# ALEXANDRA BREMERS

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Ph.D. Candidate with 3+ years of full-time industrial R&D experience in the US and UK. Skilled designer, user researcher and developer of technical systems and demonstrators. Broadly trained accross UX and IxD domains, with additional expertise in designing for physical fabrication machines and automotive interiors.

## EDUCATION

**2020-** **Ph.D. in Information Science**, Cornell University, USA
I am advised by Wendy Ju, and investigate interaction design around collaborative machines used in creative tasks. My minor is in computer science. I expect to graduate in Spring 2026.

**2020-2023** **M.S. in Information Science**, Cornell University, USA
I passed the A-Exam for the master's portion of the Information Science PhD program on May 25th, 2023.

**2016-2018** **M.S. in Artificial Intelligence**, Utrecht University, Netherlands
I specialized in Cognitive Processing and wrote my thesis at Jaguar Land Rover, on human depth perception in 3D automotive displays. I was also the founding chair of the students' association of the UU AI program.

**2013-2016** **B.S. in Industrial Design**, Eindhoven University of Technology, Netherlands
I worked on the design of physical experiences and interactive wearable technology. I received mark Excellent (top 10%) thrice and was an editor of the industrial design students' magazine.

## INDUSTRY RESEARCH EXPERIENCE

**2023 (summer)** **Associate Principal**, Accenture Labs (R&D), San Francisco, CA, USA
Summer position at Accenture Labs in San Francisco, California. My research into audio task guidance was presented at the ACM Conference on Conversational User Interfaces, 2024.

**2021 (summer)** **Research Intern**, Toyota Research Institute, Los Altos, CA, USA
Summer position with the automotive research division, where I studied novel use cases for vehicle datasets. The outcomes were presented internally.

**2017–2020** **Human-Machine Interface Researcher**, Jaguar Land Rover, Coventry, UK
Worked on various HMI projects involving sensing, augmented reality and artificial intelligence. Primary liaison for research collaboration with University of Cambridge. My work resulted in two journal articles and was nominated company-wide as a Finalist in the Tata Innovista and Jaguar Land Rover Innovista competitions.

## ACADEMIC RESEARCH EXPERIENCE

**2020–** **Graduate Research Assistant**, Cornell University, USA
Research with US-based and international collaborators funded by Accenture Labs, Toyota Research Institute, Amada Co Ltd., Nissan Motors, the National Science Foundation and Cornell Backslash Art.

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|---|---|
| 2017–2020 | **Industry Liaison (through Jaguar Land Rover)**, Cambridge University, UK |
| 2017 (summer) | **Research Intern**, NTU IoX Center, National Taiwan University, Taiwan<br>I investigated user interface requirements for smart home interfaces that are situationally aware. |

## DESIGN & ART EXPERIENCE

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|---|---|
| 2019 | **Exhibitor**, Temperance Gallery, Leamington, UK |
| 2015 | **Exhibitor**, Arthouse United-C, Eindhoven, Netherlands |
| 2015 (fall) | **Industrial Design Intern**, Next Nature Network, Amsterdam, Netherlands<br>I contributed to several Speculative Design projects through hardware prototyping, exhibition design and the design of digital and paper artifacts. These works were presented at Dutch Design Week 2015. |
| 2013-2016 | **Exhibition Assistant** Fiber Festival / GLOW / Dutch Design Week / Baltan Labs / Mediamatic, Netherlands |

## EDUCATION (OTHER)

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|---|---|
| 2019 | **M.Eng. Automotive Human-Technology Interaction (5 credits)**, Warwick University, UK<br>Course credit towards an M.Eng. degree, sponsored through Jaguar Land Rover. |

## SKILLS

*Software & Tools:* LaTeX, Adobe Creative Suite, Python, R, git, psi, Qualtrics, Arduino, Unity

*UX Research:* surveys, contextual inquiry, qualitative interviews, experimental design, data analysis

*Design:* sketching, wireframing, storyboarding, prototyping, fabrication (3D & wearables)

*General:* collaboration, writing, project management, mentorship, communication, intercultural awareness

## LANGUAGES

Dutch (native), English (proficient)

## PUBLICATIONS

Journal Articles

[J1] **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.

[J2] 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 (PACM HCI): Computer-Supported Collaborative Work*. 2024 (forthcoming).

[J3] 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.

**Conference Proceedings**

[C1]  **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.

[C2]  **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/RSJ International Conference on Intelligent Robots and Systems (IROS)*. 2023. DOI: https://doi.org/10.1109/IROS55552.2023.10342442.

[C3]  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.

[C4]  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.

[C5]  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.

**Other Formats (Demos, Videos & Datasets)**

[O1]  **Alexandra Bremers**, Xuanyu Fang, Natalie Friedman, Wendy Ju. "Data for: The Bystander Affect Detection (BAD) Dataset for Failure Detection in HRI". In: *V1. Qualitative Data Repository: QDR Main Collection*. QDR Main Collection, 2023. DOI: https://doi.org/10.5064/F6TAWBGS.

[O2]  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.

[O3]  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.

**Extended Abstracts**

[EA1]  **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.

[EA2]  **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.

[EA3]  **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.

[EA4]  **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.

[EA5]  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.

[EA6]  Avital Dell'Ariccia, **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.

[EA7]  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.

[EA8]  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.

**Workshops & Posters**

[W1]  **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.

[W2]  **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.

[W3]  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.

[W4]  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 & Pre-prints**

[R1]  **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: *(under review)*. 2023. DOI: https://doi.org/10.48550/arXiv.2301.11972.

[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.

[R3]  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.

[R4]  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)*. 2024.

# FELLOWSHIPS, HONORS & AWARDS

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 (£90,000)
Fellowship to pursue Engineering PhD at Cambridge University. 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 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)

## PRESS COVERAGE

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

2023  "Audio Task Guidance". Accenture Labs California.

2023  "Towards Mixed-Initiative Machines for Creatives". Cornell CIS Information Science.

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.

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.

## A D V I S I N G

2023  Xuanyu Fang, Itay Grinberg

2022  Cooper Murr, Lunshi Zhou, Tobias Weinberg

2021  Avital Dell'Ariccia, Sam Lee

## T E A C H I N G

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

2020-  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  C O N F E R E N C E  S E R V I C E

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 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 |

## PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery (ACM)

Institute of Electrical and Electronics Engineers (IEEE)