

# Luca-Maxim Meinhardt

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## Research Interests

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My research is about designing interfaces that explain fast-changing contexts to the people relying on them, and investigating how those same contexts shape user interaction in turn, calling for interfaces that adapt accordingly. One part of my work develops tangible interfaces that let blind and visually impaired passengers follow what is happening around them in highly automated vehicles. Another part of my work investigates how interface design can either pressure users into specific behaviors or give them back control, from dark patterns in mixed reality to interventions that adapt to everyday context and help people regain agency over their social media use. I work with mixed methods, from interviews and workshops to evaluating hardware prototypes in user studies, and apply computational approaches such as Bayesian optimization to find interface designs that fit individual users.

## Education

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### Ulm University

Doctor of Science (PhD) in [Human-Computer Interaction](#)

*Thesis Title:* Special Information Needs in Emerging Automated Transportation Systems

*Advisor:* Prof. Dr. Enrico Rukzio

*Committee:* Prof. Dr. Johannes Schöning (University of St. Gallen, CH), Prof. Dr. Kai Lukoff (Santa Clara University, US)

Ulm, Germany

Feb 2022 – April 2026

### Santa Clara University

Visiting Researcher at [Human-Computer Interaction Lab](#)

*Host:* Prof. Dr. Kai Lukoff

Santa Clara, CA, USA

Jan 2025 – Feb 2025

### University of Siegen

M.Sc. Human-Computer Interaction

*Master's thesis at CARL ZEISS AG - Corporate Research and Technology*

*Advisors:* Dr. David Dobbelstein (Carl Zeiss), Prof. Dr. Kristof Van Laerhoven (University of Siegen)

*Published parts of the thesis at ACM CHI '23:* [10.1145/3544549.3585799](#) and as an EPO patent: [EP4586881A1](#)

Siegen, Germany

Oct 2019 – Dec 2021

### Ostfalia University of Applied Sciences

B.A. Media Design

Salzgitter, Germany

Sep 2015 – Nov 2018

## Professional Experience

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### ULM UNIVERSITY - Chair of Human-Computer Interaction

*Research Associate*

- Lead research in HCI using *qualitative* (interviews, workshops, thematic analysis) and *quantitative* (statistical analysis, Bayesian optimization, gaze-analysis) methods on software and hardware interfaces
- Planned and directed 30+ user research studies with up to 250 participants, across VR simulations, accessibility, and social media applications
- Collaborated with international research scholars (e.g., USA, South Korea, Switzerland) on cross-lab projects

Ulm, Germany

Feb 2022 – Present

### CARL ZEISS AG - Corporate Research and Technology

*Master's Thesis Candidate*

- Designed and prototyped an iOS application using Swift and OpenCV for self-diagnosing corneal astigmatism; contributed to an EPO patent ([EP4586881A1](#)).
- Integrated user-guided workflows and computer vision to enable intuitive mobile diagnostics.
- Collaborated with cross-functional teams (algorithms, patents, development) in Agile/SCRUM workflow
- Delivered research-driven design recommendations to stakeholders

Oberkochen, Germany

Apr 2021 – Nov 2021

### AUDI AG - Marketing and Brand Experience

*Marketing and Project Management Intern*

Ingolstadt, Germany

Nov 2018 – Apr 2019

- Managed 3 classic/digital/social media campaigns
- Organized Audi's social media brand marketing at the Berlinale Film Festival (Berlin) and Online Marketing Rockstars (Hamburg)
- Collaborated with event teams and external creative agencies to align campaigns with national brand strategy

**KOLLE REBBE (Accenture Interactive)**

Hamburg, Germany

*Digital Art Intern*

Mar 2018 – Aug 2018

- Designed and conceptualized social media marketing campaigns for global brands (e.g., AUDI)
- Collaborated with cross-functional teams (copywriters, strategists) to align campaigns with client goals, streamlining workflows for 50+ design works (social media videos/postings, digital ads, etc.).

## Skills

**Qualitative Methods:** Participatory Design, Co-Design Workshops, Semi-Structured Interviews, Thematic Analysis

**Quantitative Methods:** Controlled Experiments, Field and Longitudinal Studies, Experience Sampling, Linear Mixed Models, Bayesian Statistics, Bayesian Optimization

**Design and Prototyping:** User-Centered Design, UI/UX and Hardware Prototyping, Adobe Creative Suite, 3D Modeling

**Programming:** Python, R, Swift, JavaScript, PHP, C, C++

**Languages:** German (native), English (fluent), Spanish (intermediate)

## Major Publications (CHI, IMWUT)

Unlike most academic fields, premier conferences in Computer Science and HCI are highly selective venues for archival research, often exceeding journals in selectivity, visibility, and impact (see [CRA Best Practices Memo](#)). ACM CHI and IMWUT are widely recognized as the premier venues for HCI research, with acceptance rates typically ranging between 20–25%.

**L.-M. Meinhardt**, L. M. Wilke, M. Elhaidary, J. von Abel, P. D. S. Fink, M. Rietzler, M. Colley, E. Rukzio (2025). *Light My Way: Developing and Exploring a Multimodal Interface to Assist People With Visual Impairments to Exit Highly Automated Vehicles*. Proceedings of the ACM CHI '25. [10.1145/3706598.3713454](https://doi.org/10.1145/3706598.3713454). Acceptance rate: 24.9%

**L.-M. Meinhardt**, M. Elhaidary, M. Colley, M. Rietzler, J. O. Rixen, A. K. Purohit, E. Rukzio (2025). *Scrolling in the Deep: Analysing Contextual Influences on Intervention Effectiveness during Infinite Scrolling on Social Media*. Proceedings of the ACM CHI '25. [10.1145/3706598.3713187](https://doi.org/10.1145/3706598.3713187). Acceptance rate: 24.9%

**L.-M. Meinhardt**, C. Schramm, P. Jansen, M. Colley, E. Rukzio (2025). *Fly Away: Evaluating the Impact of Motion Fidelity on Optimized User Interface Design via Bayesian Optimization in Automated Urban Air Mobility Simulations*. Proceedings of the ACM CHI '25. [10.1145/3706598.3713288](https://doi.org/10.1145/3706598.3713288). Acceptance rate: 24.9%

**L.-M. Meinhardt\***, M. Colley\*, M. Tahmid, M. Rädler, E. Rukzio (2024). *Wind of Change: Investigating Information Visualizations for Passengers and Residents' Perception of Automated Urban Air Mobility*. IMWUT '24. [10.1145/3699753](https://doi.org/10.1145/3699753). Acceptance rate: 20–25%. \*Joint first authors.

**L.-M. Meinhardt**, M. Rück, J. Zähle, M. Elhaidary, M. Colley, M. Rietzler, E. Rukzio (2024). *Hey, What's Going On? Conveying Traffic Information to People with Visual Impairments in Highly Automated Vehicles: Introducing OnBoard*. IMWUT '24. [10.1145/3659618](https://doi.org/10.1145/3659618). Acceptance rate: 20–25%

A. Stampf, M. Sasalovici, **L.-M. Meinhardt**, M. Colley, M. Giss, E. Rukzio (2024). *Move, Connect, Interact: Introducing a Design Space for Cross-Traffic Interaction*. IMWUT '24. [10.1145/3678580](https://doi.org/10.1145/3678580).

M. Colley\*, **L.-M. Meinhardt\***, A. Faßbender, M. Rietzler, E. Rukzio (2023). *Come Fly With Me: Investigating the Effects of Path Visualizations in Automated Urban Air Mobility*. IMWUT '23. [10.1145/3596249](https://doi.org/10.1145/3596249). \*Joint first authors.

## Further Publications

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### Conference Full Papers

**L.-M. Meinhardt**, S. Demharter, M. Rietzler, M. Colley, T. Eßmeyer, E. Rukzio (2025). *Mind Games! Exploring the Impact of Dark Patterns in Mixed Reality Scenarios*. PACMHCI '25 (MobileHCI). [10.1145/3743709](https://doi.org/10.1145/3743709).

J. O. Rixen, J. H. Belz, **L.-M. Meinhardt**, J. Gugenheimer, E. Rukzio (2023). *Exploring the Effects of Head-Mounted Augmented Reality on Helping Behaviour*. MUM '23. [10.1145/3626705.3627969](https://doi.org/10.1145/3626705.3627969).

J. O. Rixen, **L.-M. Meinhardt**, M. Glöckler, M.-L. Ziegenbein, A. Schlothauer, M. Colley, E. Rukzio, J. Gugenheimer (2023). *The Loop and Reasons to Break It: Investigating Infinite Scrolling Behaviour in Social Media Applications and Reasons to Stop*. PACMHCI '23 (MobileHCI). [10.1145/3604275](https://doi.org/10.1145/3604275). **Honorable Mention Award**.

### Conference Short Papers

M. Colley, J. Czymmeck, P. Jansen, **L.-M. Meinhardt**, P. Ebel, E. Rukzio (2025). *UAM-SUMO: Simulacra of Urban Air Mobility Using SUMO to Study Large-Scale Effects*. HRI '25. [10.1109/HRI61500.2025.10973993](https://doi.org/10.1109/HRI61500.2025.10973993).

### Extended Abstracts

**L.-M. Meinhardt**<sup>\*</sup>, M. Colley<sup>\*</sup>, A. Balci, A. Degenhard, P. Jansen, E. Rukzio (2026). *Rethinking Simulator Fidelity in Urban Air Mobility: A Null-Result Investigation into the Effects of Induced Arousal and Motion Cues*. CHI Extended Abstracts '26. [10.1145/3772363.3798420](https://doi.org/10.1145/3772363.3798420). <sup>\*</sup>Joint first authors.

**L.-M. Meinhardt**, K. Van Laerhoven, D. Dobbstein (2023). *EyesOnMe: Investigating Haptic and Visual User Guidance for Near-Eye Positioning of Mobile Phones for Self-Eye-Examinations*. CHI Extended Abstracts '23. [10.1145/3544549.3585799](https://doi.org/10.1145/3544549.3585799).

**L.-M. Meinhardt**<sup>\*</sup>, M. Colley<sup>\*</sup>, A. Faßbender, M. Rietzler, E. Rukzio (2023). *Up, Up and Away: Investigating Information Needs for Helicopter Pilots in Future Urban Air Mobility*. CHI Extended Abstracts '23. [10.1145/3544549.3585643](https://doi.org/10.1145/3544549.3585643). <sup>\*</sup>Joint first authors.

### Workshops & Demos

**L.-M. Meinhardt**<sup>\*</sup>, M. Colley<sup>\*</sup>, A. Faßbender, E. Rukzio (2023). *Stairway to Heaven: A Demonstration of Different Trajectories and Weather Conditions in Automated Urban Air Mobility*. AutoUI '23 (Demonstration). [10.1145/3581961.3610372](https://doi.org/10.1145/3581961.3610372). <sup>\*</sup>Joint first authors.

Y. W. Kim, Y. G. Ji, S. H. Yoon, M. Colley, **L.-M. Meinhardt** (2023). *The 3rd Workshop on User Experience in Mobility: What Could We Learn From AutomotiveUI?*. AutoUI Adjunct '23 (Workshop). [10.1145/3581961.3609824](https://doi.org/10.1145/3581961.3609824). *Workshop co-organiser*.

Y. W. Kim, C. Lim, Y. G. Ji, S. H. Yoon, M. Colley, **L.-M. Meinhardt** (2022). *The 2nd Workshop on User Experience in Urban Air Mobility: From Ground to Aerial Transportation*. AutoUI Adjunct '22 (Workshop). [10.1145/3544999.3550223](https://doi.org/10.1145/3544999.3550223). *Workshop co-organiser*.

## Patent

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D. Dobbstein, L. Stoppe, **L.-M. Meinhardt**, M. Wald, A. Leube (2025). *Computer-Implemented Method and Devices for Determining at Least One Astigmatism Parameter of at Least One Eye of a Person*. EU Patent. ([EP4586881A1](https://patent.google.com/patent/EP4586881A1))

## Secured Funding

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### Graduate & Professional Training Center Ulm (2024)

*Context- and Content-Specific Interventions for Infinite Scrolling on Social Media Platforms*

**Principal Investigator**. Managed project budget and supervised student researchers.

**Amount**: €10,000

## DFG – German Research Foundation (2025)

*Context- and Content-tailored Interventions to Social Media Usage to Enhance Digital Well-being*

**Lead proposal author.** Co-applicant (PI: Prof. Enrico Rukzio). Project number: [561828495](#)

**Amount:** €297,260

## DFG – German Research Foundation (2023)

*Non-Visual Interfaces to Enable the Accessibility of Highly Automated Vehicles for People with Vision Impairments*

**Lead proposal co-author.** Co-applicant (PI: Prof. Enrico Rukzio). Project number: [536409562](#)

**Amount:** €280,901

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## Teaching and Mentorship

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I have contributed to undergraduate and graduate teaching at Ulm University since 2022, combining tutoring, project/thesis supervision, and guest lectures. I co-developed course materials, designed assignments, and supported student assessment and grading.

### Courses

**Fundamentals of Human-Computer Interaction** (BSc/MSc; Winter '23/24, Summer '24, '25, '26)

*Course Organizer and Lecturer.* Delivered guest lectures on Fitts's Law and user-centered design, managed teaching assistants and exercises, co-developed assignments, and supported grading.

**Research Project in Human-Computer Interaction** (2022 – 2025)

*Course Organizer:* Project supervisor in this year-long interdisciplinary project course on user-centered design and design thinking that resulted in several publications.

**Recent Trends in Media Informatics** (Winter '22/23, '23/24, '25/26)

*Course Organizer:* Tutor and one-on-one mentor for students conducting systematic literature surveys. Delivered guidance on the [PRISMA](#) method and supported student assessment and grading.

### Student Supervision

I have supervised 14 BSc and MSc thesis students at Ulm University, guiding projects from conception and study design through data analysis, and publication. Several supervised theses resulted in co-authored publications. One supervised student, [Maryam Elhaidary](#), joined our lab as a PhD candidate after completing her thesis under my supervision, and I now continue to mentor her throughout her doctoral research.

### Other

From 2024 to 2026 I was a Ballroom and Latin dance instructor at Ulm University Sports, teaching classes of up to 60 students.

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## Invited Talks and Seminars

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Honored to be one of the 200 young researchers selected for the [12th Heidelberg Laureate Forum](#) (September 2025)

Research Talk at **University of Tokyo**, [User Interface Research Group](#) (May 5th, 2025), in-person

I attended the [8th Summer School on Computational Interaction](#) in Luxembourg (June 2024)

I attended the [Summer School on HCI for Well-being](#) in Bremen, Germany (June 2023)