aug 2020
- ◇ Designed and taught undergraduate and graduate HCI foundations and research methods courses.
 - ◇ Mentored students in HCI research on the challenges of learning APIs, resulting in a best paper, an undergraduate poster presentation, two successful master's theses, and a successful honors thesis.
- Aug 2012- **Graduate Research Assistant, Washington University in St. Louis**, St. Louis, MO.
July 2018
- ◇ Designed and executed human-computer interaction research in the context of children learning to program, resulting in a novel system and a deeper understanding of how novice programmers learn from code examples.
- May 2015 - **Research Intern, Bosch Research and Technology Center**, Pittsburgh, PA.
Dec 2015
- ◇ Designed, developed, and tested a crowdsourcing system in the context of automotive repair.
- Aug 2011 - **Junior Web Developer, Charles River Web**, Somerville, MA.
June 2012
- ◇ Developed and maintained websites using PHP, JavaScript, HTML, and CSS.

Education

Ph.D. Computer Science & Human-Computer Interaction, Washington University in St. Louis, St. Louis, MO.

B.S. Computer Science, Tufts University, Medford, MA, *Magna Cum Laude*

Skills

- ◇ **Qualitative and Quantitative UX/HCI methods:** Study design, prototyping, wireframes, interviews, user studies, surveys, heuristic evaluation, A/B testing, thematic analysis, statistical analysis, competitive analysis
- ◇ **Project:** Project design and leadership, mentoring, zero-to-one projects, presentations, writing, academic publishing, patenting
- ◇ **Tools:** Qualtrics, Mural, Figma, VSCode, Jupyter Notebook
- ◇ **Languages:** Python, JavaScript, TypeScript, SQL, R, HTML, CSS, Java
- ◇ **Technologies:** Node.js, React.js, PostgreSQL, MongoDB, Git, Pandas, Matplotlib, Seaborn

Publications

Conference Papers

- 2025 **Michelle Brachman**, Amina El-Ashry, Casey Dugan, Werner Geyer. *Current and Future Use of Large Language Models for Knowledge Work* In: Proceedings of the ACM on Human-Computer Interaction (CSCW).
- 2025 **Michelle Brachman**, Siya Kunde, Sarah Miller, Ana Fucs, Samantha Dempsey, Jamie Jabbour, Werner Geyer. *Building Appropriate Mental Models: What Users Know and Want to Know about an Agentic AI Chatbot* In: Proceedings of the 30th International Conference on Intelligent User Interfaces (IUI).
- 2025 Werner Geyer, Jessica He, Daita Sarkar, **Michelle Brachman**, Chris Hammond, Jennifer Heins, Best Paper Zahra Ashktorab, Carlos Rosemberg, Charlie Hill. *A Case Study Investigating the Role of Generative AI in Quality Evaluations of Epics in Agile Software Development* In: Proceedings of the 4th Annual Symposium on Human-Computer Interaction for Work (CHIWORK).
- 2025 Zahra Ashktorab, Michael Desmond, Qian Pan, James Johnson, **Michelle Brachman**, Casey Dugan, Marina Danilevsky, Werner Geyer. *Emerging Reliance Behaviors in Human-AI Content Grounded Data Generation: The Role of Cognitive Forcing Functions and Hallucinations* In: Proceedings of the 4th Annual Symposium on Human-Computer Interaction for Work (CHIWORK).
- 2025 Simret Araya Gebreegziabher, Charles Chiang, Zichu Wang, Zahra Ashktorab, **Michelle Brachman**, Werner Geyer, Toby Jia-Jun Li, Diego Gómez-Zarà. *MetricMate: An Interactive Tool for Generating Evaluation Criteria for LLM-as-a-Judge Workflow* In: Proceedings of the 4th Annual Symposium on Human-Computer Interaction for Work (CHIWORK).
- 2025 Zijian Ding, **Michelle Brachman**, Joel Chan, Werner Geyer. *"The Diagram is like Guardrails": Structuring GenAI-assisted Hypotheses Exploration with an Interactive Shared Representation* In: Proceedings of the 2025 Conference on Creativity and Cognition.
- 2024 Hyo Jin Do, **Michelle Brachman**, Casey Dugan, James M Johnson, Julia Lauer, Priyanshu Rai, Qian Pan. *Grounding with Structure: Exploring Design Variations of Grounded Human-AI Collaboration in a Natural Language Interface* In: Proceedings of the ACM on Human-Computer Interaction (CSCW).
- 2024 Hyo Jin Do, **Michelle Brachman**, Casey Dugan, Qian Pan, Priyanshu Rai, James M Johnson, Roshni Thawani. *Evaluating What Others Say: The Effect of Accuracy Assessment in Shaping Mental Models of AI Systems* In: Proceedings of the ACM on Human-Computer Interaction (CSCW).
- 2023 **Michelle Brachman**, Qian Pan, Hyo Jin Do, Casey Dugan, Arunima Chaudhary, J Johnson, Priyanshu Rai, Tathagata Chakraborti, Thomas Gschwind, Jim A Laredo, Christoph Miksovic Czasch, Paolo Scotton, Kartik Talamadupula, Gegi Thomas. *Follow the Successful Herd: Towards Explanations for Improved Use and Mental Models of Natural Language Systems* In: ACM International Conference on Intelligent User Interfaces (IUI).

- 2023 Zahra Ashktorab, Michael Desmond, James M Johnson, Qian Pan, Casey Dugan, **Michelle Brachman**, Carolina Spina *SME-in-the-loop: Interaction Preferences when Supervising Bots in Human-AI Communities* In: Proceedings of the ACM on Human-Computer Interaction (CSCW).
- 2022 **Michelle Brachman**, Zahra Ashktorab, Michael Desmond, Evelyn Duesterwald, Casey Dugan, Narendra Nath Joshi, Qian Pan, Aabhas Sharma. *Reliance and Automation for Human-AI Collaborative Data Labeling Conflict Resolution* In: Proceedings of the ACM on Human-Computer Interaction (CSCW).
- 2021 Zahra Ashktorab, Michael Desmond, Josh Andres, Michael Muller, Narendra Nath Joshi, **Michelle Brachman**, Aabhas Sharma, Kristina Brimijoin, Qian Pan, Christine T Wolf, Evelyn Duesterwald, Casey Dugan, Werner Geyer, Darrell Reimer *AI-Assisted Human Labeling: Batching for Efficiency without Overreliance* In: Proceedings of the ACM on Human-Computer Interaction (CSCW).
- 2021 Michael Desmond, Michael Muller, Zahra Ashktorab, Casey Dugan, Evelyn Duesterwald, Kristina Brimijoin, Catherine Finegan-Dollak, **Michelle Brachman**, Aabhas Sharma, Narendra Nath Joshi, Qian Pan *Increasing the speed and accuracy of data labeling through an ai assisted interface* In: ACM International Conference on Intelligent User Interfaces (IUI).
- 2020 Gao Gao, Finn Voichick, **Michelle Ichinco** and Caitlin Kelleher. *Exploring Programmers' API Learning Processes: Collecting Web Resources as External Memory* In: 2020 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), IEEE. 2020.
- Best Paper 2019 **Michelle Ichinco** and Caitlin Kelleher. *Open-Ended Novice Programming Behaviors and their Implications for Supporting Learning* In: 2019 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) (pp. 45-53). IEEE.
- 2019 Caitlin Kelleher and **Michelle Ichinco**. *Towards a Model of API Learning* In: 2019 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) (pp. 163-168). IEEE.
- 2018 **Michelle Ichinco** and Caitlin Kelleher. *Semi-Automatic Suggestion Generation for Young Novice Programmers in an Open-Ended Context*. In: Proceedings of the 17th International Conference on Interaction Design and Children. ACM. 2018.
- 2017 **Michelle Ichinco** and Caitlin Kelleher. *Towards Better Code Snippets: Exploring How Code Snippet Recall Differs with Programming Experience*. In: 2017 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), IEEE. 2017, pp. 37-42.
- 2017 Wint Yee Hnin, **Michelle Ichinco** and Caitlin Kelleher. *An Exploratory Study of the Usage of Different Educational Resources in an Independent Context*. In: 2017 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), IEEE. 2017, pp. 181-190.
- Best Paper 2017 **Michelle Ichinco**, Wint Yee Hnin and Caitlin L. Kelleher. *Suggesting API Usage to Novice Programmers with the Example Guru*. In: Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems. CHI '17. Denver, Colorado, USA: ACM, 2017, pp. 1105-1117.
- 2015 **Michelle Ichinco** and Caitlin Kelleher. *Exploring novice programmer example use*. In: 2015 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), IEEE. 2015, pp. 63-71.
- 2013 **Michelle Ichinco**, Aaron Zemach and Caitlin Kelleher. *Towards generalizing expert programmers' suggestions for novice programmers*. In: 2013 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), IEEE. 2013, pp. 143-150.
- 2012 Kyle J Harms, Jordana H Kerr, **Michelle Ichinco** et al. *Designing a community to support long-term interest in programming for middle school children*. In: Proceedings of the 11th International Conference on Interaction Design and Children. ACM. 2012, pp. 304-307.

Journal Articles

- 2023 Caitlin Kelleher, **Michelle Brachman**. *A sensemaking analysis of API learning using React*. In: Journal of Computer Languages, 74, 101189.
- 2017 **Michelle Ichinco**, Kyle J Harms and Caitlin Kelleher. *Towards Understanding Successful Novice Example Use in Blocks-Based Programming*. In: Journal of Visual Languages and Sentient Systems 3, July 2017 (2017), pp. 101–118.

Works-in-progress, Posters, and Demos

- 2025 **Michelle Brachman**, Arielle Goldberg, Andrew Anderson, Stephanie Houde, Michael Muller, Justin D Weisz *Towards Personalized and Contextualized Code Explanations* In: Adjunct Proceedings of the 33rd ACM Conference on User Modeling, Adaptation and Personalization.
- 2025 Zijian Ding, **Michelle Brachman**, Joel Chan, Werner Geyer *Structuring GenAI-assisted Hypotheses Exploration with an Interactive Shared Representation* In: Companion Proceedings of the 30th International Conference on Intelligent User Interfaces (IUI).
- 2024 **Michelle Brachman**, Amina El-Ashry, Casey Dugan, Werner Geyer *How Knowledge Workers Use and Want to Use LLMs in an Enterprise Context* In: Extended Abstracts of the CHI Conference on Human Factors in Computing Systems.
- 2022 Michael Desmond, **Michelle Brachman**, Evelyn Duesterwald, Casey Dugan, Narendra Nath Joshi, Qian Pan, Carolina Spina *AI Assisted Data Labeling with Interactive Auto Label* In: Proceedings of the AAAI Conference on Artificial Intelligence.
- 2022 **Michelle Brachman**, Christopher Bygrave, Tathagata Chakraborti, Arunima Chaudhary, Zhining Ding, Casey Dugan, David Gros, Thomas Gschwind, James Johnson, Jim Laredo, Christoph Miksovic, Qian Pan, Priyanshu Rai, Ramkumar Ramalingam, Paolo Scotton, Nagarjuna Surabathina, Kartik Talamadupula *A Goal-driven natural language interface for creating application integration workflows* In: Proceedings of the AAAI Conference on Artificial Intelligence.
- 2022 Michael Desmond, Evelyn Duesterwald, Kristina Brimijoin, **Michelle Brachman**, Qian Pan *Semi-Automated Data Labeling* In: NeurIPS 2020 Competition and Demonstration Track
- 2019 Gao Gao, Ashley Hale, and **Michelle Ichinco** *Designing a Support Tool for API Debugging* In: 2019 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) (pp. 249-251). IEEE.
- 2019 Finn Voichick, Gao Gao, **Michelle Ichinco**, and Caitlin Kelleher *Towards Validation of a Model of API Learning* In: 2019 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) (pp. 267-269). IEEE
- 2019 Aaron Milgram, Shruti Jain, and **Michelle Ichinco** *Identifying Learning Trajectories in Self-Directed Programming* In: Proceedings of the 2019 ACM Conference on International Computing Education Research (ICER).
- 2018 **Michelle Ichinco** *A Vision for Interactive Suggested Examples for Novice Programmers* In: 2018 IEEE Symposium on Visual Languages and Human-Centric Computing.
- 2017 **Michelle Ichinco** and Caitlin Kelleher. *Towards Block Code Examples that Help Young Novices Notice Critical Elements* In: 2017 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), IEEE. 2017, pp. 335-336.
- 2015 **Michelle Ichinco** and Caitlin Kelleher. *Exploring Novice Programmer Example Use* CRA-W Grad Cohort 2015
- 2014 **Michelle Ichinco**, Yoanna Dosouto and Caitlin Kelleher. *A tool for authoring programs that automatically distribute feedback to novice programmers* In: 2014 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), IEEE. 2014, pp. 207-208.

Tutorials

- 2026 **Michelle Brachman**, Heloisa Candello, Amanda soares da Silveira. *DASH: Designing and Developing Agentic Systems for Humans*. In: ACM International Conference on Intelligent User Interfaces (IUI), to appear.
- 2025 Heloisa Candello, **Michelle Brachman**. *Designing conversational agent(ic) systems*. In: Proceedings of the 7th ACM Conference on Conversational User Interfaces.

Workshop and Graduate Consortium Papers

- 2025 Dario Andres Silva Moran, Kristina Brimijoin, Gabriel Enrique Gonzalez, Stephanie Houde, Michael Muller, **Michelle Brachman**, Justin Weisz. *ACE: Moving toward Co-Investigation with the Agentic Code Explorer*. In: ACM International Conference on Intelligent User Interfaces (IUI).
- 2018 **Michelle Ichinco**. *Position Paper: Broadening Participation in Online Problem Solving by Increasing Awareness of Common Contributor Qualities*. In: Workshop on Designing Technologies to Support Human Problem Solving.
- 2017 **Michelle Ichinco** and Caitlin Kelleher. *A tool for authoring programs that automatically distribute feedback to novice programmers*. In: Blocks and Beyond Workshop (Blocks and Beyond), 2017 IEEE. IEEE, 2017.
- 2016 **Michelle Ichinco** and Caitlin Kelleher. *Personalized Feedback for Open-Ended Novice Programming*. In: WorkLearn 2016: Connecting Online Work and Online Education at Scale, CHI 2016.
- 2016 **Michelle Ichinco**. *Suggesting and supporting examples for novice programmers*. In: 2016 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) Graduate Consortium, IEEE. 2016, pp. 260-261.
- 2015 **Michelle Ichinco** and Caitlin Kelleher. *Online Community members as mentors for novice programmers position statement*. In: Blocks and Beyond Workshop (Blocks and Beyond), 2015 IEEE. IEEE, 2015, pp.105-107.
- 2015 **Michelle Ichinco**, Kyle J. Harms, and Caitlin Kelleher. *Utilizing Programmer Communities for End User Programmer Feedback*. In: Workshop on End-User Development in the Internet of Things, CHI 2015.
- 2014 **Michelle Ichinco**. *Towards Crowdsourced Large-Scale Feedback for Novice Programmers*. In: 2014 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) Graduate Consortium, IEEE. 2014, pp. 189-190.

Pre-prints

- 2025 **Michelle Brachman**, Heloisa Candello, Werner Geyer, Michael Muller. *Fostering Knowledge in Generative AI: Challenges, and Collaborative Learning in Early Development* [Access via homepage]
- 2025 Abby Stylianou, **Michelle Brachman**, Albatool Wazzan, Samuel Black, Richard Souvenir. *Design and Evaluation of Camera-Centric Mobile Crowdsourcing Applications* [Arxiv]
- 2024 Michael Desmond, **Michelle Brachman**. *Exploring Prompt Engineering Practices in the Enterprise* [Arxiv]

Patents

- 2025, Granted Tathagata Chakraborti, Arunima Chaudhary, **Michelle Brachman**, Qian Pan, James Johnson, Yara Rizk, Burak Aksar *Explaining natural-language-to-flow pipelines* PN: 12346663
- 2025, Submitted **Michelle Brachman**, Zahra Ashktorab, Michael Desmond, Hyo Jin Do, Casey Dugan, James Johnson, Qian Pan, Raj Sanjay Shah. *Guiding a user to interact with an intelligent computing system using best practices* AN: 18542554

- 2024, Michael Desmond, Zahra Ashktorab, **Michelle Brachman**, James Johnson, Casey Dugan, Qian Pan. *Moderating artificial intelligence (AI) agent interlocation in group dialog environments* AN: 18192262
- 2024, **Michelle Brachman**, James Johnson, Qian Pan, Casey Dugan. *Natural language processing model for task-based system* AN: 18112858
- 2023, **Michelle Brachman**, Qian Pan, Narendra Nath Joshi, Aabhas Sharma, Casey Dugan. *Human-in-the-loop conflict resolution in a collaborative data labeling platform* AN: 17807412

--- Honors and Awards

- 2025 **Excellent Review**, ACM CHI
- 2025 **Best Paper Award** CHIWORK (the Symposium on Human-Computer Interaction for Work)
- 2024 **Excellent Review**, ACM CHI
- 2020 **Best Paper Award** IEEE Visual Languages and Human-Centric Computing
- 2019 **Teaching Excellence Award** University of Massachusetts Lowell
- 2019 **Finalist** Turner Dissertation Award
- 2017 **Best Paper Award**, IEEE Visual Languages and Human-Centric Computing
- 2017 **Selected Participant**, Heidelberg Laureate Forum
- 2016 **Excellent Review**, ACM CHI
- 2015 **Selected and Funded Participant**, CRA-W Grad Cohort Workshop
- 2014 **NSF Graduate Research Fellowship Honorable Mention**
- 2013 **Selected and Funded Participant**, CRA-W Grad Cohort Workshop
- 2011 **Selected and Funded Participant**, CRA-W Distributed Research Experience for Undergraduates (DREU)

--- Mentoring

IBM Research

- Summer 2024 Zijian (Jason) Ding, PhD Intern
- Summer 2022 Hyo Jin (Gina) Do, PhD Intern (converted to full-time)
- Summer 2021 Angel Ding, Undergraduate Intern

UMass Lowell

- 2019 - 2020 Abel Dawson, Undergraduate Directed Study
- 2018 - 2020 Aaron Milgram, Undergraduate Directed Study, KCS Scholar
- 2018 - 2020 Gao Gao, PhD Research Assistant
- 2019 - 2020 Ashley Hale, M.S. Directed Study, Master's thesis
- 2019 Shruti Jain, M.S. Research Assistant/Master's thesis. First position after graduation: Dell.
- 2019 Benjamin Cohen, Immersive Scholar Summer 2019
- 2019 Rebecca Campelli, Honors Project. First position after graduation: Oracle
- 2018 George Le, Undergraduate Directed Study

Washington University in St. Louis

- 2017 REU Mentor: Annie Lee and Angela He, undergraduate students
- 2016-2017 Mentor: Wint Hnin, First position after graduation: Expedia
- 2014 REU Mentor: Jeremy Phillip, currently MS student in HCI at Georgia Tech
- 2013 REU Mentor: Joanna Desouto, currently User Experience Researcher at Google

Service

Research Community

2022 - 2024 **Program Committee:** IUI

2022 **PC Co-Chair:** IEEE VL/HCC

2021 - 2025 **Reviewer:** CHI

2021 - 2025 **Reviewer:** CSCW

2021 **PC Co-Chair:** ICPC 2021 Education Track

2020 **Program Committee:** SIGCSE 2020

2020 **Organizing Committee- Showpieces Co-Chair:** VL/HCC 2020

2019 **Organizing Committee & Program Committee:** Blocks and Beyond: Beyond Blocks Workshop 2019

2019-2024 **Program Committee:** VL/HCC

2019 **Organizing Committee: Graduate Consortium Chair:** VL/HCC 2019

2019 **Associate Chair:** CHI 2019 Late Breaking Work Program Committee

2018 **Program Committee:** Blocks+ workshop at SPLASH

IBM

2023-2025 **Co-organizer:** Human-centered AI & Human-centered data visualization speaker series
UMass Lowell

2018-2020 **University Service:** Faculty Senate Member; 2019-2020 KCS rep for Faculty Senate Undergraduate Curriculum Committee

2018-2020 **Department Service:** Undergraduate Committee

Washington University in St. Louis

2015-2016 **Olin Fellowship Conference Planning Committee**

2014-2015 **Treasurer,** Washington University in St. Louis CSE Graduate Student Association

2014-2015 **Department Representative,** Washington University in St. Louis Graduate Council

Teaching

Spring 2020 **Instructor,** Evaluation of HCI. (Graduate)

Fall 2019 **Instructor,** Human-Computer Interaction. (Undergrad + Graduate)

Spring 2019 **Instructor,** Evaluation of HCI. (Graduate)

Fall 2018 **Instructor,** Human-Computer Interaction. (Undergrad + Graduate)

Fall 2016 **TA,** Human-Computer Interaction (Graduate-level)

Spring 2017 **TA,** Software Engineering (Undergraduate-level)