Pascal Jansen

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RESEARCH INTERESTS

My interdisciplinary research in Human–Computer Interaction (HCI), Computational Methods, and Inclusive Design investigates how interactive systems can (re-)understand users' preferences, abilities, and needs across radically different contexts—such as transferring prior knowledge from smartphone use to in-car or extended-reality environments. Pursuing this agenda of **ubiquitous personalization**, I design, implement, and empirically evaluate novel interaction paradigms for future mobility and extended reality. My work aims to address issues such as the resource-intensiveness of manually designing for individual users and the inefficient exploration of large design spaces with conflicting objectives—for example, finding an explanation of automated actions in cars or air taxis that fosters appropriate trust without causing cognitive overload. I also develop traffic simulation and pseudo-haptic vehicle motion feedback methods in virtual reality, enabling large-scale evaluation of heterogeneous traffic interactions and novel mobility experiences under safe yet realistic conditions. Collectively, my research focuses on supporting the safe and socially accepted deployment of emerging technologies, such as automated vehicles and urban air mobility, and seeks to establish the methodological and empirical foundations for ubiquitous personalized interfaces.

EDUCATION

Ulm University, Ulm, Germany 06/2021 — present
Doctor of Science (PhD) Candidate in Human-Computer Interaction
Thesis Title: *A Framework for Computational User-Centered Optimization of Human-Vehicle Interaction Design*
Advisor: Prof. Dr. Enrico Rukzio
Committee: Prof. Dr. Antti Oulasvirta (Aalto University, Finland), Prof. Dr. Philipp Wintersberger (IT:U Linz, Austria)
Planned Defense: 05/2026

University College London, London, UK 01/2025 — 03/2025
Visiting Research Scholar with Prof. Dr. Mark Colley

Ulm University, Ulm, Germany 04/2018 — 05/2021
Master of Science in Computer Science Overall Grade: 1.1, with Distinction - A-equivalent
Thesis Title: *SwiVR-Car-Seat: Utilizing a Motorized Swivel Seat to Explore Effects of Vehicle Motion on Interaction Quality in Virtual Reality Automated Driving* Grade: 1.0 - A-equivalent

Ulm University, Ulm, Germany 10/2014 — 03/2018
Bachelor of Science: Computer Science
Specialized Subject Area: Biology

JOB EXPERIENCE

Ulm University Ulm, Germany
Research Associate 06/2021 — present
I significantly contribute to research and teaching. Also, I played a key role in co-leading and implementing the externally funded project *SituWare*. Furthermore, I successfully championed novel topics related to immersive data visualization and computational methods into the department's research scope. My work incorporates numerous research approaches such as experiments, interviews, focus groups, literature reviews, observation, usability testing, & dataset creation. It has led to over **20 peer-reviewed full papers**.

Zefwih GbR Neu-Ulm, Germany
CEO & Co-Founder 01/2022 — present
At Zefwih, I lead business and research strategy while contributing to developing desktop, mobile, and virtual reality user-centered applications for commercial, cultural, and research scopes. I also consult on early-stage digitalization projects, leveraging iterative design processes and HCI principles to encourage sustainable innovation. This experience refined my skills in HCI research from an industrial perspective, interaction design consultation, and project collaboration.

Ulm University Ulm, Germany
Student Research Assistant, Institute of Media Informatics 06/2019 — 02/2021
I contributed to the ideation and development of a multi-user shared content augmented reality platform and eye-tracking applications for virtual reality. This involved literature research, designing studies, and contributing to multiple publications. I also supported multiple lectures and exercises, tutored students during course projects, and evaluated their coursework.

Ulm University Ulm, Germany
Student Research Assistant, Institute of Communications Engineering 12/2018 — 03/2019
I led the ideation and development of voice-assistance applications in dialogue systems engineering, conducted literature research, and supported publication work. Additionally, I actively participated in internal review processes.

GRANTS, ACADEMIC AND INDUSTRIAL SUPPORT

Personal and Project Funding

- *Startup Your Career* support (10.000€) by the Graduate & Professional Training Center, Ulm University
- Supported by the Mobility Program of Ulm University (2.800€)

- Supported by the German Federal Ministry of Transport and Digital Infrastructure (25.000€)

Contributions to Funded Projects

- Contributed conceptual input that informed the successful funding proposal of the Deutsche Forschungsgemeinschaft - Reinhart Koselleck Project *VRooms: Fighting Climate Change with Increasing the Utilization of Buildings by Virtualizing Rooms through Everyday Extended Reality* (DFG project link)

SERVICE and VOLUNTEERING ACTIVITIES

Associate Chair / Program Committee Member

- Full Paper - AutomotiveUI '24'25, MuC '24'25, CHIWORK '25, **CHI '26**
- Late-Breaking Works (LBW) - CHI '23'24'25

Organizing Committee

- AutoUI 2023 (Registration Chair)
- MuC 2026 (Student Research Competition Chair)

Peer Reviewing

Over 150 peer-reviews completed so far for AutomotiveUI, VRST, **CHI**, IDC, ICWSM, GLS, MobileHCI, IMX, ETRA, COGAIN, CogSci, DIS, EICS PACM, CHI Play, ISS, ISMAR, Creativity & Cognition, MuC, NordiCHI, ICIS, OzCHI, ISWC, IEEE VIS, ICMI, HAI, PacificVis, **CSCW**, **UIST**, TEI, **IMWUT**, **TVCG**, **TRF**, and BIT Student Volunteer: CHI 2023 Co-Organizer of the Post-CHI Summer School On Automotive User Interfaces and Future Mobility Co-Organizer of the German Pre-CHI 2022 hosted in Ulm, Germany with more than 70 participants

TEACHING

Research Project in Human-Computer Interaction

Course Organizer: Co-organized an interdisciplinary project emphasizing user-centered design and design thinking, undertaken as a year-long, research-driven group effort culminating in several publications. Fall 2021 — Spring 2025

User Interface Software Technologies

Course Organizer and Lecturer: Led the development of course materials and delivered a weekly (interactive) lecture on designing user interfaces and interaction technologies, emphasizing a user-centered design process. Starting from the basics of interactive systems, the course explored interface creation, different media, and formal methods—particularly HCI notations. I co-led the evaluation process by grading the final exam and ensuring a fair, thorough assessment of student performance. Spring 2022 — Spring 2024

Automotive User Interfaces and Interactive Vehicle Applications

Course Organizer and Lecturer: Led the development of course materials and held a weekly (interactive) lecture on practical insights on developing and researching automotive user interfaces, teaching the user-centered design process. Delivered a yearly in-depth lecture on future mobility research and computational methods for automated vehicle user interface design. Co-led the evaluation process by grading the final exam and ensuring a fair and thorough assessment of student performance. Fall 2021 — Fall 2025

Research Trends in Media Informatics

Course Organizer: Co-organized the course, mentored PhD students on course structure and content, and provided detailed one-on-one instruction to over 10 students in conducting literature surveys using the PRISMA method. Additionally, took an active role in assessing and grading students' work. Fall 2021 — Fall 2024

THESIS SUPERVISION (Excerpt, Total>30)

Bachelor Theses

- Tim Eckstein (Ulm University; 2025)
- Hermann Fröhlich (Ulm University and PlanB. GmbH; 2024)
- Nam Anh Le Cong (Ulm University; 2024)
- Julius Schürrle (Ulm University; 2023)
- Benno Hölz (Ulm University; 2023)
- Oliver Schmid (Ulm University; 2022)

Master Theses

- Julian Britten (Ulm University; 2025) **now PhD student at Ulm University**
- Sepide Ansari (Ulm University and Spiegel Institute Mannheim GmbH; 2025)
- Mugdha Keskar (Ulm University; 2024)
- Svenja Krauß (Ulm University; 2023)
- Alexander Häusele (Ulm University; 2023)
- Alexandra Nick (Ulm University and Cerence GmbH; 2023)

GUEST LECTURES

- UCL Interaction Centre (13.02.2025): "Ubiquitous Personalization"; *Future Interfaces*; in-person; invited by Mark Colley
- UCL Interaction Centre (04.03.2026): "Ubiquitous Personalization"; *Future Interfaces*; in-person; invited by George Chalhoub

AWARDS and NOMINATIONS

Outstanding Reviewer Recognition: IMWUT '22, ISS '22, AutomotiveUI '22 '23 '25, DIS '23, IEEE VIS '23, CHI '24 (x2), CHI '24 LBW, CSCW '24, MuC '24, UIST '24 '25, IMWUT '24 '25, and CHI '25
I have received 17 Outstanding Reviewer Awards, demonstrating my commitment to excellence in academic review processes. These recognitions reflect my deep understanding and critical thinking skills, which enable me to advance scholarly discourse.

Honorable Mention Award at MUM '25 - DOI: 10.1145/3771882.3771888
This work advances flexible, space-efficient interior design through *AirClick*, a modular system of interactive inflatables that enables rapid, on-demand room transformation. In a lab study (N=20) across four scenarios, participants successfully reconfigured spaces using the *AirClick* modules. Findings demonstrate suitability for everyday environments with low to environments with low–medium robustness demands, underscoring AirClick's potential for customizable, space-saving room adaptation.

Honorable Mention Award at CHI '25 - DOI: 10.1145/3706598.3713514
This paper addressed the challenge of scalable automotive user interface design. We implemented *OptiCarVis*, a system integrating Human-in-the-Loop Bayesian Optimization. An online study (N=117) demonstrates the efficacy of *OptiCarVis* in significantly improving trust, acceptance, perceived safety, and predictability, without increasing cognitive load.

Audience Choice Award at CHI PLAY '20 - DOI: 10.1145/3383668.3419917
As technical attacks become increasingly difficult to execute, social engineering exploits the human element in information security, often going undetected and resulting in high organizational costs. To address this, I led the ideation and development of "The Social Engineer", an immersive VR game designed to raise awareness by letting players experience various social engineering methods in a simulated company environment. This extensible tool can serve as employee self-training, aid security experts in teaching awareness, and provide consumer engagement.

Young Talent Award Nominee at German Computer Game Awards '21
With "The Social Engineer", I was nominated for the Young Talent Award at the German Computer Game Awards '21 — the largest national competition for digital games in Germany. The same project was also a finalist for the **Best Student Game Award** at the internationally recognized Games for Change Awards '22, and was subsequently nominated for the **nextReality.Contest '22** in the "Young Talent" category, a major German competition for immersive media innovation.

SKILLS

- **Research:** Proficient in **quantitative analysis** using R (parametric/non-parametric data, linear regression, hierarchical models) and **qualitative analysis** following Saldaña's guidelines
- **Coding:** R (data analysis, visualization, web scraping), Python (computational modeling), Java, and C# (particularly with **Unity**)
- **Fabrication & Engineering:** Experienced in 3D printing, electrical engineering, and microcontroller programming (Arduino, Raspberry Pi)
- **Sensing Technologies:** Adept at using physiological sensors (eye-tracking on desktop/head-mounted display, wearable sensors for heart rate and skin conductance), motion tracking (computer vision using RGB camera input and infrared-based body/hand tracking), and vehicle telemetry (interior/exterior cameras, OBD) for data analysis and interactive, as well as adaptive systems
- **Open Science:** Proficient in open science practices, transparency, reproducibility, and accessibility; experienced in sharing data (example) via open-access platforms, using open-source tools, and contributing to community projects
- **Languages:** German (native), English (proficient), French (intermediate).

MAJOR PUBLICATIONS (CHI, IMWUT, UIST, TOCHI)

ACM CHI/IMWUT/UIST/TOCHI are widely recognized as the premier venues for publishing research in the field of HCI. They are highly competitive, with acceptance rates typically ranging between 20-25%.

CHI

1. **P. Jansen***, J. Britten*, M. Colley*, M. Sasalovici, & E. Rukzio, MIRAGE: Enabling Real-Time Automotive Mediated Reality
   In Proc. of CHI 2026, ACM, conditionally accepted *Joint First Authors
2. J. Susak, Y. Liu, **P. Jansen***, & M. Colley, ProVoice: Designing Proactive Functionality for In-Vehicle Conversational Assistants using Multi-Objective Bayesian Optimization to Enhance Driver Experience
   In Proc. of CHI 2026, ACM, conditionally accepted
3. M. Colley, S. Kopp, D. Dey, **P. Jansen***, & E. Rukzio, eHMI for All - Investigating the Effect of External Communication of Automated Vehicles on Pedestrians, Manual Drivers, and Cyclists
   In Proc. of CHI 2026, ACM, conditionally accepted
4. **P. Jansen***, M. Colley*, S. Krauß, D. Hirschle, & E. Rukzio, OptCarVis: Improving Automated Vehicle Functionality Visualizations Using Bayesian Optimization to Enhance User Experience
   In Proc. of CHI 2025, ACM, doi: 10.1145/3706598.3713514, *Joint First Authors
   CHI Honorable Mention Award for Best Paper (top 5%)
5. M. Colley*, **P. Jansen***, M. Keskar, & E. Rukzio, Improving External Communication of Automated Vehicles Using Bayesian Optimization
   In Proc. of CHI 2025, ACM, doi: 10.1145/3706598.3714187, *Joint First Authors
6. M. Sasalovici, A. Zeqiri, R. C. Schramm, O. J. A. Nuñez, **P. Jansen**, J.P. Freiwald, M. Colley, C. Winkler, & E. Rukzio, Bumpy Ride? Understanding the Effects of External Forces on Spatial Interactions in Moving Vehicles
   In Proc. of CHI 2025, ACM, doi: 10.1145/3706598.371407
7. L. Meinhardt, C. Schramm, **P. Jansen**, M. Colley, & E. Rukzio, Fly Away: Evaluating the Impact of Motion Fidelity on Optimized User Interface Design via Bayesian Optimization in Automated Urban Air Mobility Simulations
   In Proc. of CHI 2025, ACM, doi: 10.1145/3706598.3713288
8. A. Zeqiri, J. Britten, C. Schramm, **P. Jansen**, M. Rietzler, & E. Rukzio, PlantPal: Leveraging Precision Agriculture Robots to Facilitate Remote Engagement in Urban Gardening
   In Proc. of CHI 2025, ACM, doi: 10.1145/3706598.3713180
9. M. Colley, B. Wanner, M. Rädler, M. Rötzer, J. Frommel, T. Hirzle, **P. Jansen**, & E. Rukzio, Effects of a Gaze-Based 2D Platform Game on User Enjoyment, Perceived Competence, & Digital Eye Strain

In Proc. of CHI 2024, ACM, doi: 10.1145/3613904.3641909

10. **P. Jansen**, J. Britten, A. Häusele, T. Segschneider, M. Colley, & E. Rukzio, AutoVis: Enabling Mixed-Immersive Analysis of Automotive User Interface Interaction Studies
In Proc. of CHI 2023, ACM, doi: 10.1145/3544548.3580760, [Website Link]

IMWUT

1. A. Zeqiri, **P. Jansen**, J. Rixen, M. Rietzler, and E. Rukzio, 'Eco Is Just Marketing': Unraveling Everyday Barriers to the Adoption of Energy-Saving Features in Major Home Appliances
In Proc. IMWUT 2024, ACM, doi: 10.1145/3643558
2. **P. Jansen**, M. Colley, & E. Rukzio, A Design Space for Human Sensor and Actuator Focused In-Vehicle Interaction Based on a Systematic Literature Review
In Proc. IMWUT 2022, ACM, doi: 10.1145/3534617
3. M. Colley, **P. Jansen**, E. Rukzio, and J. Gugenheimer, SwiVR-Car-Seat: Exploring Vehicle Motion Effects on Interaction Quality in Virtual Reality Automated Driving Using a Motorized Swivel Seat
In Proc. IMWUT 2021, ACM, doi: 10.1145/3494968

UIST

- **P. Jansen**, F. Fischbach, J. Gugenheimer, E. Stemasov, J. Frommel, and E. Rukzio, ShARe: Enabling Co-Located Asymmetric Multi-User Interaction for Augmented Reality Head-Mounted Displays
In Proc. UIST 2020, ACM, doi: 10.1145/3379337.3415843

TOCHI

- T. Hirzle, F. Fischbach, J. Karlbauer, **P. Jansen**, J. Gugenheimer, E. Rukzio, and A. Bulling, Understanding, Addressing, and Analysing Digital Eye Strain in Virtual Reality Head-Mounted Displays
In ACM Transactions on Computer-Human Interaction (TOCHI) 2022, ACM, doi: 10.1145/3492802

FURTHER PUBLICATIONS

Journal Paper
Transportation Research Part F, with an impact factor of 4.60 (2022) is considered to be top-tier journals in traffic psychology.

1. **P. Jansen***, M. Colley*, T. Pfeifer, & E. Rukzio, Visualizing Imperfect Situation Detection and Prediction in Automated Vehicles: Understanding Users
In Transportation Research Part F: Traffic Psychology and Behaviour 2024, Elsevier, *Joint First Authors, doi: 10.1016/j.trf.2024.05.015
2. **P. Jansen***, M. Colley*, Max Rädler*, Jonas Schwedler, & E. Rukzio, Longitudinal effects of visualizing uncertainty of situation detection and prediction of automated vehicles on user perceptions
In Transportation Research Part F: Traffic Psychology and Behaviour 2024, Elsevier, *Joint First Authors, doi: 10.1016/j.trf.2025.05.013

Conference Full Paper

1. T. Drey, F. Fischbach, **P. Jansen**, J. Frommel, M. Rietzler, and E. Rukzio, To Be or Not to Be Stuck, or Is It a Continuum?: A Systematic Literature Review on the Concept of Being Stuck in Games
In Proc. CHI PLAY 2021, ACM, doi: 10.1145/3474656
2. M. Kraus, F. Fischbach, **P. Jansen**, and W. Minker, A comparison of explicit and implicit proactive dialogue strategies for conversational recommendation
In Proc. of the Twelfth Language Resources and Evaluation Conference (LREC) 2020, ACM, urn: urn:nbn:de:bvb:384-opus4-1013633
3. M. Raab, L. Miller, Z. Zeng, **P. Jansen**, M. Baumann, and J. Kraus, Assessing Pedestrian Behavior Around Autonomous Cleaning Robots in Public Spaces: Findings from a Field Observation
34th IEEE Int. Conf. on Robot and Human Interactive Communication (RO-MAN) 2025, IEEE, doi: RO-MAN63969.2025.11217688
4. **P. Jansen**, B. Hölz, J. Britten, M. Colley, and E. Rukzio, AirClick: Modularized Interactive Inflatables for On-Demand Room Transformation
In Proc. of the International Conference on Mobile and Ubiquitous Multimedia (MUM) 2025, ACM, doi: 10.1145/3771882.3771888
Honorable Mention Award for Best Paper (top 5%)

Conference Short Paper

1. M. Colley, J. Czymmeck, **P. Jansen**, L.-M. Meinhardt, P. Ebel, & E. Rukzio, UAM-SUMO: Simulacra of Urban Air Mobility Using SUMO To Study Large-Scale Effects
In Proc. HRI 2025, ACM, doi: 10.5555/3721488.3721610, GitHub Link
2. **P. Jansen***, M. Colley*, E. Wimmer, J. Maresch, & E. Rukzio, HUD-SUMO: Simulacra of In-Vehicle Head-Up Displays Using SUMO To Study Large-Scale Effects
In Proc. HRI 2025, ACM, doi: 10.5555/3721488.3721614, GitHub Link; * Joint First Authors
3. M. Colley, J. Czymmeck, M. Kücükkocak, **P. Jansen**, & E. Rukzio, PedSUMO: Simulacra of Automated Vehicle-Pedestrian Interaction Using SUMO To Study Large-Scale Effects
In Proc. HRI 2024, ACM, doi: 10.1145/3610977.3637478, GitHub Link
4. **P. Jansen** and F. Fischbach, The Social Engineer: An Immersive Virtual Reality Educational Game to Raise Social Engineering Awareness
In Proc. CHI PLAY EA 2020, ACM, doi: 10.1145/3383668.3419917
Audience Choice Award

Workshop

- M. Haimerl, **P. Jansen**, A. Riener, and M. Colley, Accessible Automated Automotive Workshop Series (A3WS): Focus Accessibility in Mobility
In Proc. MuC EA 2025, Gesellschaft für Informatik e.V, doi: 10.18420/muc2025-mci-ws-104
- **P. Jansen** and M. Colley, Human-in-the-Loop Bayesian Optimization for ALL: Practical Applications in Human-Computer Interaction Challenges
In Proc. MuC EA 2025, Gesellschaft für Informatik e.V, doi: 10.18420/muc2025-mci-tut-152

Extended Abstracts

- T. Drey, **P. Jansen**, F. Fischbach, J. Frommel, & Enrico Rukzio, Towards Progress Assessment for Adaptive Hints in Educational Virtual Reality Games
In Proc. CHI EA 2020, ACM, doi: 10.1145/3334480.3382789

Demo

- **P. Jansen**, J. Britten, A. Häusele, T. Segschneider, M. Colley, & E. Rukzio, A Demonstration of AutoVis: Enabling Mixed-Immersive Analysis of Automotive User Interface Interaction Studies
  In Proc. AutoUI EA 2023, ACM, doi: 10.1145/3581961.3610374

Workshop Position Paper

- **P. Jansen**, Human-in-the-Loop Optimization for Inclusive Design: Balancing Automation and Designer Expertise
  CHI 2025 Workshop Access InContext: Futuring Accessible Prototyping Tools and Methods. April 26, 2025. Yokohama, Japan, doi: 10.48550/arXiv.2505.08375