

# Steeven Villa

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## SENIOR HUMAN FACTORS ENGINEER

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I am a Senior Human Factors Engineer with a PhD, backed by excellent research and leadership skills developed over 7+ years in both industry and academia. I conduct mixed-methods studies and build functional prototypes to deliver strategic insights for complex challenges in Human-AI interaction, Mixed-Reality, and robotics.

## PROFESSIONAL EXPERIENCE

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### LMU Munich

**Munich, BY, Germany**

*Senior Research Scientist (UX, HCI)*

*Mar 2025 - Present*

- Provided expert consultancy on grant writing and AI ethics, contributing to an awarded €2.5M ERC grant in Human-AI Interaction.
- Coached and supervised researchers on advanced projects, elevating team capabilities and research outcomes.
- Spearheaded initiatives to support project advancement at an organizational level, bridging research to strategic goals.

*Research Scientist (UX, HCI)*

*Dec 2022 - Feb 2025*

- Led over 30 cross-functional UX projects, defining research roadmaps that directly shaped the lab's strategic direction, with findings consistently resulting in top-tier publications.
- Mentored and supervised over 40 junior researchers, improving team-wide research quality and increasing project velocity through weekly reviews and pair programming.
- Forged partnerships with industry leaders in automotive and robotics. I secured funding by translating their core product challenges into new, targeted research initiatives.

*Project Leader [The Hive Lab]*

*Dec 2021 - Nov 2022*

- Managed a €2.74M shared grant and oversaw resource allocation, ensuring efficient lab operations and maximizing research output.
- Led cross-lab collaborations between academic and startup stakeholders, organizing strategic workshops and hackathons, accelerating product innovation in emerging tech.
- Identified skill gaps across multiple R&D projects, implemented targeted training sessions with industry experts, boosting solution quality for client deliverables.

*UX Researcher*

*Sep 2019 - Nov 2021*

- Designed and implemented large-scale experiments & online surveys (50K+ lines of Python/JS/R) to quantify user behavior, validating core hypotheses that guided subsequent development priorities.
- Developed high-fidelity interactive prototypes in Python, C#, and C++ to validate technical feasibility, de-risk novel interaction concepts, and refine core user flows before large-scale investment.
- Engineered a novel robotic-driven haptics system in collaboration with Reality Labs @ Meta, increasing the interactive workspace by 363-fold and enabling room-scale VR experiences.

### Aalto University

**Espoo, Finland**

*Visiting Researcher*

*Jun 2024 - Jul 2024*

- Mentored junior researchers in human-AI interaction and virtual reality and Coordinated with faculty and industry partners to drive innovation in AI-enhanced VR.

### INRIA

**Rennes, France**

*Visiting Researcher*

*Jan 2019 - Jul 2019*

- Conducted user studies on haptic perception, delivering insights that improved XR product design.

### Petrobras (Brazil's National Energy Corporation)

**Porto Alegre, RS, Brazil**

*UX Researcher*

*Mar 2017 - Jul 2019*

- Designed and prototyped physical UIs for offshore pipeline-control robots, applying safety-critical design principles, reducing operational risk on oil platforms.
- Proposed, supervised, and implemented new product features based on user feedback analyses, enhancing usability and accelerating deployment in explosive-environments.
- Engineered and documented a remote-control UI/UX for undersea pipeline robots, contributing to a U.S. patent (Patent Nr: US11920722) on intervention drive systems.

## EDUCATION

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### Ludwig-Maximilians-Universität München

Sep 2019 - Jul 2025

PhD, Human Computer Interaction

GPA: 4

- Thesis: Digital Human-centered Augmentation Technologies
- Focus: HCI, UX research, UX design, LLM interaction, mixed-methods evaluations, prototyping

### Universidade Federal do Rio Grande Do Sul

Mar 2017 - Jul 2019

Master's, Computer Science

- Thesis: Touching is Believing: Exploring Physics-based Simulation and Haptics to Feel Virtual Worlds
- Focus: physics simulation, wearable devices, haptics, prototyping, quantitative research

### Instituto Tecnológico Metropolitano de Medellin

Jul 2010 - Nov 2016

Bachelor's, Mechatronic Engineering

- Thesis: Computer Simulation of Heat Transfer on Tools Used in Friction Stir Welding
- Focus: Computational modeling, compute-assisted design, data modeling

## SKILLS

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**UX Research Methods:** Mixed-Methods, User Interviews, Surveys, Usability Testing, Contextual Inquiry, A/B Testing, Hypothesis Testing, Focus Groups, Customer Journey, User-Centered Design

**Analysis & Insights:** Thematic Analysis, Grounded Theory, Affinity Mapping, Statistical Testing

**Team Leadership:** Mentoring, Project Planning, Cross-Functional Collaboration, Presentation Skills, Budget Management, Agile

**Languages:** English (Fluent), Spanish (Fluent), Portuguese (Fluent), German (Intermediate)

**Design & Prototyping Tools:** Figma, Sketch, Unity3D, Python, C++

## SELECTED PROJECTS

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### Bare-hand Haptics for Virtual Reality

Jan 2020 - May 2022

Lead Researcher | Team Size: 5 | In Collaboration with: Reality Labs @ Meta (US)

- Engineered a novel robotic-driven system using a 6-DoF arm that expanded the mid-air haptic workspace to 19.98 m<sup>3</sup>, a 363-fold increase over static arrays, enabling room-scale, bare-hand interactions in VR
- Conducted the first psychophysical study on moving ultrasound emitters to validate system performance, proving that the dynamic array maintained perceptual quality while dramatically increasing interaction space.

### Non-verbal Communication With Collaborative Robots

Mar 2023 - Apr 2025

Senior Researcher | Team Size: 5 | In Collaboration with: Honda Research (DE)

- Pioneered a two-phase methodology to elicit and validate human-understandable expressions for non-humanoid robots, resulting in 13 verified expressions for curiosity and attention, validated with over 270 users.
- Authored and validated the Perceived System Curiosity (PSC) Scale, a new 12-item psychometric instrument for HRI research, establishing its construct and convergent validity through studies with over 700 participants.

### AI and Me Exhibitions at Multiple Museums

Nov 2023 - Mar 2025

Lead Researcher & PM | Team Size: 7 | In Collaboration with: Design Futures (UK), Deutsches Museum, Alte Pinakothek (DE)

- Demonstrated the exhibition across major cultural venues: Alte Pinakothek Munich, Deutsches Museum Munich, Deutsches Museum Bonn. Garnering engagement from over 500,000 visitors across the three venues.
- Led the end-to-end design and deployment of the interactive exhibition, implementing user analytics to investigate how AI co-creation impacts a visitor's sense of creative ownership.

## AWARDS & PROFESSIONAL SERVICE

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- **Awards:** 1st Place (Top 1%): World Haptics Student Competition '19; Honorable Mention Awards (Top 5%): at Haptics Symposium '20, ISWIC '21, & CHI '25.
- **Conference Leadership:** Workshop Organizer (CHI '24, AVI '22, BMBF - Hive Lab '22); served in multiple Chair roles for premier conferences including UIST ('23, '22) and Augmented Humans ('22-'26).
- **Peer Review & Talks:** Active reviewer for all top-tier HCI venues (CHI, UIST, IEEE VR, etc.); presented at 10+ major international conferences including CHI, ISMAR, Ubicomp, and MobileHCI.