

# Alexandra W.D. Bremers, Ph.D.

Cornell Tech (NYC), Cornell University

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**I am on the job market for my next R&D role in AI and Robotics, starting July 2026.**

Researcher, designer, and technologist with 8+ years of experience across industry R&D and academia. I build AI-powered digital and physical applications that assist people in real-world tasks, including multimodal sensing, HRI prototypes, consumer-facing products, and automotive systems. Industry experience (3+ years) includes Walt Disney Imagineering, Accenture Labs, Toyota Research Institute, and Jaguar Land Rover. My PhD dissertation (successfully defended in April 2026) addresses how interactive and intelligent machines can support human workflows during physical tasks, especially fabrication. Authorized to work in the United States.

## EDUCATION

- 2020-2026 **Ph.D. in Information Science**, Cornell University, New York, NY, USA  
Dissertation: "Towards Mixed-Initiative Machines for Creative Tasks."  
Committee: Dr. Wendy Ju (chair), Dr. Francois Guimbretiere, Dr. Steve Marschner (CS minor).
- 2020-2023 **M.S. in Information Science**, Cornell University, New York, NY, USA
- 2019 **Coursework in Automotive Human-Technology Interaction (5 M.Eng. credits)**, Warwick University, UK
- 2016-2018 **M.S. in Artificial Intelligence**, Utrecht University, The Netherlands
- 2013-2016 **B.S. in Industrial Design**, Eindhoven University of Technology, The Netherlands

## SKILLS

*Research Methods:* experimental design, survey research, statistical analysis, mixed methods research, generative & evaluative research, usability evaluation, stakeholder interviews, research strategy, storytelling, presentations

*Programming Languages:* Python (proficient), R (advanced), C++ (basic), HTML/CSS (basic)

*ML & Data:* OpenCV, Jupyter, Docker, AWS S3, dataset curation & annotation

*Software & Platforms:* LaTeX, Adobe Creative Suite, git, Qualtrics, Unity, Figma, HoloLens, Empatica

*Design:* sketching, wireframing, storyboarding, prototyping (fabrication & textile/wearables)

*General:* collaboration, writing, project management, mentoring, public speaking

*Languages:* Dutch (native), English (proficient)

## EMPLOYMENT HISTORY

- 2020– **Graduate Assistant**, Cornell University, New York, NY, USA
- Led & published research projects with industry (Amada, Toyota (TRI), Accenture, Nissan), NSF
  - Prototyped interactive systems (Arduino, Jetson Nano, HoloLens, Unity, Python, Microsoft Psi)

- Qualitative research including brainstorming, interviews and field visits (Adobe CS, Figma, Miro, Atlas.ti)
  - Designed and ran quantitative surveys (Qualtrics) and performed statistical analysis (R, Python)
  - Student supervision, TA for 5 master's level classes, public speaking to various audiences
- 2025 (summer) **Research Intern (R&D Lab Associate)**, Walt Disney Imagineering, Glendale, CA, USA
- Delivering UI prototypes for creativity support software research (Figma, Python, Streamlit)
  - Stakeholder interviewing to determine UX/UI pain points and opportunities
  - Outlining strategy for UX/UI of digital collaboration software ecosystem across Imagineering
  - Consulting as expert on UX/UI aspects of research interfaces
- 2023 (summer) **Research Intern (Associate Principal)**, Accenture Labs (R&D), San Francisco, CA, USA
- Designed and engineered Wizard-of-Oz task assistance system using Raspberry Pi and cameras
  - Experimental design of in-person lab study, analyzed data with R, and presented at ACM CUI 2024
- 2021 (summer) **Research Intern**, Toyota Research Institute, Los Altos, CA, USA (*remote*)
- Analyzed and visualized a street image dataset (Git, Jupyter, Docker, S3, Python, R, OpenCV)
- 2017–2020 **Human-Machine Interface Researcher**, Jaguar Land Rover, Coventry, UK
- Led 2 research collaborations with Cambridge University, resulting in 2 journal articles
  - Developed protocols and conducted HCI/human factors studies on the bench, simulator, and on-road
  - Designed HMI research prototypes using Adobe CS and Arduino for internal demonstrations
  - Delivered reports on GDPR and human factors to Product Engineering, informing product requirements
  - Collaborated in cross-functional teams using Jira/Confluence, Rational Rhapsody and MS Office
  - Oxford-Cambridge Rising Women in Science and Engineering, Global Finalist in Tata and JLR Innovista
- 2017 (summer) **Research Intern**, NTU IoX Center, National Taiwan University, Taipei, Taiwan
- Designed a smart home user interface and used it as a probe for semi-structured qualitative interviews
- 2015 (fall) **Industrial Design Intern**, Next Nature Network, Amsterdam, Netherlands
- Used Arduino to program a remote-controlled RGB LED ring for a smart belt prototype
  - Managed exhibits at Dutch Design Week and trade shows (logistics, graphic design and presenting)

## PUBLICATIONS

Journal &  
Conference  
Proceedings

[A1] **Alexandra Bremers**, Wendy Ju. “Can Machines Tell What People Want? Bringing Situated Intelligence to Generative AI”. In: *HTTF 2024: Proceedings of the Halfway to the Future Symposium*. 2024. DOI: <https://doi.org/10.1145/3686169.3686172>.

[A2] **Alexandra Bremers**, Natalie Friedman, Sam Lee, Tong Wu, Eric Laurier, Malte Jung, Jorge Ortiz, Wendy Ju. “(Social) Trouble on the Road: Understanding and Addressing Social Discomfort in Shared Car Trips”. In: *CUI '24: Proceedings of the 6th International Conference on Conversational User Interfaces*. 2024. URL: <https://dl.acm.org/doi/10.1145/3640794.3665580>.

- [A3] **Alexandra Bremers**, Manaswi Saha\*, Adolfo Ramirez-Aristizabal. “Situated Conversational Agents for Task Guidance: A Preliminary User Study”. In: *CUI '24: Proceedings of the 6th International Conference on Conversational User Interfaces*. (\* = Shared first-authorship.) 2024. URL: <https://dl.acm.org/doi/10.1145/3640794.3665575>.
- [A4] **Alexandra Bremers**, Maria Teresa Parreira, Xy Fang, Natalie Friedman, Adolfo Ramirez-Aristizabal, Alexandria Pabst, Mirjana Spasojevic, Mike Kuniavsky, Wendy Ju. “The Bystander Affect Detection (BAD) dataset for failure detection in HRI”. In: *2023 IEEE/RSS International Conference on Intelligent Robots and Systems (IROS)*. 2023. DOI: <https://doi.org/10.1109/IROS55552.2023.10342442>.
- [A5] **Alexandra W.D. Bremers**, Ali Özgür Yöntem, Kun Li, Daping Chu, Valerian Meijering, Christian P. Janssen. “Perception of Perspective in Augmented Reality Head-Up Displays”. In: *International Journal of Human-Computer Studies* (2021), p. 102693. ISSN: 1071-5819. DOI: <https://doi.org/10.1016/j.ijhcs.2021.102693>.
- [A6] Natalie Friedman, **Alexandra Bremers**, Adelaide Nyanyo, Ian Clark, Yasmine Kotturi, Laura Dabbish, Wendy Ju, Nikolas Martelaro. “Understanding the Challenges of Maker Entrepreneurship”. In: *Proceedings of the ACM on Human-Computer Interaction: CSCW* 9.2 (2025), pp. 1–29. DOI: <https://doi.org/10.1145/3711096>.
- [A7] Natalie Friedman, Asmita Mehta, Kari Love, **Alexandra Bremers**, Awsaf Ahmed, Wendy Ju. “A utility belt for an agricultural robot: reflection-in-action for applied design research”. In: *HTTF 2024: Proceedings of the Halfway to the Future Symposium*. 2024. URL: <https://doi.org/10.1145/3686169.3686189>.
- [A8] Maria Teresa Parreira, Sukruth Gowdru Lingaraju, Adolfo Ramirez-Aristizabal, **Alexandra Bremers**, Manaswi Saha, Michael Kuniavsky, Wendy Ju. ““Bad Idea, Right?” Exploring Anticipatory Human Reactions for Outcome Prediction in HRI”. In: *2024 IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*. 2024. URL: <https://doi.org/10.1109/RO-MAN60168.2024.10731310>.
- [A9] David Goedicke, **Alexandra Bremers**, Sam Lee, Fanjun Bu, Hiroshi Yasuda, Wendy Ju. “XR-OOM: Mixed Reality Driving Simulation With Real Cars”. In: *Proceedings of the ACM International Conference on Human Computer Interaction (CHI)*. 2022. DOI: <https://doi.org/10.1145/3491102.3517704>.
- [A10] Nermin Caber, Jiaming Liang, Bashar I. Ahmad, Simon Godsill, **Alexandra Bremers**, Philip Thomas, David Oxtoby, Lee Skrypchuk. “Driver Profiling and Bayesian Workload Estimation for Adaptive In-Vehicle HMI”. In: *IEEE Transactions on Intelligent Vehicles*. 2023. DOI: <https://doi.org/10.1109/TIV.2023.3313419>.
- [A11] Avital Dell’Ariccia, **Alexandra Bremers**, Johan Michalove, Wendy Ju. “How to make people think you’re thinking if you’re a drawing robot”. In: *Proceedings of the 17th ACM Conference on Human-Robot Interaction*. 2022. DOI: <https://doi.org/10.1109/HRI53351.2022.9889638>.
- Book Chapters [C1] Daniel Enriquez, Ruixiang Han, Chishang Yang, **Alexandra Bremers**, Manaswi Saha, Wendy Ju. “Audio Task Guidance Using Digital Twins”. In: *Digital Twins in Manufacturing: Concepts and Methods*. Elsevier, 2026 (in press).
- Full Article [P1] **Alexandra Bremers**, Alexandria Pabst, Maria Teresa Parreira, Wendy Ju. “Using Social Cues to Recognize Task Failures for HRI: Overview, State-of-the-Art, and Future Directions”. In: *arXiv:2301.11972*. 2023. DOI: <https://doi.org/10.48550/arXiv.2301.11972>.
- Preprints [P2] Maria Teresa Parreira, Ruidong Zhang, Sukruth Gowdru Lingaraju, **Alexandra Bremers**, Xuanyu Fang, Adolfo Ramirez-Aristizabal, Manaswi Saha, Michael Kuniavsky, Cheng Zhang, Wendy Ju. ““Why the face?”: Exploring Robot Error Detection Using Instrumented Bystander Reactions”. In: (*under review*) *arXiv:2512.00262*. 2025. DOI: <https://doi.org/10.48550/arXiv.2512.00262>.
- [P3] David Goedicke, Natalie Chyi, **Alexandra Bremers**, Stacey Li, James Grimmelmann, Wendy Ju. *Mutual Benefit: The Case for Sharing Autonomous Vehicle Data with the Public*. 2024. URL: <https://arxiv.org/abs/2409.01342>.
- Datasets [D1] **Alexandra Bremers**, Xuanyu Fang, Natalie Friedman, Wendy Ju. “Data for: The Bystander Affect Detection (BAD) Dataset for Failure Detection in HRI”. In: *Vi. Qualitative Data Repository: QDR Main Collection*. QDR Main Collection, 2023. DOI: <https://doi.org/10.5064/F6TAWBGS>.
- [D2] **Alexandra Bremers**, Thijs Roumen, François Guimbretière, Wendy Ju. *FabriCam-5: Multiview Video Dataset of Novice Interactions with Tabletop Fabrication Machines*. Version DRAFT VERSION (associated paper under review). 2025. DOI: [10.7910/DVN/X1LZKJ](https://doi.org/10.7910/DVN/X1LZKJ). URL: <https://doi.org/10.7910/DVN/X1LZKJ>.

- Extended Abstracts [EA1] **Alexandra Bremers**. “A computer that sketches along with you”. In: *Creativity and Cognition: Graduate Symposium*. C&C '22. Venice, Italy, 2022. DOI: <https://doi.org/10.1145/3527927.3533732>.
- [EA2] **Alexandra Bremers**. “How can a robot help people draw?” In: *Companion Publication of the 2021 ACM Designing Interactive Systems Conference: Doctoral Consortium*. DIS '22 Companion. Virtual Event: Association for Computing Machinery, 2022. DOI: <https://doi.org/10.1145/3532107.3532876>.
- [EA3] Fanjun Bu, **Alexandra Bremers**, Mark Colley, Wendy Ju. “Field Notes on Deploying Research Robots in Public Spaces”. In: *Extended Abstracts of the 2024 ACM International Conference on Human Computer Interaction (CHI): Late Breaking Work*. 2024. DOI: <https://doi.org/10.1145/3613905.3651044>.
- [EA4] Avital Dell'Araccia, **Alexandra Bremers**, Wen-Ying Lee, Wendy Ju. ““Ah! He wants to win!”: Social responses to playing Tic-Tac-Toe against a physical drawing robot”. In: *Adjunct Proceedings of the 2022 ACM International Conference on Tangible and Embodied Interaction: Work-in-Progress*. 2022. DOI: <https://doi.org/10.1145/3490149.3505571>.
- [EA5] David Goedicke, **Alexandra Bremers**, Hiroshi Yasuda, Wendy Ju. “XR-OOM: Mixing Driving Environments with Virtual Objects Safely”. In: *Adjunct Proceedings of the 2021 ACM International Conference on Automotive Interfaces and Vehicular Applications: Work-in-Progress*. 2021. DOI: <https://doi.org/10.1145/3473682.3480266>.
- [EA6] Natalie Friedman, Kari Love, **Alexandra Bremers**, AJ Parry, Ray LC, Bolor Amgalan, Jen Liu, Wendy Ju. “Designing Functional Clothing for Human-robot Interaction”. In: *Companion of the 2021 ACM/IEEE International Conference on Human-Robot Interaction*. 2021, pp. 703–705. DOI: <https://doi.org/10.1145/3434074.3444870>.
- [EA7] Itay Grinberg, **Alexandra Bremers**, Louisa Pancoast, Wendy Ju. “Implicit collaboration with a drawing machine through dance movements”. In: *ACM Symposium on Computational Fabrication*. 2023. DOI: <https://doi.org/10.1145/3623263.3629150>.
- Workshops & Posters [W1] **Alexandra Bremers**. “Reading Human Intent: Behavioral Signal Detection for Proactive AI Assistance in Physical Tasks”. In: *Inaugural AASF AIX Summit: Build America's AI Future*. 2026.
- [W2] **Alexandra Bremers**, Wendy Ju. “Designing Interactions for Mixed-Initiative Machines: Balancing Automation and Craftsmanship”. In: *1st International Workshop on Worker-Robot Relations at the 19th Annual ACM/IEEE International Conference on Human-Robot Interaction*. 2024. DOI: <http://dx.doi.org/10.13140/RG.2.2.22111.06562>.
- [W3] **Alexandra Bremers**, Maria Teresa Parreira, Wendy Ju. “Understanding Bystander Facial Responses to Robot Task Failures with the BAD Dataset”. In: *The Imperfectly Relatable Robot: An interdisciplinary workshop on the role of failure in HRI at the 18th Annual ACM/IEEE International Conference on Human-Robot Interaction*. 2023.
- [W4] Natalie Friedman, **Alexandra Bremers**, Bolor Amgalan, Ray LC, AJ Parry, Kari Love, Wendy Ju. “Clothing for Robot Identity”. In: *Robo-Identity: Designing for Identity in the Shared World. Workshop co-located at the 19th Annual ACM/IEEE International Conference on Human-Robot Interaction*. 2024.
- [W5] Maria Teresa Parreira, Sukruth Gowdru Lingaraju, Adolfo Ramirez-Aristizabal, **Alexandra Bremers**, Manaswi Saha, Michael Kuniavsky, Wendy Ju. “Bad Idea? Exploring Anticipatory Human Reactions for Outcome Prediction”. In: *NERC Northeast Robotics Colloquium*. 2023.
- Under Review [R1] **Alexandra Bremers**, Thijs Roumen, Francois Guimbretiere, Wendy Ju. “Instrumenting Fabrication Machines for Video Interaction Analysis and Creative Support”. In: *(under review)*. 2025.
- [R2] Lunshi Zhou, **Alexandra Bremers**, Wendy Ju. “Initiative and Materiality: Exploring Mixed-Initiative Calculators with the Tangible Human-A.I. Interaction Framework”. In: *arXiv:2311.06360*. 2023. URL: <https://arxiv.org/abs/2311.06360>.

## FELLOWSHIPS, HONORS & AWARDS

- 2025 Cornell Tech PiTech AI in Arts & Culture Fellowship (\$3,000)
- 2023 Computing Research Association (CRA-WP) Grad Cohort for Women
- 2022 Cornell CIS Departmental Nominee, Google Fellowship

- 2022 Graduate Student Symposium, ACM Creativity & Cognition Conference
- 2022 Graduate Student Consortium, ACM Tangible, Embedded & Embodied Interaction Conference
- 2020 Royal Commission of 1851 Industrial Fellowship, Cambridge University & Jaguar Land Rover (£90,000)  
Declined in order to accept Cornell offer.
- 2019 Finalist, Tata Innovista Awards
- 2019 Finalist, Jaguar Land Rover Innovista Awards
- 2018 Oxford-Cambridge Rising Women in Science and Engineering
- 2013-2016 Excellent (top 10%) for 3 semesters, Eindhoven University of Technology
- 2015 Second Prize, Designing the Office Competition, Bruynzeel Storage Systems (€ 500)
- 2013 Finalist, Stichting Ongehoord! Poetry Contest
- 2013 Discipulus Multus Meritis, Stedelijk Gymnasium Arnhem
- 2012 Best School Paper of The Netherlands: Overall & Design, Schoolkrantawards (€ 500)
- 2012 Best Report, Lions Club Arnhem Arenacum (€ 200)

## GRANTS & SCHOLARSHIPS

- 2024 Cornell Backslash Art Microgrant (\$500)
- 2024 Cornell Library Open-Access Publishing Fund (\$350)
- 2021-2024 Cornell Graduate School Conference Travel Grant (\$700, yearly)
- 2024 Cornell Bowers Computing & Information Science Grace Hopper Celebration Travel Grant (\$1,500)
- 2022 Finnish Center for Artificial Intelligence HIIT/FCAI Travel Grant (€ 3,500)
- 2022 NSF ACM Creativity & Cognition Graduate Symposium Travel Grant (\$1,900)
- 2021 Cornell Backslash Art Microgrant (\$500)

## MEDIA COVERAGE

- 2026 **Ignacio Alvarez**, *Can AI help you make something without taking the "fun of making" away?* HCIS Invited Talk Recap. Academic blog, long-read. <https://ignacioalvmar.com/talks/2025-05-05-mixed-initiative-machines>
- 2026 **Ignacio Alvarez**, *Can AI help you make something without taking the "fun of making" away?* LinkedIn Pulse.
- 2024 **Mike Kuniavsky**, *Applied Distributed Cognition using foundation models and biosensing (a research agenda)*. Medium.
- 2024 **Accenture Tech Vision**, *How the "Human Interface" Measures Intent*.
- 2023 **Cambridge University**, *Using machine learning to monitor driver workload could help improve road safety*.
- 2022 **Cornell Chronicle**, *Mixed reality driving simulator: a low-cost alternative*.

- 2019 **Jaguar Land Rover**, *Jaguar Land Rover Develops Immersive 3D In-Car Experience with Head-Up Display Research*.
- 2019 **Yahoo! News** *Jaguar Land Rover developing 3D in-car technology*
- 2019 **Forbes**, *To Prepare for an Autonomous Future, Jaguar Land Rover Brings 3D Augmented Reality into the Cabin*.

## TALKS

- 2026 "Towards Mixed-Initiative Machines for Creative Tasks". Technische Hochschule Ingolstadt (Germany), HCIS Invited Talk. May 5th, 2026. Hosted by Ignacio Alvarez. Virtual.
- 2026 "Mixed-Initiative AI Support for Physical Machinery". Robotics Innovation Exchange Thesis Pitch Competition. New York, NY.
- 2026 "Towards Mixed-Initiative Machines for Creative Tasks". Cornell Bowers Information Science. PhD Defense (B-Exam). April 7th, 2026.
- 2024 Panelist, "Reflective Practices with AI" with Terry Winograd. Halfway to the Future Symposium, USA.
- 2023 "Audio Task Guidance". Accenture Labs California.
- 2023 "Towards Mixed-Initiative Machines for Creatives". Cornell CIS Information Science. PhD Proposal (A-Exam). May 25th, 2023.
- 2022 "Interaction Intelligence for HRI". Accenture Labs California. With Wendy Ju.
- 2022 "How can robots support human drawing?" Cornell Information Science Seminar.
- 2022 Panelist, "How can models inform design?". Schloss Dagstuhl, Seminar 22102, Germany.
- 2022 Presenter. Cornell Tech outreach (online). July 2022.
- 2021 Presenter. Computing and Information Science Research Night. Gates Hall, Cornell University, Ithaca, NY. November 2, 2021.
- 2021 "Detecting design trends from autonomous vehicle data". Toyota Research Institute.
- 2021 "After RisingWISE". Oxford-Cambridge RisingWISE reunion. United Kingdom.
- 2021 "XR-OOM". XR-Monthly by the XR-Collective at Cornell Tech. With David Goedicke.

## ADVISING

- 2023 Xuanyu Fang, Itay Grinberg
- 2022 Cooper Murr, Lunshi Zhou, Tobias Weinberg
- 2021 Avital Dell'Araccia, Sam Lee

## TEACHING

- 2026 (S) TA, Digital Fabrication: Manipulating the Matter of Tech with Thijs Roumen, Cornell University

- 2026 (S) TA, Producing Technology with William Leon, Cornell University
- 2025 (F) TA, Urban Data with William Leon, Cornell University
- 2025 (S) TA, Designing Ubiquitous and Interactive Computing Devices with Joey Castillo, Cornell University
- 2022 (F) TA, Developing and Designing Interactive Devices with Wendy Ju, Cornell University
- 2021 (F) TA, Developing and Designing Interactive Devices with Wendy Ju, Cornell University
- 2021 (S) TA, Topics in Mixed Reality with Harald Haraldsson, Cornell University
- 2011-2016 Private Tutor, Stedelijk Gymnasium Arnhem / StudentsPlus, Netherlands

## D E P A R T M E N T A L   S E R V I C E

- 2025 Supermaker (volunteer instructor) at the MakerLAB, Cornell Tech, USA
- 2020-2024 Assistant to the founding Task Force, Design + Technology Department, Cornell University, USA
- 2021-2022 Co-President, Information Science Graduate Student Association (ISGSA), Cornell University, USA
- 2016-2017 Founder and President, A.I. M.S. students association (mAIsTer), Utrecht University, Netherlands

## A C A D E M I C   S E R V I C E

- 2025 Area Chair, ACM DIS
- 2024 Student Volunteer, IEEE UR
- 2023 Student Volunteer, ACM SIGGRAPH
- 2021 Social Media Chair, ACM DIS
- 2020 Moderator, ACM Auto-UI
- 2019 Visual Design Chair, ACM Auto-UI

## A C A D E M I C   P E E R   R E V I E W E R

- 2025 ACM DIS/HRI
- 2024 ACM DIS/HRI/CHI/CSCW/HTTF, Springer VR/ICSR
- 2023 ACM THRI
- 2022 ACM CHI
- 2021 ACM Auto-UI/IMWUT/DIS, IEEE IV
- 2020 ACM CHI
- 2019 ACM Auto-UI

## VOLUNTEERING

- 2015 Exhibition Guide, Fiber Festival "The Subterranean", Amsterdam, NL
- 2013 Soldering Tutor, Dutch Design Week "Design in Progress", Eindhoven, NL
- 2013 Exhibition Guide, GLOW Festival "GLOW Next", Eindhoven, NL

## PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery (ACM)

Institute of Electrical and Electronics Engineers (IEEE)

New York Academy of Sciences (NYAS)

Computing Research Association (CRA)