

**ERC Starting Grant 2023
Research proposal [Part B1]**

Experiencing Access with Interactive Technologies

ACCESSTECH

- Principal Investigator (PI): Katta Spiel
- Host Institution: TU Wien
- Proposal Duration: 60 months

How is access experienced in interaction with modern technologies? Human-Computer Interaction (HCI) has a tradition of asking questions around functionality in the context of assistive and accessible technologies. However, the additional aspects of lived experiences with disabilities are often secondary to the questions and interests driven by non-disabled researchers. This approach risks producing artefacts that might be functionally accessible, but are deemed as undesirable, unwanted or even harmful by disabled communities themselves. With an increased move towards digitising aspects of our everyday lives, there is an urgent need to understand the fundamentals of how access can be conceptualised, implemented and flexible to situated engagements.

ACCESSTECH investigates the deeper theories behind access as a component affecting interaction with technologies for disabled people through **Participatory Research through Design**. Drawing on the PI's outstanding track record in critical analysis and participatory design practices within HCI (including 14 award-winning papers), we approach experiences of access along four paths of inquiry: 1) We identify the needed research and design parameters enabling us to produce knowledges about access-enabling technologies. 2) We establish which methods are required to design and develop critical technologies that are rooted in disability cultures as well as accepted and desired by disabled people. 3) We explore a range of different technologies to understand how they afford different kinds of access experiences. 4) We conceptualise and articulate access experiences as a distinct aspect shaping the interactive characteristics of modern technologies on a theoretical level. Each of these paths informs disability centred practices and theories in HCI, though, collectively, ACCESSTECH represents a fundamental paradigm shift in the ways we encounter disabilities and technologies.



Section a: Extended Synopsis of the scientific proposal

a. Research Vision

When we think about access in technology design, development and evaluation, we often consider this to be an exclusively functional aspect thereof. Yet, the lived experiences of not just disabled people¹ as well as research from disability studies allude to access being a continuous practice that requires much more situated negotiation. In this realm, ACCESSTECH investigates the potentials of practices that center disabled experiences and the transformative implications thereof on an understanding of technological innovation which leads to **a deeper theoretical, methodological and conceptual understanding of what it means to experience access in interaction and to design for it.**

b. State-of-the-art

During the last few decades, the fields of Human-Computer Interaction and Interaction Design have increasingly established that experiences we make with technologies are highly relevant to their functionality. Only in understanding these experiences can we design technological artefacts that adequately engage people in providing the functionality they are intended to (McCarthy and Wright, 2007). Indeed, entirely new job descriptions have emerged addressing issues of the qualitative aspects of our interactions with technologies, such as User Experience Design (Wright and McCarthy, 2010). However, the way these experiences are framed and understood often generalise across different embodiments in ways that leave out the specificity and difference with which disabled people might experience their engagement with technologies, for example, shaped through lack of access (cf., Hamraie and Fritsch, 2019), trauma (cf., Salehomoum, 2020) or heteronomy (cf., Spiel et al., 2019a). For a holistic understanding of what it might mean to conceptualise ACCESSTECH and the experiences made with (in)accessible technologies, we need to consider all dimensions contributing to this: *disability*, *technology* and the *context of interaction*.

Within technological research generally and Human-Computer Interaction more specifically, accessibility research has subsequently found more prominence and relevance, albeit with an increased focus on specific disabilities in isolation (Mack et al., 2021). Ability-Based Design established a paradigmatic shift in the field in turning away from a deficit-based approach to disability towards a more-strength based understanding at the basis of design for assistive and accessible technologies (Wobbrock et al., 2011). However, the concept does not necessarily centre the perspectives of disabled people in the purpose of technology development (Spiel and Gerling, 2021) and risks occluding the responsibilities we have for staying accountable to disability-oriented communities and practices. A core question remains: **How we can conceptualise, articulate and design for access experiences as a distinct aspect shaping the interactive characteristics of modern technologies?**

To aim at a deepened understanding in this space, the proposed research builds on theories and approaches drawing from (Critical) Disability Studies to augment research and practice in Human-Computer Interaction (HCI). From an understanding of different models of disability (e.g., an individualised, medical model vs a more political, social model as described by Marks, 1997, among others) towards principles of Disability Justice (Piepzna-Samarasinha, 2018), HCI is still in the process of identifying and implementing approaches that allow us to conduct research centring disabled people and their experiences meaningfully. Particularly relevant to the proposed research are the concepts of *ableism* (Campbell, 2009), i.e., the identification of a specific corporeal norm governing the dominant expectations towards people's bodies, the *minority body* (Barnes, 2016), i.e., the understanding of disabled people's bodies as mere difference instead of a value difference, and *Crip Theory* (McRuer, 2006), i.e., a commitment to self-determined, disability-centred ways of engaging with the world and our particular subject matter in research.

Basing our research on these theoretical foundations allows us to tap into the specifics of Disability Expertise (Hartblay, 2020) on matters of access. While all technologies afford access in one way or another and all humans feasibly make the experience of not being afforded access at one point or another, disabled people, unfortunately, have more experience in negotiating access in their everyday lives (Konrad, 2021) – with few exceptions far and inbetween (Valentine, 2020). This persistent and continued requirement for identifying, articulating and advocating for one's access needs makes disabled people prime experts in informing a conceptual understanding of ACCESSTECH.

¹ Following recent activist and scholarly calls alike (cf. Andrews et al., 2019), we opt for identity-first language in our research to avoid having a euphemistic grammatical construct in place of the real disabling experiences disabled people make on a daily basis.

To adequately make space for this so far often disregarded source of knowledge (Ymous et al., 2020), we turn to Participatory Action Research (PAR) (Hayes, 2011), Participatory Design (PD; Bødker and Kyng, 2018) and Participatory Evaluation (Spiel et al., 2017). These approaches consider the exchange of knowledge to be on an equal footing, a collaboration based on the mutual recognition of situated expertise towards the design and evaluation of technological artifacts. Additionally, the principles of *Crip Technoscience* (Hamraie and Fritsch, 2019) provide a solid foundation in how to establish a commitment to engage with non-academic collaborators. These methods provide us with the general tools to inquire into experiences of access. Even so, we still require methodological precision to understand how core principles hold when engaging with different embodiments as well as the specific needs and desires related to them. Hence, **critically positioned participatory engagements paired with Research through Design are crucial foundations to remain relevant in a theoretical conceptualisation of access as experience.**

c. Preliminary Results

Most recently, I lay the theoretical foundations in new materialism for thinking more about the potential in the development of assistive technologies instead of a deficit oriented approach to them (Spiel, 2022). I previously conducted a range of literature analyses, identifying gaps in technological research particularly as it pertains disabled people to account more for their lived experiences and desires beyond the limits of technology being used in a functioning mode to provide medical services (Spiel et al., 2022, Spiel and Gerling, 2021, Spiel et al., 2019a, Spiel, 2021a). I have further to critical analyses of existing technologies in light of the minority body theory (Gerling and Spiel, 2021). This work is augmented by critical speculative design inquiries probing the potential of alternative approaches to technology design (Kender and Spiel, 2022, Spiel et al., 2019b). Additionally, I am the only HCI researcher in Austria with sufficient competency in the local sign language (ÖGS), to conduct research with Deaf populations as well as collaborate with and advise Deaf researchers. Hence, I draw on a wide range of previous experiences to understand the subject matter of this research from a scientific perspective.

I am similarly well equipped methodologically, to facilitate and guide this interdisciplinary research. Particularly in the context of participatory research, I have already made contributions to ethical considerations that need to be taken in-situ (Spiel et al., 2018) as well as to how participatory design outcomes could also be evaluated in a participatory manner (Spiel et al., 2017). Additionally, I have published on issues of epistemic violence in disability related technology research (Ymous et al., 2020) and, just in the week of submitting this proposal, I published two experience reports at assets alluding to the specificities of researching as a disabled researcher with disabled participants (Fussenegger and Spiel, 2022; Spiel and Angelini, 2022). **What is missing is a coherent and empirically founded theory of how we can understand access as fundamental to experiences made with technologies across a range of different contexts, technologies and disabilities.**

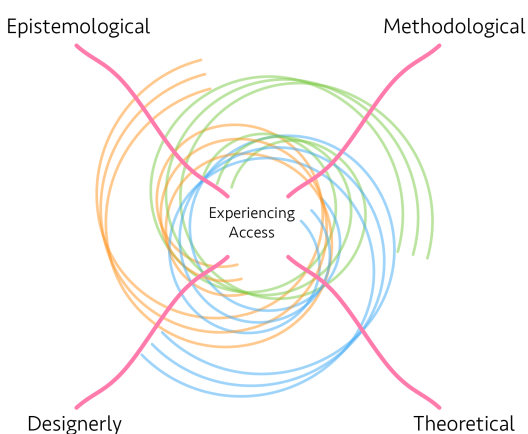


Figure 1: High-level goals of ACCESSTECH

d. Objectives

Despite a direct connection between philosophical theories and design knowledges and practices, this connection has not yet been effectively weaved across to the contexts of disability and technology in ways that inform design along the nuanced experiences and levels of expertise involved. Instead, we notice that technologies for disabled contexts are almost exclusively designed for functionality (Spiel, 2022), a tendency which is likely additionally amplified by the dominance of the medical model in the design and development of technologies for disabled people (for example, in the context of games, Spiel and Gerling, 2021). Hence, returning to the theoretical deliberations regarding how we might fundamentally understand experiences of access across several instances allows us to be more nuanced in our conceptualisation of interactive experiences, what aspects

those are comprised of and how we might design for them appropriately. Centring access in our theories and, subsequently, our design processes means, ultimately, to centre the human in the interaction with technologies more holistically and more thoroughly understand a range of differently situated contexts influencing these experiences. With ACCESSTECH, we ask how we might understand access as a core part of experiences we make when engaging with technologies. As illustrated in Figure 1, this requires us to attend to a range of different sub goals relevant to holistically and deeply encounter the subject matter.

Subsequently, we define this as our *epistemological* objective (EO). Following such an analysis, we identified a *methodological* objective (MO) establishing the appropriate methods to engage disabled people in knowledge making and relating this back to the epistemological objective. We then have a *designerly* objective (DO) oriented on materialising proof-of-concepts to augment and strengthen the empirical work and fulfilling our *theoretical* objective (TO) of providing an actionable, solid and multi-faceted approach to access as a core part of experience that requires designers to actively attend to.

EO *Epistemological*: What are the research and design parameters enabling us to produce knowledges about access-enabling technologies?

MO *Methodological*: M1) Which methods already involve disabled people in technological research and design? M2) Which methods do we need to design and develop critical technologies that are rooted in disability cultures as well as accepted and desired by disabled people?

DO *Designerly*: D1) What are the design features and differences when technologies are designed in a participatory fashion centring access? D2) How do different technologies afford different kinds of access experiences?

TO *Theoretical*: How can we conceptualise and articulate access experiences as a distinct aspect shaping the interactive characteristics of modern technologies?

e. Methodology

To understand how experiencing access constitutes a core component of our overall experiences made with interactive technologies, we probe into three particular contexts (WP1-3), which serve as the empirical basis for the methodological and theoretical work. Additionally, WP4 and WP5 address the methodological and designerly foci, whereas in WP6, we formalize our commitment to the main objectives. Overall, these work packages aim at **investigating how we experience access across different situated contexts (environment, social, self), different technological dispositives (SNS and Do-it-Yourself Making, VR/AR, Tangibles) and different embodiments of disabilities (physical, sensory, neurological) provide us with the empirical basis to develop the methodological and designerly contributions laying down the theoretical basics for understanding access as constitutional to experiences made with interactive experiences.**

WP1: Experiencing Access in Nature

Goal: Understanding the parameters of Social Networking Sites (SNS) and Do-it-yourself (DIY) technology approaches to environmental access for wheelchair users.

Activities: In WP1, we probe the situated context of engagements with larger *environments*, through the technological dispositives of *Social Networking Sites (SNS) and Do-it-yourself (DIY)* approaches with *physically disabled* people. Hence, this investigation will allow us to initiate the proposed research by probing a field that has been mostly defined by highly functional approaches to this point and offering community oriented alternatives to ensuring access is facilitated through mediation of technologies.

- N1. Analysing the status quo on technological access to nature in more detail and in light of appropriate theories from Disability Studies. *Feeding into M1 and EO*
- N2. Conducting participatory ethnographies and interviews with wheelchair users along different stages of their lives to identify stakeholders' needs and desires more holistically along functional, but also social requirements. *Feeding into M2 and MO.*
- N3. Developing proof-of-concept prototypes through participatory design engagements specifically in a manner of Research through Design supporting D1. *Feeding into D1 and DO.*
- N4. Evaluating the usefulness and desirability of the designed artefacts together with initial stakeholders and design participants. *Feeding into D2 and TO.*

Risks: Medium to High. Suitable staff is available, though participant desires might not match intended plan.

Outcomes: Observational and empirical data as well as prototypes and tests on those that will be the foundations of paper publications as well as contributing to our exhibitions and public engagements.

WP2: Experiencing Access in Participation

Goal: Understanding the parameters of Virtual and Augmented Reality technology approaches to social access for Deaf populations.

- P1. *Activities*: The four aims associated with investigating the experiences made in this space combine methodological and designerly investigations to identify higher level epistemological concepts aiding us in understanding the access principles underlying them. The specific context further allows us to directly cross-sect these experiences directly with matters of research participation and acknowledging different epistemic positionalities which have been previously and are continually subjugated. Establishing existing norms regarding bodily expectations in the methodological approaches within Human-Computer Interaction research. *Feeding into M1 and EO.*
- P2. Solicitating of interests regarding technological research within contexts of Virtual and Augmented Reality technologies as well as the methodological approaches to design. *Feeding into M2 and MO.*
- P3. Exploring and implementing design opportunities together with Deaf stakeholders and in doing so conducting Research through Design to identify core design characteristics supporting communicative and immersive needs alike. *Feeding into D1 and DO.*
- P4. Assessing the epistemological consequences of the knowledges derived from the methodological approaches and the resulting designs. *Feeding into D2 and TO.*

Risks: Medium to High. Suitable staff is available, though given the hearing lead of the project, Deaf participants might be less inclined to be involved.

Outcomes: Observational and empirical data as well as prototypes and tests on those that will be the foundations of paper publications as well as contributing to our exhibitions and public engagements.

WP3: Experiencing Access in Intimacy

Goal: Understanding the parameters of wearable technology approaches to personal access for neurodivergent populations

Actions: Understanding access as an experience framing, shaping, articulating and enabling different forms of intimacies to take place with technological support, this strand of investigation asks generative questions concerning negotiations of intimacy for disabled people in technology research generally and Human-Computer Interaction specifically. In that, we consider a range of perspectives, specifically drawing on the experiences of disabled women and minority genders as they relate to the experiences made.

- I1. Conducting a Critical Discourse Analysis surrounding the concepts of intimacy and disability in current technology and HCI research. *Feeding into M1 and EO.*
- I2. Investigating the positions of different stakeholders (e.g., disabled people themselves, formal and informal carers and interest groups) carefully to identify their differing or shared understanding of intimacy and technologies facilitating such experiences. *Feeding into M2 and MO.*
- I3. Conceptualising and executing research-through-design explorations into the potentials of tangibles for masturbation as thought experiments materialising technological alternatives and inquiring into options for innovation. *Feeding into D1 and DO.*
- I4. Contextualising current methodological approaches and provide a coherent framework guiding HCI researchers and designers concerned with intimacy in their research practices with participants. *Feeding into D2 and TO.*

Risks: Medium-High. Stigma will need transparent and open addressing.

Outcomes: Observational and empirical data as well as prototypes and tests on those that will be the foundations of paper publications as well as contributing to our exhibitions and public engagements.

WP4-6: Collating Methodological, Designerly and Theoretical Insights

Given that WP 4-6 follow a similar structure, we describe them on a high level and collectively here.

Goals: Contributing to the *methodological*, *designerly* and *theoretical* knowledge making in HCI.

Actions: The work packages follow an iterative cycle with interloping aspects. For example, when drawing out and collating the methodological requirements from WP1-3, these will be relevant to understand the designerly concepts, we identify and both of these will be relevant for our theoretical understanding while, in return, this theoretical understanding feeding back into our conceptualization of methodological requirements as well as our notion of what design aspects are relevant and so on. Hence, we engage in a collaborative *hermeneutical* analysis of the proceedings and results of WP1-3 (including visual and discursive methods), to contribute to the intended goals.

Risks: Medium. Experienced researchers tackle these work packages.

Outcomes: Academic publications and visual material.

f. Ethics & Equity

To guarantee the safety and welfare of participants, but also that of the research team involved, a rigorous ethics framework, drawing from the guidance on “Ethics in Social Science and Humanities” from the European Commission, will ensure that there are protocols in place for all foreseeable situations. Next to the common procedure of seeking informed consent from participants, the researchers will ensure ongoing consent and assent by regularly checking in and reflecting on micro-ethical dimensions of the collaborations (cf. Spiel et al., 2018). To support a persistent reflective practice, the team will implement ritualistic feedback mechanisms through which participants are getting used to providing critical feedback and are accustomed to speaking their mind regarding their comfort freely. At TU Wien, the researchers can seek out advice and guidance by professional ethicists as well as through the newly institutionalised ethics board supporting peer counsel. In planning such potentially high-risk high-gain research and including others in conducting it, there are potential risks for all researchers involved to consider. For example, the individuals conducting work in specific arenas might be overwhelmed at some point by the responsibilities of care they have towards their participants, or the research through design aspects of the work might be less fruitful than hoped for. Here, the applicant together with their collaborators and their overall network guide the researchers involved and how to best support them to productively deal with academic failures as well as successes.

As the research proposed here focuses on disability as a specific marginalisation concerning the bodies of different people in technology design, gendered experiences of disability will play a role as well (Clare, 2015), which is why when researching Access in Intimacy (WP3), we ensure to privilege the perspectives of disabled women and minority genders, preferably hiring a researcher holding one of these identities. By looking at the different strands within the matrix of domination (Collins, 1990), e.g., gender and disability as well as other aspects such as class and skin colour, the proposed research addresses equity more fundamentally (Crenshaw, 1990, Schlesinger et al., 2017). By conducting this research with a strong participatory component, the project makes an argument for more equitable research in the fields of Interaction Design and Human-Computer Interaction more generally and provides a range of illustrative examples on how this can be achieved.

g. High Gain and Multi-Disciplinary Research Impact

ACCESSTECH will add to existing research on experiencing interactive technologies in HCI by proposing a fundamental shift in understanding that comes with big theoretical and practical ramifications. Where research on assistive technologies and accessibility is predominantly oriented on ableist norms despite their best intentions (Shew, 2020), what we need is a coherent theoretical understanding of access as an experience and experiences as they are shaped through access, that function across different disabilities, contexts and technologies based on epistemologically and methodologically diverse design investigation informing the research and development practices. To conduct such research, requires a multi-disciplinary team, though it will also contribute back to different disciplines, among them HCI and Disability Studies. Overall, we propose a shift towards **beyond functionally considering accessibility in technological setups**. The proposed research, hence, has the potential to *transform how assistive technologies are understood within HCI by radically centering the perspectives of affected stakeholder populations*.

h. Match with ERC Starting Grant

Traditionally, HCI research is concerned mostly with aiming at generalized explanations that provide insights on a population level of a standard population. ACCESSTECH takes a different approach, centering the experiences and knowledges of disabled people and building theory from the margins. We argue that, though risky, this endeavor can prove to be useful not just for peripheral understandings of specialized experiences, but provides us with a more fundamental conceptualization of what makes technological experiences accessible to some and how these notions of access shape these experiences in return. An ERC Starting Grant provides the applicant with the five-year timespan and financial support that is necessary to establish the multi-disciplinary team required to tackle such research adequately and ensure that the potential gain can be achieved.

References

I have marked my own name in bold font and those of pre-doctoral as well as postdoctoral researchers I advised in italics.

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Section b: Curriculum vitae**PERSONAL INFORMATION**

Family name, First name: Spiel, Katta

ORCID: 0000-0001-6094-9531

Date of birth: February, 12th 1986

Nationality: German

URL for web site: <https://katta.mere.st>

- **EDUCATION**

- | | |
|------|--|
| 2018 | PhD
Faculty of Informatics, TU Wien, Austria
<u>Prof. Dr. Geraldine Fitzpatrick</u> |
| 2014 | Master of Science
Computer Science & Media, Faculty of Media, Bauhaus-Universität Weimar, Germany |

- **CURRENT POSITION(S)**

- | | |
|-----------|---|
| 2023-2029 | Assistant Professor for Critical Access in Embodied Computing
Human-Computer Interaction Group, Faculty of Informatics, TU Wien, Austria |
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- **PREVIOUS POSITIONS**

- | | |
|-------------|---|
| 2020 – 2023 | Hertha-Firnberg Scholar
Human-Computer Interaction Group, Faculty of Informatics, TU Wien, Austria |
| 2019 – 2022 | External Lecturer
Gender Studies, University of Vienna & University of Innsbruck, Austria |
| 2019 – 2020 | Postdoctoral Researcher
e-media Research Group, KU Leuven, Belgium |
| 2014 – 2019 | Project Assistant
HCI Group, TU Wien, Austria |
| 2018 | Visiting Researcher
Games Institute, University of Waterloo, Canada |
| 2012 – 2015 | Teaching and Research Assistant
Bauhaus Universität Weimar, Germany |

- **FELLOWSHIPS AND AWARDS**

- | | |
|-------------|---|
| 2020 – 2023 | Hertha Firnberg Scholar, HCI Group, Faculty of Informatics, TU Wien, Austria |
| 2022 | Förderungspreis (Promotion Award) for Maths, Computer Science, Natural Sciences and Technology, City of Vienna, Austria |
| 2022 | Research Award, Pride Biz Austria |
| 2020 | SIGCHI Outstanding Dissertation Award |
| 2018 | Marietta Blau Scholarship, Ministry of Education, Austria |
| 2017 | Christina Hörbiger Prize, TU Wien, Austria |
| 2017 | SIGCHI Travel Awards |
| 2010-2014 | Student Scholarship, Heinrich-Böll Foundation, Germany |

- **TEACHING ACTIVITIES**

- | | |
|-------------|--|
| 2019 – 2023 | External Lecturer – (Theories and) Methods of Gender Studies, University of Vienna & University of Innsbruck, Austria |
| 2015 – 2023 | Pre- and postdoctoral lecturer (internal) – Critical Design, Ethics & Design, Critical Theory of Media and Informatics, Exploratory Desig, User Research Methods, Program Construction, TU Wien, Austria |
| 2012 – 2013 | Lab Tutor – Cryptography I & II, Bauhaus-Universität Weimar, Germany |

- **ORGANISATION OF SCIENTIFIC MEETINGS**

- 2022 Equity & Access Chair for CHI 2022, New Orleans, USA – ~3500 participants
- 2021 Equity & Access Chair for CHI PLAY 2021, online – ~500 participants
- 2021 Social Media Chair for Mobile HCI 2021, online – ~500 participants
- 2019 Assistant to the General Chairs for CHI 2019, Glasgow, UK – ~3500 participants
- 2018 Co-Organisation of the Austrian HCI-Networking Event, Vienna, Austria – ~50 participants
- 2016–2018 Student Volunteer at CHI (2016-2018), DIS (2017) and IDC (2016)

- **INSTITUTIONAL RESPONSIBILITIES**

- 2021 – Group representative (multiple roles) among staff representatives, TU Wien, Austria
- 2020 – 2021 Organization online lecture series ‘Critical Perspectives on Technology’, TU Wien, Austria
- 2016 – 2019 Substitute Member to the Senate, TU Wien, Austria
- 2014 – 2018 Organizer of the Lunchtime Seminar Series at the HCI Group, TU Wien, Austria
- 2006 – 2014 Student representative (multiple roles), Bauhaus Universität Weimar, Germany

- **REVIEWING ACTIVITIES (most recent selection)**

- 2023 Track Chair for Games Criticism and Analysis at FDG 2023
- 2022 – 2023 Associate Chair for Full Papers at TEI
- 2021 – 2023 Observing Member, CHI Steering Committee
- 2022 Doctoral Consortium Co-Chair at ASSETS 2022
- 2021 – 2022 Co-Editor Special Issue “Surviving Whiteness In Games” at the Journal of Games Criticism
- 2021 – 2022 Subcommittee Chair ‘Critical Computing & Design for Change’ at DIS
- 2020 – 2022 Associate Chair for Mensch & Computer
- 2018 – 2022 Associate Chair at CHI (Critical Computing and Games subcommittees)
- 2020 Track Chair ‘Serious Games’ at DiGRA
- 2020 Track Chair for alt.CHI at CHI
- 2020 Associate Chair at MUM and NordiCHI
- 2019 – 2020 Associate Chair at CHI PLAY

- **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

- 2021 – Member, Research Network “*Disability Studies Austria*”
- 2020 – Member, Research Network “*Society for Disability Studies*”
- 2015 – Member, Research Network “*Association for Computing Machinery*”
- 2014 – Founding Member, Research Network “*chronically academic*”

- **MAJOR COLLABORATIONS**

Prof. Dr. Kathrin Gerling, Surrogate Body and Disability Theory in HCI, e-media Research group, KU Leuven, Belgium
 Prof. Dr. Eva Hornecker, ADHD and Technology Research, Faculty of Media, Bauhaus Universität Weimar

- **CAREER BREAKS**

11/16 – 05/17 Six months of parental leave.

- **COVID-19 IMPACT TO SCIENTIFIC PRODUCTIVITY**

Please specify which of the following situations apply to you:

- Increased caring responsibility for dependent person, including home schooling of children;
- No access to laboratory facilities, archives, or other necessary facilities;
- No access to field work;
- Adaptation to online teaching;
- Physical and/or mental health issues;
- Other(s) _____

**Appendix: All current grants and on-going / submitted grant applications of the PI
(Funding ID)**

Mandatory information (does not count towards page limits)

Current research grants (Please indicate "No funding" when applicable):

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Role of the PI</i>	<i>Relation to current ERC proposal²</i>
MACH'S AUF!	Ludwig Boltzmann Gesellschaft	75.000 €	2022-2023	Katta Spiel	None

On-going / submitted grant applications (Please indicate "None" when applicable):

<i>Project Title</i>	<i>Funding source</i>	<i>Amount (Euros)</i>	<i>Period</i>	<i>Role of the PI</i>	<i>Relation to current ERC proposal²</i>
Twist, Shift & Shake (TSxS)	FWF Emerging Fields	5.000.000 €	2024-2029	Collaborator	None
Rewriting the Protocols of Autism	Volkswagenstiftung	600.000 €	2024-2027	Collaborator	None

² Describe clearly any scientific overlap between your ERC application and the current research grant or on-going grant application.

Section c: Early achievements track-record

Research agenda and highlights

I am currently an Assistant Professor for Critical Access in Embodied Computing at TU Wien. My prior work touches on issues around gender and disability with technologies, marginalised bodies in tangible and embodied interaction and participatory research with disabled populations. I hold qualifications both as a Computer Scientist and as a Cultural Studies scholar and have been awarded the 2020 SIGCHI Dissertation Award for my doctoral thesis investigating the experiences of autistic children of technologies developed in participatory design endeavours. During the end of my doctoral studies and certainly since, I have further supported PhD students through informal mentoring and have now already two students committed to working with me during their studies, one of them being Felix Fussenegger, who is intended to work on *Experiencing Access in Nature* within the proposed research. I am uniquely qualified to advise pre-doctoral researchers within the context of the proposed research given my dual background as a Computer Scientist as well as a Cultural Studies scholar. Due to my well-distributed professional network, which will be further tightened by investigations into ACCESSTECH, the doctoral and post-doctoral researchers will be able to conduct research embedded in a supportive network with dedicated internal and external mentors.

In a combination of my research and service work, I further developed the standard for how to enquire into gender for the entirety of the Association for Computing Machinery (ACM), have served as a member of the advisory board on publication name changes for the ACM and was heavily involved in the conception of the HCI Gender Guidelines. I am further active in relaying their academic findings to the public through social media (e.g., Twitter (more than 2k followers on their personal account) and Instagram) and through a lecture series on Critical Perspectives on Technology that remains accessible through Youtube.

Due to my multidisciplinary background in Computer Science, Cultural Studies and Design, I am excellently positioned to conduct and lead the proposed work. I am nationally and internationally embedded in the relevant societal and academic communities and am one of the very few hearing academics in Austria generally and currently the only one in the area of Human-Computer Interaction who commands a sufficient level of Austrian Sign Language to communicate with Deaf participants and advise Deaf doctoral and potentially post-doctoral researchers. Additionally, I bring in the appropriate sensitivity and attunement to the relevance of lived experiences in interaction design given my own living expertise as a disabled person.

My research places itself within an ongoing international discourse on equity in technology design and through that substantially contributes to the fields of Human-Computer Interaction, Disability Studies and Interaction Design. Developing my own theoretical contributions on understanding access as an experiential (not functional) parameter for disabled people in their interaction with technologies through conducting the work proposed for ACCESSTECH, will further build the foundation for an individual book detailing how technology research can centre disabled communities and cultures more to create better suited and desired artefacts that address the self-determined needs of disabled people.

Bibliometrics and summary of publication activities

My publication track record as of the time of submitting this proposal has been high-volume and high-quality since they started publishing in 2016. They have 14 journal papers (seven as first author, one as sole author) and 32 full paper conference articles (eleven as first author, two as sole author), 14 extended abstracts, three book chapters, ten peer reviewed magazine articles, 17 workshop, panel and special interest group proposals, 15 workshop contributions and eleven invited articles. **Of the, in total, 46 peer reviewed full papers, 14 (30%) have received awards such as Best Paper, Best Paper Honorary Mention and Diversity & Inclusion Awards**, including a recent 2021 single-author publication receiving two awards at the same conference (Designing Interactive Systems). These works are well cited across different disciplines. According to google scholar, my work has been cited, in total 1603 times as of October 2022. My h-index sits at 22, with the most cited paper (from 2020) accruing 96 citations. My research has further been featured or profiled in 20 articles, podcasts, radio features and TV appearances in public media. Additionally, I have co-authored publications on gender and technology with the Gleichbehandlungsanwaltschaft, a governmental institution supporting matters of equity in Austrian society, and on using technology to support inclusive classrooms in schools with the Austrian Ministry of Education.

Selected publications

I have selected five papers below (in reverse chronological order) that I consider my biggest achievements.

1. **S. Burtscher, K. Spiel, L. D. Klausner, M. Lardelli, and D. Gromann.** 2022. “Es geht um Respekt, nicht um Technologie”: Erkenntnisse aus einem Interessensgruppen-übergreifenden Workshop zu genderfairer Sprache und Sprachtechnologie. In *Proceedings of Mensch und Computer 2022 (MuC '22)*. Association for Computing Machinery, New York, NY, USA, 106–118. <https://doi.org/10.1145/3543758.3544213> (**Best Paper Award**, not cited yet).
Report on a participatory design workshop with different stakeholder groups (translators, machine learning experts and nonbinary people with lived experiences on their marginalization), illustrating how values such as respect and appreciation are encoded in digital infrastructures.
2. **K. Spiel.** 2021. “Why are they all obsessed with Gender?” — (Non)binary Navigations through Technological Infrastructures. In *Designing Interactive Systems Conference 2021 (DIS '21)*. Association for Computing Machinery, New York, NY, USA, 478–494. <https://doi.org/10.1145/3461778.3462033> (**Best Paper & Diversity and Inclusion Awards, Pride Biz 2022 Research Award**, 8 citations)
Autoethnographic exploration of navigating largely binary databases as a nonbinary person. Through this research and the publication, several digital systems on different levels (including the support for legislative changes in Austria and juridical decisions in Germany) have been changed.
3. **K. Spiel and K. Gerling.** 2021. The Purpose of Play: How HCI Games Research Fails Neurodivergent Populations. *ACM Trans. Comput.-Hum. Interact.* 28, 2, Article 11 (April 2021), 40 pages. <https://doi.org/10.1145/3432245> (12 citations)
Analysis of games research focused on neurodivergent populations illustrating how self-determination theory is not applicable in these contexts, whereas it is frequently drawn upon when aiming at an understanding of games for general populations.
4. **A. Ymous, K. Spiel, O. Keyes, R. M. Williams, J. Good, E. Hornecker, and C. L. Bennett.** 2020. "I am just terrified of my future" – Epistemic Violence in Disability Related Technology Research. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '20)*. Association for Computing Machinery, New York, NY, USA, 1–16. <https://doi.org/10.1145/3334480.3381828> (65 citations)
Essay detailing issues with knowledge making in HCI when it comes to technology and disabilities more generally as well as when it comes to assistive technologies specifically.
5. **K. Spiel, C. Frauenberger, O. Keyes, and G. Fitzpatrick.** 2019. Agency of Autistic Children in Technology Research—A Critical Literature Review. *ACM Trans. Comput.-Hum. Interact.* 26, 6, Article 38 (December 2019), 40 pages. <https://doi.org/10.1145/3344919> (93 citations)
Systematic critical literature review on technologies as they are developed supposedly for autistic children. This work has been fundamental in introducing a shift in how we articulate who is addressed in research involving neurodivergent populations.

Selected awards

- Pride Biz Research Award 2022 (awarded to 4 nominees out of 55 submissions)
- Promotion Award for Maths, Computer Science, Natural Sciences and Technology of the city of Vienna 2022
- SIGCHI Outstanding Dissertation Award 2020
- 4x Best Paper/Pictorial Award (MuC 2022, IJHCS 2020, DIS 2021, C&C 2021)
- 3x Diversity and Inclusion Awards (DIS 2021, TEI 2021, C&T 2019)
- 8x Honourable Mention (MuC 2022/2020, CHI PLAY 2019, FDG 2018, CHI 2017 (x3), CHI 2016)

Invited talks and international recognitions

I have been invited as a keynote speaker on several occasions now (e.g., Foundations of Digital Games Conference 2022, RO-MAN Workshop on Gender and HRI 2022, Workshop on Participation in HCI at Mensch und Computer, 2020). Further, I have been invited to speak at and join seminars and lectures as a guest speaker (a.o., University of Michigan, Dagstuhl Perspectives Workshops, University of Copenhagen, die Angewandte Vienna). Additionally, I have spoken to the general public at several outreach occasions within TU Wien or other entities (art festivals, vernissages). My international standing can also be seen in my involvement with the CHI Steering Committee as an observing member (2021-2023) and my service on several programme and organisation committees since 2018 (among them, CHI, DIS, FDG, CHI PLAY, ASSETS).