

ALEXANDRA BREMERS

Ann S. Bowers College of Computing and Information Science
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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.

2017-2020 **Industry Liaison (through Jaguar Land Rover)**, Cambridge University, UK

2017 (summer) **Research Intern**, NTU IoX Center, National Taiwan University, Taiwan

I investigated user interface requirements for smart home interfaces that are situationally aware.

DESIGN & ART EXPERIENCE

- 2019 **Exhibitor**, Temperance Gallery, Leamington, UK
- 2015 **Exhibitor**, Arthouse United-C, Eindhoven, Netherlands
- 2015 (fall) **Industrial Design Intern**, Next Nature Network, Amsterdam, Netherlands
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)

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

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: *Vi. 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. “Situating 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.

ADVISING

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

TEACHING

- 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

DEPARTMENTAL SERVICE

- 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

ACADEMIC CONFERENCE SERVICE

- 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

ACADEMIC PEER REVIEWER

- 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)