Criptopias: Speculative Stories Exploring Worlds Worth Wanting

Robin Angelini
Sabrina Burtscher
Felix Fussenegger
Kay Kender
Katta Spiel
robin.angelini@student.tuwien.ac.at
sabrina.burtscher@tuwien.ac.at
felix.fussenegger@igw.tuwien.ac.at
silvia-kay.kender@tuwien.ac.at
katta.spiel@tuwien.ac.at
Crip Collective – HCI Group – TU Wien
Vienna, Austria

Franz Steinbrecher
Oliver Suchanek
stonichen@dismail.de
oliver-jayden.suchanek@student.uni-ak.ac.at
MACH'S AUF! – Metalab Wien
Vienna, Austria

ABSTRACT

In a manner of *cripping* access in technology, we use the concept of criptopias and what it might bring to technology research and Human-Computer Interaction along a range of speculative stories that explore desirable worlds from a crip perspective. We stretch our bodyminds into the past, present and futures to identify how we might thrive in worlds that welcome us, instead of giving us the persistent notion of being considered as an afterthought. Such a collection is necessarily eclectic and not oriented on providing solutions; rather, we carefully tread forward on trying to find different stories we tell to and about ourselves through speculative explorations of how disability-centred interactions could be shaped. However, as we discuss briefly at the end, allowing ourselves to desire difference has the tendency to throw us back into the lack of a given status quo, making such an endeavour surprisingly painful to endure – while simultaneously providing wholesome alternatives worth fighting for in solidarity.

CCS CONCEPTS

• **Social and professional topics** → **People with disabilities**; • **Human-centered computing** → *Accessibility theory, concepts and paradigms*; *Accessibility design and evaluation methods*; *Accessibility technologies.*

KEYWORDS

Criptopia, Crip HCI, Speculative Fictions, Access

1 BETWEEN MEDICAL MODEL AND SUPERCRIP – TRYBORG IMAGINARIES

The relationship between technological developers and disabled people[1] on a general scale can, at best, be characterised as strained. Even though many disabled people love to engage with technological advances and innovations on their own terms [20], many make the everyday experience of encountering technologies that have been imposed on them based on assumptions made by non-disabled designers instead of the lived expertise of disabled people themselves [3]. Shew has coined the term "technoableism" to describe some of these tendencies embedded in mainstream technological design concerning assistive technologies, but also more generally [40]. This includes a dominance of a medical model [26], i.e., an individualised, deficit oriented understanding of disability and a subsequently solutionist approach to the function of technologies in disabled people's lives – going so far as to, for example, take out all the fun out of digital play by relegating games to fulfil interests external to intrinsic motivations for play when it comes to neurodivergent populations [42]. This solutionism comes with the potential for problematic consequences (as detailed previously for racial justice [7]) – at its best just a mismatch between audience and technology, at its worst an incidental amplifier of existing modes of oppression. This further includes the persistent afterthought access needs present to mainstream technologies as shown, for example, for virtual reality technologies assuming standing positions as well as reliance on both, vision and hearing [12], or even the very basic way we conceptualise our ethical reflections in technological research [48, 49].

Meanwhile, there is a shadow discourse conceptualising disabled people around the orientation of the "supercrip" (i.e., a person who is presumed to be comparatively stronger and more advanced than the corporeal standard [4] as is sometimes discussed in the context of sports [21]) or as a theoretical example for metaphors aimed at non-disabled people's conceptualisation of technological

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[1]In line with disability activism and our personal preferences, we use identity-first language in this paper [1].

interaction in the world. This follows an understanding of how Weise critiqued Haraway's cyborg manifesto [18] developing the term 'tryborg' to indicate the meaningful difference of how disabled people depend on their amalgamations with technological artefacts compared to how non-disabeld people imagine their relationship with on- and inbody technology [46]. Tryborg imaginaries, hence, represent a chiefly non-disabled perspective on the potentials of technologies in disabled people's lives. Paired with the tendency to only rarely or insufficiently involve disabled people themselves in research about them [43] or a lack of deep engagement with theories from disability studies in technology research (with a focus on assistive technologies or not) [25], some of our previous and present work keeps on critiquing this status quo.

This activity, in return, has opened up critique towards us in that our analyses tend to position themselves within sometimes opaque appearing discourses, writing from a privileged position within the academy and failing to provide a positive outlook (an example can be found in the commentary attached to a different alt.chi paper [50]). While we cannot fundamentally change our positionality, we can reflect on the notion that it is indeed wrought by privilege on a general position (i.e., all authors are white and live in Austria where they, despite class differences, benefit from basic social security and a public healthcare system, which also frames our experiences of being disabled [8, 29, 31, 37]), even if not necessarily within the academy [50]. However, in taking this privilege serious – including the limits therein [17] – we do feel encouraged by these critiques to speculate on criptopias, as in, worlds where crip[2] experiences are centralised rather than marginalised (going into and beyond previous conceptualisations[3] of imagining perfectly accessible worlds). We understand them as an invitation to explore how crip perspectives might articulate themselves, and which desires might emerge in imagining different roles technologies do and could have in our lives.

We base these speculations in crip theories and practices oriented on kinship, access intimacy and the notion of disabled technologies. They provide snippets of criptopian imaginings along different temporalities, bodymind experiences and desires. These are then augmented by a brief reflection on how engaging with criptopian potentials for many of us simultaneously means that we are thrown back even more pointedly towards a status quo that is often lacking – though it also allows us to identify the criptopian elements already present in our everyday lives and potentials on how to expand them.

2 CRIP KINSHIP AND DISABLED TECHNOLOGIES

When detailing what disability and disabled experiences entail, we often turn to different models of explanation, i.e., as we did ourselves above, the *medical* model which often stands in opposition to the so called *social* model which conceptualises disability more as an issue of access that is granted to some bodies but not others [26].

Operating from within a medical model, disability is positioned within an individual body, whereas from within a social model, it is understood as coming from the socially negotiated environment. Regardless, the lived experiences of disabled people are often characterised as being persistently made aware that the majority of society judges the different embodiment as 'less valuable' instead of a *mere difference* [2]. Both of these models have been critiqued for either overly essentialising disability or ignoring the embodied experience that comes with it [39]. Hence, we turn to the lived reality of being disabled [11], with all the differences, complications and commonalities this might entail [47].

For this, we draw on theories that allow us to claim disability as a 'mere difference' [2], to claim disability as an identity that provide us with the means for a positive identification with our minority bodies [ibid], however complex and complicated this endeavour might be [38]. Subsequently, we distance ourselves from the notion of charity often embedded in technology research on access and accessibility [40] and to position ourselves with pride in the light of pervasive prejudice[4]. We reject the notion of compulsory able-bodiedness [27] we encounter in our daily lives and instead 'come to claim crip' [36] as a confident position – albeit from a disabled perspective. "This 'coming out' is the process of positive self-identification, rejecting the categorisation of subjection, and affirming subjectivity and collective power" [38]. For us, this means that considering this work by our positive self-identification as crip, as disabled, comes with the recognition of sameness and difference in others and, through that, necessitates, for us, solidarity among ourselves and with our peers.

"Part of claiming disability is choosing this messy, imperfect work-in-progress called interdependence" [6]. In interdependence, we identify the specific potential for crip solidarity as it is shown in collective practices [22] and the specific care work within crip communities [32]. Such practices are well described by the notion of 'access intimacy' [45]. "Access intimacy is that elusive, hard to describe feeling when someone else "gets" your access needs. The kind of eerie comfort that your disabled self feels with someone on a purely access level" [28]. In opposition to the more common experience of being kept isolated from disabled peers [29], experiences of access intimacy are rare and treasured. Allowing ourselves to engage with imaginings where this is the case, hence, comprises a treasured privilege for us.

To do so, means embracing *cripping* as our core practice. "Cripping spins mainstream representations or practices to reveal able-bodied assumptions and exclusionary effects. Both queering and cripping expose the arbitrary delineation between normal and defective and the negative social ramifications of attempts to homogenize humanity, and both disarm what is painful with wicked humor, including camp" [5]. Additionally, we follow the principles of crip technoscience as outlined by Hamraie and Fritsch: we centre the lived experiences of ourselves as disabled people, follow ourselves to a notion of access as friction, understand interdependence as political technology, and are committed to disability justice [16]. We aim at conceptualising criptopias that understand the interaction between disabled people and technologies as driven by potential [41] instead of solutionism, as an 'epistemic site' [10]. We speculate

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[2]We use the term crip to proudly refer to our disabled selves, no matter the specificity of our embodiment, as well as others who have reclaimed the term for themselves [27].

[3]such as they can be found at https://www.instagram.com/criptopia.media/, https://criptopia.tumblr.com/team, or https://newmobility.com/criptopia/, all last accessed on December 10th, 2022

[4]A phrase inspired by a book with a similar title [29]

on criptopias from a situated perspective of already engaging with technologies in our every day lives, in some cases life saving ones. But we dare to dream up different stories about our cyborg selves.

3 EXPLORING CRIPTOPIAS

"[I]dentity is an aspect of the stories we tell to ourselves, and to others (...;) new stories are being told, and we are creating ourselves for ourselves, rather than relying on the traditional narratives of biomedical intervention or rehabilitation, of misery, decline and death" [38]. Articulating and telling criptopias to ourselves and others is a way for us to aim at creating such alternative stories that, on a different level, allow us to simultaneously create potentials for difference in identification – by others and by ourselves.

In that regard, we engage with speculating about futures that might not seem probably or even feasible (as tends to be the case for speculative design [9]), but that tell a story about how worlds could look like as dreamt up from a crip perspective. Within HCI, Tanenbaum has provided an indication as to why it is relevant to engage with storytelling as a form of prefiguration for design [44]. These stories are not meant to provide clear indications for what we should design or which technological artefacts are relevant to realise criptopias, but rather, to understand the desire that is communicated through imagining, articulating and, in parts, drawing them. In that, they do not even always concern futures, but stretch into the past and occasionally remain within a present or just very close future, something we owe a bit to specific crip temporalities [23, 34], which require a sense of immediacy in how we conceptualise time, simply by often not being awarded a notion of future perspectives.

Specifically, we collected and collated these stories through conversations and reflections shared with each other. These have not always conducted with this paper in mind, but rather draw on sometimes long standing relationships and repeated conversations about our desires for future technologies as well as frustrations with current ones. Each story abstracts more or less from our lived experiences and draws on them for the exploration of how our socio-technical environments could be shaped if they afforded us the access we desire – individually as well as collectively.

3.1 Hacking out Criptopian Pockets

When invited to speculate on criptopias, our minds immediately went to our hackspace, a veritable third space [30]. However, we could go even further (first story).

3.1.1 This is just for Funsies. On a shoddy rainy day in cold and windy Vienna, I just manage to arrive soaking wet in front of the entrance. The display greets me with a beautiful smile, inviting me into the hackspace with a heartwarming welcome.

With anticipation and, still – every time–, slight tears in my eyes, I open the front door with an elaborate wave (thanks to comprehensive vision and sign language detection, the system understands me). A hologram lights up the entrance room and immediately tells me the latest events. This AI that communicates with me in Austrian Sign Language (ÖGS), I have designed and developed myself. I can choose between different types of gesture styles, dialects or other sign languages as well as mixtures of these. A skip and a beat make me realise how comfortable I feel here nowadays. After changing my clothes and getting up to date with the latest developments and events

– along my preferred modality no less–, I make my way to the main room. I can already smell the tantalising aromas of the coffee machine, pre-emptively preparing my cup upon knowing I'll arrive. Through my sign-based instructions, I can adjust the moods of the room to perfectly match my current preferences. I put the 3D printer in the starting position, since I already sent the last model here yesterday, and start it with my well-known finger snap. Oh, there now comes the service robot bringing my freshly brewed coffee from the beans we cultivated ourselves in the other cellar compartment.

Upon reflecting on this criptopian imagery, we understood that parts of it are already realised. We had the joy and privilege to make our hackspace more accessible to our needs in the past year. Veritably, we could 'hack the space' [13] and expand it to accommodate Deaf culture more. Hence, we now present how our hackspace already affords a bit of a criptopia for us already.

3.1.2 A Present not too far off. When you walk into our hackspace, the Metalab, a display in the vestibule shows you the daily schedule: What events are happening today, exactly when and where, and who's coming. A Velcro board for the hardworking people, there they peck their name tags on and thus show their presence in the spacious open hackspace with few existing walls and doors. In the main room, a Kanban board structures impending and completed tasks that help us in regularly maintaining the space. Tasks are clearly stated and allow for independent implementation by volunteers. In the communal kitchen, a keyboard can be used to announce something on the monitor in the main room; for example that a meal, meant to be shared with others, is now ready for consumption. Many windows and transparent doors allow sunlight, visual communication and life to pass through the rooms. Of course, they can be darkened for peace and quiet.

The shared goal within the Metalab community is to document a project from start to finish and share it via a wiki. This allows for constant exchange, re-reading and reflection of all projects. Likewise, this concept proves itself in the area of sustainability, as the documentation allows the project itself to be replicated and improved (which in turn is documented).

In a hackspace shared between Deaf and hearing people, it is only consequential that the communication is in sign language (cf. Figure 1a). Every Wednesday evening, there is a sign language meeting where newcomers and old hands support each other to improve and maintain language skills. Also, there is almost always a person present who willingly steps in for hearing visitors and other people without sign language skills, enabling clear communication at eye level (a.k.a. 'letting their hands fly').

True to the "do it yourself and hack" philosophy that prevails, the light bell is connected to an alarm light using a microcontroller and a breadboard[5]. The latest upgrade to the light bell implemented an extension to the ceiling light shades and into other rooms. Now the lights are gently and briefly turned down and turned back up to the previous setting. This lets everyone know that something new has happened. Other signals (e.g. colored lights, screens) let people know what else is going on (doorbell, food, call, fire alarm, etc).

Events taking place at or organised by the Metalab, as well as outside, are always accompanied by sign language interpreters as well as professional transcriptionists. Also, we Deaf people don't

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[5]more information on the technical details at https://metalab.at/wiki/Lichtklingel

(a) Collaboration on soldering tools between Deaf and hearing members

(b) Workshop with a Deaf expert providing basic information on social rules in Deaf spaces. Note the light bell in the upper right corner.

Figure 1: Metalab as Present Criptopia

have to worry about this, as all fellow members are already empowered and "drilled" to take care of the associated logistics. For movie nights, all movies are shown with subtitles. For workshops, priority is given to experts with excellent sign language skills (cf. Figure 1b) or in other areas, who likewise "serve" as role models for peers and subconsciously increase casualness and acceptance for all.

All this required and still requires hard work on our end. While this is our little criptopia in the present, it is precarious and needs maintenance as well as repeated explanations about our own oppression in other spaces, but also, rarely but still, in this one. We further stretch out in yearning for our crip peers, for some of whom the space is not yet fully accessible. But we're on it.

3.1.3 An Ideal Inbetween. When it comes to the ideal of inclusive hackspaces – or Maker Space–, our criptopian vision is that it is not only that they are all broadly inclusive, but that engaging with matters of access is actively encouraged. We need to recognise that functional accessibility does not automatically indicate cultural and social accessibility. Instead of an individually accessible Maker Space, there are baseline protocols and standards creating a shared vision around access. This provides disabled people with the baseline configuration to allow us to choose which space might be the right one for us along other measures, such as available tools or community feel. To ensure access needs being met, not only aspects of infrastructures, systems and accessible solutions must be considered, but also, for example, language. Only by providing accessible materials can a wide range of disabled people find their own access to them. Furthermore, such a Maker Space facilitates not only access, but also participation. At the Metalab, hearing and Deaf people can directly interact with each other in Austrian Sign Language, but this is still the exception. True participation for us means that disabled people can actually take part in what is going on actively and not just passively receive what is given to us. We further need to acknowledge that this should not be reduced only to the aspects of language, but also the consideration of cultural differences, which is a component for collaboration. Thus, a safe space should be established for marginalised groups. True access, to us, entails the freedom to choose the spaces we want to go to, not being made dependent on the few that engage with matters of access at all.

3.2 Crip in the Details - Crippin' the Details

I often fantasise about our socio-technical physical spaces becoming like the forest I grew up in. Nobody found anything wrong with me in the forest. I looked at birds and birds looked back at me without attempting to engage in smalltalk. The forest did not scream at me with the noise of a million voices, smells, humans, touches, texts, jingles, musics, noises, lights, colours. The city did, and there was nothing I could do about it (Figure 2). I am in and out of therapy. I want to go back to the forest. I often dream of the city becoming like the forest. Will it ever stop screaming at me?

A future in which I am not constantly stressed as soon as I step out seems far out of reach, but I still imagine it, and I imagine how it could be built (Figure 3). These imaginations often revolve around layers, as a way to consider customisability in the sense of individual and sometimes opposing needs. Like seasoning food,

Figure 2: The world is not made for me.

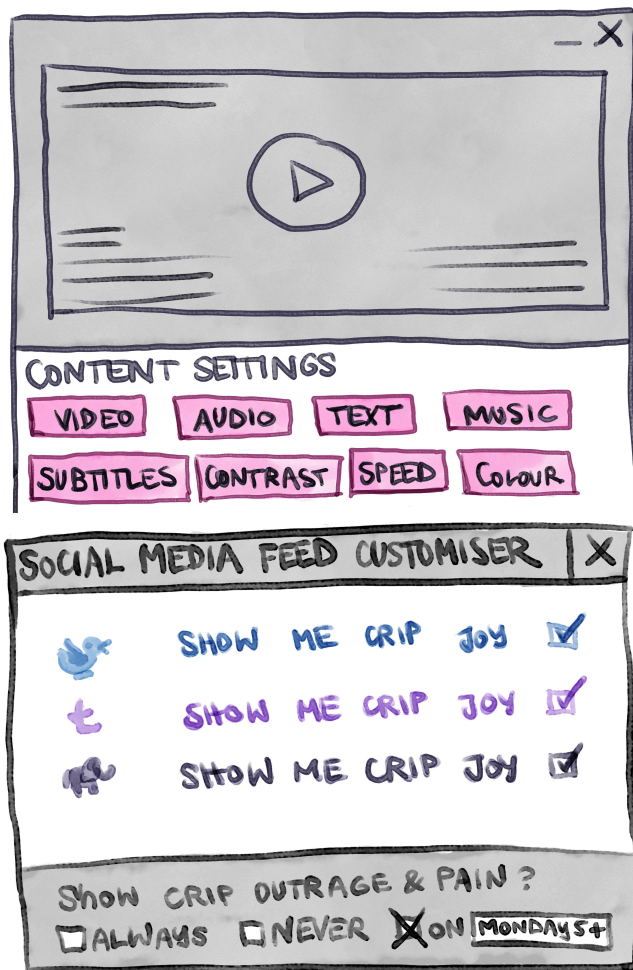**Figure 3: I am allowed to externalise. I am allowed to protect myself.**

Figure 4: Content format layering and customisability.

Figure 5: Academia is so terrible at structuring and planning, I don't know how I have made it this far.

or like adding in-depth professional functionality to software in a way that keeps the top-level interface intuitive for beginners and amateurs, layering is to consider what is the minimum, and what to add on top. The physical city is like an overly salted soup, an overly complex and disorienting interface, a cocktail of sensory overload spiked with corporate music choices and advertisements. I imagine spaces within spaces where it is still and I can breathe. I imagine touching bark and wood.

Long-term change in the physical and social space of the city, such as doing away with advertising and traffic, introducing trees and green spaces, making different behaviours acceptable in public, and so on, takes time. I dream, in the end, of urban planning for no more cities. Of unity with the forest, of a well-linked organic system of small villages with excellent public infrastructure, each as important and quaint as the next. It all seems very far away from now.

But my fantastical dreams seem so close in the digital realm, where spaces change with a couple of lines of code and a click, and where different versions of the same space can exist for different people all at the same time. Where I can be in a space where I can

appear masked to others without masking [33], where the medium masks for me.

Layering and customisability is already best practice in software, but it is used to optimise usability, productivity, and ultimately, profit. To crip is to #makeItCustomisable – out of sheer necessity in worlds that are rarely built for us in the first place [14]–, but there are choices and assumptions made in deciding what to make customisable, what to layer, and how. If these decisions centred the margins, we could have digital spaces that prioritised crip joy and flourishing. If access and user well-being was prioritised in layering and customisability, oh! the things I could do! I could seize control over my social media feeds (Figure 4), I could turn off background music on lectures, I could find detailed information about schedules and social interaction (Figure 5), I could access step-by-step guides to using websites and navigating bureaucratic and other structured processes.

And my customised and layered digital criptopia would permeate into the physical city. I imagine maps, which are in many ways a
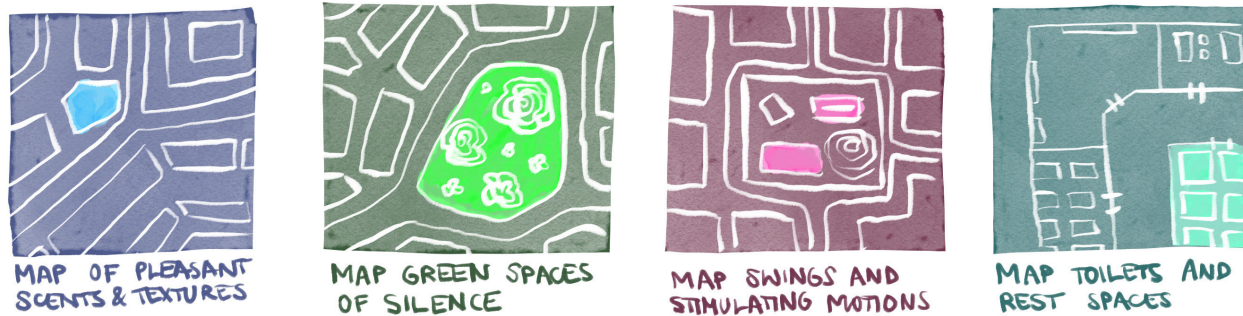
Figure 6: Maps maps maps

layering over, and to some extent a personalised version of, physical city-spaces, where so much could be made visible[6] (Figure 6).

And drawing these drawings and writing these lines, I am torn between feeling like I am at the same time imagining ridiculously grand and radical changes, and proposing ridiculously uninspired, insignificant, small, and easily-implemented changes. Most of my ideas are easy to implement, and most of my needs are what you would consider details. But they make all the difference to me.

3.3 Just around the Corner

At times, I require an accessible bathroom. And at those times, I tend to spend a lot of time making maps of my immediate environment, rating the public or publicly accessible bathrooms on scales of cleanliness and comfort, having meticulous details on cleaning schedules that I keep updated in my mind. I will at some point know what kind of toilet paper is used, whether the water is warm and just how much care goes into, I cannot stress this enough, cleaning them.

I have specific access needs that are not necessarily tied in what is classically defined as an accessible bathroom. At those times where I need them, my access needs are not immediately visible to the outside. Access means different things to different people. Hence, my vision of a criptopia here (Figure 7) is simultaneously incredibly simple and unimaginably complex: A broad and well maintained physical infrastructure of accessible bathrooms accompanied by an equally well maintained information infrastructure allowing me to not having to maintain a mental map of the state of different bathrooms around me at all times. An information infrastructure that understands that *accessible* can mean different things at different times to different people, that implements a flexible and fluid concept of how access needs change and develop over time. Living in such a criptopia could give me the ease of mind of not having to schedule the bathroom breaks of my outings down to the last detail, including having to figure out when to eat or drink what. As I said: incredibly simple, but unimaginably complex.

(a)

(b)

Figure 7: Criptopias where accessible bathrooms and informational infrastructures around them are just ubiquitous and easily available.

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[6]I am by far not alone in this fantasy - let the Critical Design Lab's Mapping Access Methodology [15] be noted here!

Figure 8: Being in crip-motion

Figure 9: Stimming along with devices aiding in self-regulation instead of suppressing it

3.4 Crip-Motion

I experience a vague inkling of a feeling of criptopia in the rare occasions where I move through unrestricted accessible environments. Under these circumstances there are constellations in which my crip-motion may be practical or even advantageous (Figure 8). With the right floor surface and low slopes getting around on wheels can be more efficient than getting around on foot. Suddenly my cyborg-body provides a certain convenience. I do not have to plan every route in advance and I can use the energy saved for other productive purposes instead of investing an additional share in the compensation of my impairment as usual. My aspiration is not to be permanently advantaged, but I would dream of living in a society that gives me a fair chance to experience more of these criptopia-moments.

3.5 Supporting Stimming in Solidarity

My body is always in motion, it never sits still. Sometimes, I internalise these movements, but upon my crip peers, I can more freely twitch my muscles, shake my legs, hum to myself, or tap a rhythm. However, on occasion, how exactly I move my body requires negotiation, how exactly I can stay in motion or at least occupy my brain with rhythmic input, needs a compromise for us all to comfortably be together in the same space. In these cases, I wish for technological support (Figure 9) that does not expect me to put the mask up again [35], but allows me to draw on alternative movements, different sensations and curious stimulations that capture my often unwieldy attention, allowing for sameness that enables me to freely think and be creative on the other highway of my brain. For now, it is not technological support that affords such access to me; rather, in crip solidarity, I have found a way of engaging with my movement needs in studying the local sign language. More than just broadening my modes of communication with other disabled peers, using the language feels natural, expressive and provides me with an outlet for structured movement that is also meaningful. Sometimes, it might not be the technological support we crave, but the one stemming from solidarity might suffice.

4 THE PAIN OF ARTICULATING DESIRE

Our criptopias span cyberpunk imaginings, explorations of little pockets of freedom afforded by places in the present, yearnings for understanding access as fundamentally intertwined with disability cultures, stretches into the past to bring them into our futures, conceptual sketches, considerations for socio-technical infrastructures and musings on crip-motions as well as stimming practices. They share temporal aspects of immediacy, not reaching too far into the past or ahead into a future, rather staying comparatively close to a present that is already shaped by dreams of difference. In that, they conceptualise the future as in a way that could be understood as crip time [23], i.e., a different relationship with time particularly shaped by the experiences made as disabled people. We further noticed that, among them, there is a thread weaving through indicating that the realisation of criptopias does rely on us to craft and build them for ourselves, that we need ourselves and each other to articulate and actualise them – which comes with the repeated urgency of the claim that there should be 'nothing about us without us'.

In engaging with our individual and partly shared criptopias, we noticed a sense of 'crip solidarity' among us [22]. We could not always fully grasp or understand each others' desires or dreams, either in the situated contexts that brought them to be articulated or in the specificity of the yearning. Regardless, in the recognition and validation of these criptopias no matter their scale or content and in the fierce loyalty we developed for each other's desires, we could feel ourselves "holding space for each other, our stories overlapping and colliding, love humming between us" [6]. We speculated on a range of different potentials that allow us to tell different stories about ourselves [38] and tentatively create a base for access intimacy not just within our little collective, but illustrating how different needs are articulated and can sit with each other in fulfilling multiple needs. However, those potentials are limited by our specific positionality as White, disabled academics and academic collaborators in Europe.

Ultimately, the speculations we explored share some type of banality. In the end, our criptopias seem almost simplistic, places where we can just be ourselves without putting too much effort into creating the foundations for that. And this, in return, makes us angry and frustrated because it throws us back into a status quo, that seems to be unable to afford us with these otherwise very basic amenities [29]. Access is constantly created for minorities (just think about the narrow margin of very rich people), but for us it seems to be something associated only with the constant work that disabled people need to put into it, something that is a privilege if granted, with the need to be grateful for it; something that we are awarded and afforded, not something that is already awarded and afforded to most, just all too often, not to us. Criptopian technologies are simple in that they open up spaces to explore how we might live beyond being determined by the restrictive opportunities currently imposed on us by our built and social environments. They allow us to explore alternative stories and different types of imagery that we tell about and to ourselves – and to speculate on uncharted potential of worlds we might want, if we only dare to desire them. For now, though, we leave it to future work (ours or those of others) to understand the specific design processes and potentials for criptopias in HCI.

So, we take this exercise as an opportunity, regardless. Following a notion of 'sitting with discomfort'[7] and 'staying with the trouble' [19], we do not find a way out of the conundrum. We need the stories, the positive imagery, the speculations on alternatives to imagine worlds that are different. We can make use of the anger (inspired by Lorde [24]) that stems from how our explorations entail a strong reminder of how lacking the current world is, use it to explore not just where we want to go, but also how to get there. So that we may dare to dream a bit bigger next time.

ACKNOWLEDGMENTS

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