

STEEVEN

VILLA

CONTACT INFO

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ABOUT ME

I am an HCI researcher at Ludwig Maximilians Universität (LMU) Munich, where I examine how emerging technologies—particularly artificial intelligence (AI), brain-computer interfaces (BCI) and augmented reality (AR)—can be leveraged to extend human capabilities. My work combines the pursuit of technical novelty with a critical analysis of the social and behavioural consequences of these systems. Drawing on advanced quantitative and qualitative methods as well as hands-on prototyping skills, I lead projects that move seamlessly from theoretical framing through empirical study to functional proof-of-concepts. Ultimately, my research agenda is to design and evaluate AI-driven interventions that enhance human performance while remaining firmly grounded in human-centred principles.

EDUCATION

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| PhD In Human-Computer Interaction (To be completed) <i>Ludwig Maximilian University Munich, Germany</i> | 2019~2025 |
| <ul style="list-style-type: none">• Thesis topic: "Digital Human Centered Augmentations"• Supervisor: Albrecht Schmidt | |
| Masters In Computer Science <i>Universidade Federal do Rio Grande do Sul Porto Alegre, Brasil</i> | 2017-2019 |
| <ul style="list-style-type: none">• Thesis topic: "Touching is believing: Exploring Physics-based simulation and haptics to feel virtual worlds"• Supervisor: Anderson Maciel | |
| Bachelors In Mechatronic Engineering <i>Instituto Tecnológico Metropolitano Medellín, Colombia</i> | 2010-2016 |
| <ul style="list-style-type: none">• Thesis topic: "Computer Simulation of Heat Transfer on Tools Used in Friction Stir Welding"• Supervisor: Edward Torres | |

PROFES- SIONAL EXPERIENCE

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| RESEARCHER <i>Ludwig Maximilian University Munich, Germany</i> | 2019-present |
| VISITING RESEARCHER <i>Aalto University Espoo, Finland</i> | 2024-2024 |

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| LIVING-LAB MUNICH ADMIN <i>The Hive-Lab Munich, Germany</i> | 2019-2022 |
| VISITING RESEARCHER <i>INRIA Rennes, France</i> | 2019-2019 |
| UX RESEARCHER <i>Petrobras Porto Alegre, Brasil</i> | 2017-2019 |
| UX RESEARCHER <i>Pitmmam S.A.S. Medellin, Colombia</i> | 2017-2017 |

SKILLS

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| Experiment Design | Designing Lab experiments with high validity, reliability and reproducibility Psychophysical Methods: Method of Limits, Method of Constant Stimuli, Forced-choice Paradigm, Staircase Method. Physiological Sensing and Actuation: EEG, EDA, EKG, tDCS, EMS |
| Data Analysis | Python, R, Atlas.ti (For Qualitative data), MNE (for EEG data) |
| Professional Societies | ACM SIGCHI Member IEEE Member |
| Qualitative Methods | Interviews, focus groups, thematic analysis, grounded theory, inductive open coding. |
| Programming | <ul style="list-style-type: none"> • VR Programming: C#, Unity3D, Javascript • Hardware Programming: C, C++, Processing, Python • Robot Programming: C++, Python, ROS |
| Languages | <ul style="list-style-type: none"> • Spanish (Native) • English (High Proficiency) • Portuguese (High Proficiency) • German (Basic) |

COMMUNITY SERVICE

To contribute to the dissemination of research, I have served as Chair for **seven** conferences and as a peer reviewer for **more than twenty** conferences or journals.

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| Chair Roles | <ul style="list-style-type: none"> • Augmented Humans Conference (AHs) 2024 Proceedings Chair • Symposium on User Interface Software and Technology (UIST) 2023 Video Chair • Augmented Humans Conference (AHs) 2023 Poster Chair • Symposium on User Interface Software and Technology (UIST) 2022 Video Chair • Mensch und Computer (MuC) 2022 Video Chair • Augmented Humans Conference (AHs) 2022 Web Chair • Symposium on Virtual and Augmented Reality (SVR) 2021 Publicity Chair • Neuroergonomics Conference (NEC) 2021 Public Relations |
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Reviewer Roles

- Conference on Human Factors in Computing Systems (CHI) **2022** | **2023** | **2024** | **2025**
- Augmented humans Conference (AHs) **2021** | **2022** | **2023** | **2024**
- IEEE Virtual Reality (IEEEVR) **2020** | **2021** | **2022** | **2023**
- Symposium on User Interface Software and Technology (UIST) **2023**
- IEEE Transactions on Haptics (ToH) **2023** | **2024** | **2025**
- Engineering Interactive Systems (EICS) **2023**
- Mensch und Computer (MuC) **2022** | **2023** | **2024**
- Conference on Tangible, Embedded and Embodied Interaction (TEI) **2023**
- Designing Interactive Systems (DIS) **2023**
- Frontiers In Computer Science **2022**
- ACM Transactions on Computer-Human Interaction (ToCHI) **2022**
- ACM Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT) **2022** | **2023**
- Computer Supported Collaborative Work (CSCW) **2022**
- World Haptics Conference (WHC) **2021**
- Information Technology Journal **2020**
- International Symposium on Mixed and Augmented (ISMAR) **2020** | **2022** | **2024**

TEACHING

More than fifteen courses and **Eighth workshops/tutorials** in HCI-related subjects have been under my mentoring since the 2019/2020 winter semester, so I also have experience teaching in the field.

Courses

- **User Experience 3** @LMU Munich
SS2023 | SS2022 | SS2021
- **Virtual Reality Programming Using Unity** @LMU Munich
SS2024 | SS2023 | SS2022 | SS2021
- **Computer Graphics** @LMU Munich
SS2024 | SS 2023
- **Mensch-Maschine-Interaktion 2** @LMU Munich
WS2022/2023 | WS2021/2022 | WS2020/2021 | WS2019/2020
- **Sketching with Hardware** @LMU Munich
WS2024/2025 | WS2023/2024 | WS2022/2023 | SS2022 |
WS2021/2022 | SS2021 | WS2020/2021 | SS2020

Workshops Tutorials

- **EvaAI@CHI24**
Honolulu, Hawaii | Conference on Human Factors in Computing Systems (2024)
- **Human Augmentation- Immediate Issues**
Dagstuhl, Germany | Cognitive Augmentation Seminar (2022)
- **Foundations of Haptic Perception**
Online | BMBF Social XR (2022)
- **Wearables: Design, Prototyping and Emerging Materials**
Online/Hamburg, Germany | BMBF, The Hive-Lab (2022)
- **Haptics to Enrich Visual Interfaces: From Theory to Prototyping**
Rome, Italy | Advanced Visual interfaces Conference (2022)
- **Body as starting point**
Online | Conference on Human Factors in Computing Systems (2021)
- **Engaging with the arts in XR**
Munich, Germany | BMBF, The Hive-Lab (2021)
- **Conversations in Mixed Reality**
Online | BMBF, The Hive-Lab (2020/2021)

Awards

- **Inventor Award**
Porto Alegre, Brazil | Petrobras
- **Young Researcher Award**
Medellin, Colombia | ITM, Medellin
- **1st Place Student Competition**
Tokyo, Japan | IEEE World Haptics Conference
- **Honorable Mention**
Washington DC, US | IEEE Haptics Symposium
- **Honorable Mention**
Online | ISWC Conference

PUBLICATIONS

I have published more than **thirty research papers** in top journals and venues. In addition, I have contributed to the invention of an interface for explosive environments, which has been patented.

Journal Papers

Steeven Villa, Lisa Barth, Francesco Chioffi, Robin Welsch, and Thomas Kosch (2025). "Whose Mind is it Anyway? A Systematic Review and Exploration on Agency in Cognitive Augmentation". In: **Computers in Human Behavior: Artificial Humans (UR)**.

Steeven Villa, Thomas Kosch, Felix Grelka, Albrecht Schmidt, and Robin Welsch (2023). "The placebo effect of human augmentation: Anticipating cognitive augmentation increases risk-taking behavior". In: **Computers in Human Behavior** 146, p. 107787. DOI: <https://doi.org/10.1016/j.chb.2023.107787>.

Steeven Villa, Thomas Kosch, Agnes Mercedes Kloft, Jasper Quinn, Sari Kujala, and Robin Welsch (2025). "Inventory of User Expectations for Technology (iExpect)". In: **Computers in Human Behavior Reports (UR)**.

Steeven Villa, Sven Mayer, Jess Hartcher-O'Brien, Albrecht Schmidt, and Tonja-Katrin Machulla (2022). "Extended Mid-air Ultrasound Haptics for Virtual Reality". In: **Proc. ACM Hum. Comput. Interact.** DOI: 10.1145/3567731.

Steeven Villa, Jasmin Niess, Albrecht Schmidt, and Robin Welsch (2023). "Society's Attitudes Towards Human Augmentation and Performance Enhancement Technologies (SHAPE) Scale". In: **Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. (IMWUT)** 7.3. DOI: 10.1145/3610915.

Steeven Villa, Claudio Pacchierotti, Xavier de Tinguy, Anderson Maciel, and Maud Marchal (2020). "Altering the Stiffness, Friction, and Shape Perception of Tangible Objects in Virtual Reality Using Wearable Haptics". In: **IEEE Trans. Haptics**. DOI: 10.1109/TOH.2020.2967389.

Steeven Villa, Abel Ticona, Rafael P. Torchelsen, Luciana Porcher Nedel, and Anderson Maciel (2018). "Heat-based bidirectional phase shifting simulation using position-based dynamics". In: **Computers and Graphics**. DOI: 10.1016/j.cag.2018.09.004.

Steeven Villa, Yannick Weiss, Niklas Hirsch, and Alexander Wiethoff (Sept. 2024). "An Examination of Ultrasound Mid-air Haptics for Enhanced Material and Temperature Perception in Virtual Environments". In: **Proc. ACM Hum.-Comput. Interact.** 8.MHCI. DOI: 10.1145/3676488. URL: <https://doi.org/10.1145/3676488>.

Chioffi, Francesco, Thomas Kosch, Luca Menghini, **Steeven Villa**, and Sven Mayer (2023). "SensCon: Embedding Physiological Sensing into Virtual Reality Controllers". In: **Proc. ACM Hum. Comput. Interact.** DOI: <https://doi.org/10.1145/3604270>.

Chioffi, Francesco, Robin Welsch, **Steeven Villa**, Lewis L. Chuang, and Sven Mayer (2022b). "Virtual Reality Adaptation Using Electrodermal Activity to Support the User Experience". In: **Big Data Cogn. Comput.** DOI: 10.3390/bdcc6020055.

Schött, Svenja Y., Patricia Capsi-Morales, **Steeven Villa**, Andreas Butz, and Cristina Piazza (2023). "Would You Hold My Hand? Exploring External Observers Perception of Artificial Hands". In: **Multimodal Technologies and Interaction** 7.7. ISSN: 2414-4088. DOI: 10.3390/mti7070071. URL: <https://www.mdpi.com/2414-4088/7/7/71>.

Weiss, Yannick, **Steeven Villa**, Jesse W Grootjen, Matthias Hoppe, Yasin Kale, and Florian Müller (Sept. 2024). "Exploring Redirection and Shifting Techniques to Mask Hand Movements from Shoulder-Surfing Attacks during PIN Authentication in Virtual Reality". In: **Proc. ACM Hum.-Comput. Interact.** 8.MHCI. DOI: 10.1145/3676502. URL: <https://doi.org/10.1145/3676502>.

- Conference Papers** **Steeven Villa**, Kenji Ishihara, Moritz Ziarko, Sebastian Günther, and Florian Müller (2024). "Touch It Like It's Hot: A Thermal Feedback Enabled Encountered-type Haptic Display for Virtual Reality". In: **2024 IEEE International Symposium on Mixed and Augmented Reality (ISMAR)**, pp. 700-709. doi: 10.1109/ISMAR62088.2024.00085.
- Steeven Villa**, Finn Jacob Elijah Krammer, Yannick Weiss, Robin Welsch, and Thomas Kosch (2025). "Understanding the Influence of Electrical Muscle Stimulation on Motor Learning: Enhancing Motor Learning or Disrupting Natural Progression?" In: **Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)**, Yokohama, Japan.
- Steeven Villa** and Sven Mayer (2022). "Cobity: A Plug-And-Play Toolbox to Deliver Haptics in Virtual Reality". In: **MuC '22: Mensch und Computer 2022**, Darmstadt Germany, September 4 - 7, 2022. doi: 10.1145/3543758.3543775.
- Steeven Villa**, Robin Neuhaus, Yannick Weiss, and Marc Hassenzahl (2024). "Exploring Virtual Reality as a Platform for Early-Stage Design for Human Augmentation Technologies". In: **Proceedings of the International Conference on Mobile and Ubiquitous Multimedia**. MUM '24. Association for Computing Machinery, pp. 464-466. ISBN: 9798400712838. doi: 10.1145/3701571.3703386. url: <https://doi.org/10.1145/3701571.3703386>.
- Steeven Villa**, Thuy Duong Nguyen, Benjamin Tag, Tonja-Katrin Machulla, Albrecht Schmidt, and Jasmin Niess (2023). "Towards a Haptic Taxonomy of Emotions: Exploring Vibrotactile Stimulation in the Dorsal Region". In: **Proceedings of the 2023 International Symposium on Wearable Computers (ISWC '23)**, October 8-12, 2023, Cancun, Quintana Roo, Mexico. doi: 10.1145/3594738.3611363.
- Steeven Villa**, Jasmin Niess, Bettina Eska, Albrecht Schmidt, and Tonja-Katrin Machulla (2021). "Assisting Motor Skill Transfer for Dance Students Using Wearable Feedback". In: **ISWC 2021: Proceedings of the 2021 ACM International Symposium on Wearable Computers**, Virtual Event, September 21-26, 2021. doi: 10.1145/3460421.3478817.
- Steeven Villa**, Jasmin Niess, Takuro Nakao, Jonathan Lazar, Albrecht Schmidt, and Tonja-Katrin Machulla (2023). "Understanding Perception of Human Augmentation: A Mixed-Method Study". In: **Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems**, CHI 2023, Hamburg, Germany, April 23-28, 2023.
- Steeven Villa**, Yannick Weiss, Mei Yi Lu, Moritz Ziarko, Albrecht Schmidt, and Jasmin Niess (2024). "Envisioning Futures: How the Modality of AI Recommendations Impacts Conversation Flow in AR-enhanced Dialogue". In: **Proceedings of the 26th International Conference on Multimodal Interaction**. ICMI '24. San Jose, Costa Rica: Association for Computing Machinery, pp. 182-193. doi: 10.1145/3678957.3685731.
- Steeven Villa**, Robin Welsch, Alena Denisova, and Thomas Kosch (2024). "Evaluating Interactive AI: Understanding and Controlling Placebo Effects in Human-AI Interaction". In: **CHI EA '24: Extended Abstracts of the CHI Conference on Human Factors in Computing Systems**, May 11-16, 2024, Honolulu, HI, USA. doi: 10.1145/3613905.3636304.

- Conference Papers** Chiossi, Francesco, **Steeven Villa**, Melanie Hauser, Robin Welsch, and Lewis L. Chuang (2022). "Design of On-body Tactile Displays to Enhance Situation Awareness in Automated Vehicles". In: **IEEE 9th International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications, CIVEMSA 2022, Chemnitz, Germany, June 15-17, 2022**. doi: 10.1109/CIVEMSA53371.2022.9853690.
- Chiossi, Francesco, Robin Welsch, **Steeven Villa**, Lewis L. Chuang, and Sven Mayer (2022a). "Designing a Physiological Loop for the Adaptation of Virtual Human Characters in a Social VR Scenario". In: **2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops, VR Workshops, Christchurch, New Zealand, March 12-16, 2022**. doi: 10.1109/NRW55335.2022.00140.
- Dietz, Dennis, **Steeven Villa**, Moritz Ziarko, Michael Bonfert, Florian Müller, and Andreas Butz (2024). "Embracer: A Wearable Encountered-Type Haptic Controller for 3 DoF Input and Feedback". In: **Proceedings of the 2024 ACM International Symposium on Wearable Computers**. ISWC '24. Melbourne VIC, Australia: Association for Computing Machinery, pp. 140-143. ISBN: 9798400710599. doi: 10.1145/3675095.3676626. URL: <https://doi.org/10.1145/3675095.3676626>.
- Kloft, Agnes Mercedes, Robin Welsch, Thomas Kosch, and **Steeven Villa** (2024). "AI enhances our performance, I have no doubt this one will do the same": The Placebo effect is robust to negative descriptions of AI". In: **Proceedings of the CHI Conference on Human Factors in Computing Systems**. CHI '24. Association for Computing Machinery, pp. 1-24. ISBN: 9798400703300. doi: 10.1145/3613904.3642633. URL: <https://dl.acm.org/doi/10.1145/3613904.3642633> (visited on 08/16/2024).
- Leusmann, Jan, **Steeven Villa**, Burak Berberoglu, Chao Wang, and Sven Mayer (2025). "Developing and Validating the Perceived System Curiosity Scale (PSC): Measuring Users' Perceived Curiosity of Systems". In: **Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25), Yokohama, Japan**.
- Leusmann, Jan, **Steeven Villa**, Thomas Liang, Chao Wang, Albrecht Schmidt, and Sven Mayer (2025). "An Approach to Elicit Human-Understandable Robot Expressions to Support Human-Robot Interaction". In: **Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25), Yokohama, Japan**.
- Pangratz, Elisabeth, Francesco Chiossi, **Steeven Villa**, Klaus Gramann, and Lukas Gehrke (2023). "Towards an Implicit Metric of Sensory-Motor Accuracy: Brain Responses to Auditory Prediction Errors in Pianists". In: **ACM Creativity and Cognition**. C&C '23. Virtual Event, USA: Association for Computing Machinery. doi: 10.1145/3591196.3593340.
- Shen, Chenxinran, Jurgis Karpus, Thomas Kosch, Daniela Fernandes, Beatriz Mello, Robin Welsch, and **Steeven Villa** (2025). "The Impact of Asymmetric AI Assistance on Decision-Making in Social Dilemmas: A Study on Human Augmentation in Economic Games". In: **Augmented Humans 2025**. AHs 2025. Association for Computing Machinery.
- Weiss, Yannick, **Steeven Villa**, Albrecht Schmidt, Sven Mayer, and Florian Müller (2023). "Using Pseudo-Stiffness to Enrich the Haptic Experience in Virtual Reality". In: **Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems, CHI 2023, Hamburg, Germany, April 23-28, 2023**. doi: 10.1145/3544548.3581223.

- Conference Papers** Faltaous, Sarah, Anna Hubert, Jakob Karolus, **Steeven Villa**, Thomas Kosch, and Pawel W. Wozniak (2022). "EMStriker: Potentials of Enhancing the Training Process of Racket-based Sports via Electrical Muscle Stimulation". In: **TEI '22: Sixteenth International Conference on Tangible, Embedded, and Embodied Interaction**, Daejeon, Republic of Korea, February 13 - 16, 2022. doi: 10.1145/3490149.3505578.
- Grandi, Jerônimo Gustavo, Henrique Galvan Debarba, Juliano Franz, Victor Adriel de J. Oliveira, Abel Ticona, Gabrielle Almeida de Souza, Izadora Berti, **Steeven Villa**, Luciana P. Nedel, and Anderson Maciel (2018). "3DATHlon: 3D Gestural Interfaces to Support a 3-Stage Contest in VR". In: **2018 IEEE Conference on Virtual Reality and 3D User Interfaces, VR 2018, Tuebingen/Reutlingen, Germany, 18-22 March 2018**. doi: 10.1109/VR.2018.8446286.
- Riascos, Jaime, **Steeven Villa**, Anderson Maciel, Luciana P. Nedel, and Dante Augusto Couto Barone (2019). "Towards Moving Virtual Arms Using Brain-Computer Interface". In: **Advances in Computer Graphics - 36th Computer Graphics International Conference, CGI 2019, Calgary, AB, Canada, June 17-20, 2019, Proceedings**. Lecture Notes in Computer Science. doi: 10.1007/978-3-030-22514-8_43.
- schraefel, m. c., Josh Andrés, Aaron Tabor, Scott Bateman, Abby Wanyu Liu, Mike Jones, Kai Kunze, Elizabeth L. Murnane, and **Steeven Villa** (2021). "Body As Starting Point 4: Inbodied Interaction Design for Health Ownership". In: **CHI '21: CHI Conference on Human Factors in Computing Systems, Virtual Event / Yokohama Japan, May 8-13, 2021, Extended Abstracts**. doi: 10.1145/3411763.3441335.
- Souza, Gabrielle Almeida de, Laura Amaya Torres, Vinicius Stein Dani, **Steeven Villa**, Jose Abel Ticona Larico, Anderson Maciel, and Luciana P. Nedel (2018). "Evaluation of Visual, Auditory and Vibro-Tactile Alerts in Supervised Interfaces". In: **20th Symposium on Virtual and Augmented Reality, SVR 2018, Foz do Iguaçu, Brazil, October 28-30, 2018**. doi: 10.1109/SVR.2018.00033.
- Tannert, Isabel, Katrin H. Schulleri, Youssef Michel, **Steeven Villa**, Leif Johannsen, Joachim Hermsdörfer, and Dongheui Lee (2021). "Immediate Effects of Vibrotactile Biofeedback Instructions on Human Postural Control". In: **43rd Annual International Conference of the IEEE Engineering in Medicine & Biology Society, EMBC 2021, Mexico, November 1-5, 2021**. doi: 10.1109/EMBC46164.2021.9630992.
- Ticona, Jose Abel, **Steeven Villa**, Rafael P. Torchelsen, Anderson Maciel, and Luciana P. Nedel (2019). "Phys-Sketch: Sketching 3D Dynamic Objects in Immersive Virtual Reality". In: **Advances in Computer Graphics - 36th Computer Graphics International Conference, CGI 2019, Calgary, AB, Canada, June 17-20, 2019, Proceedings**. Lecture Notes in Computer Science. doi: 10.1007/978-3-030-22514-8_10.
- Patents** Santos, Hugo Francisco Lisboa, Ney Robinson Salvi Dos Reis, Maurício Galassi, Lincoln Homero Thome Ferreira, Igor Mendes Ursine Krettli, Hardy Leonardo Da Cunha Pereira Pinto, Tiago Becker, Rafael Antônio Comparsi Laranja, Luciana Porcher Nedel, Laura Amaya Torres, Jose Abel Ticona Larico, Jaime Andrés Riascos Salas, Gabrielle Almeida De Souza, Filipe Paixão Geiger, Fabiano Disconzi Wildner, Eduardo Antonio Wink De Menezes, Eduardo Donadel Basso, **Steeven Villa**, Eduardo André Perondi, Anderson Maciel, and Juliano Morato Franz Dante Augusto Couto Barone (Dec. 2021). *Intervention drive system comprising an umbilical*. **US Patent. 17/288,662**.