

Cripversation: from frustration to prototype: open-sourcing a Crip multisensory approach to VR environments

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Abstract. Virtual reality (VR) is, by default, designed for sighted, hearing and able bodies. Cripversation is a Crip multisensory approach to building VR environments and the open tools behind them, developed by À Nos Prothèses, a collective of Blind, Deaf, hypersensitive and mobility-diverse artists. It began with our own exclusion from a VR model built for the 'online accessibility' of an exhibition of the collective's artwork. In response, we appropriated a self-hosted adaptation of Hubs and the Makey Makey open hardware board to build a multisensory environment, and grew La Renarde, a tactile fox-shaped puppet that acts as prosthesis, controller and avatar. Our failures are ongoing frustrations rather than closed bugs: they show that accessibility cannot be reduced to technical fixes but call for embodied collaborations.

Keywords: *cripping technoscience, (in)accessibility of VR, inter-capacity design, open hardware, Makey Makey, Hubs, multisensory interface, documentation, access intimacy*

1. Context: beyond accessibility retrofits

Cripversation began in 2025, when AdaX, a feminist art media center, proposed to make the collective's exhibition accessible online — a VR model proved inaccessible to the collective's own 15 Blind, Deaf, hypersensitive and low-mobility members. This was no surprise in hindsight: headsets induce vertigo and disorientation, hand controllers exclude people with reduced mobility, and virtual worlds are built on visual and auditory norms. But it was ours. We were furious at first: bringing something online does not make it accessible to most of us — here, it did the contrary, and we felt not only dispossessed but tokenised in the process.

Beyond that initial frustration, AdaX was very patient with us, and has become our closest ally for current and future collaborations. Rather than ask "how do we make VR accessible?", we ask: how do we build virtual environments, and open tools, that reflect our embodied knowledge and diverse ways of sensing, moving and communicating? With rare exceptions [4], this places us apart from the accessibility-retrofit paradigm that dominates HCI research on VR and disability [5].

2. Method: frustration as design input

We began with a residency at LaboHSI, the disability and Deaf-culture innovation lab at UQAM (Montréal), to bootstrap the project. There we catalogued the platform's failures in a booklet of frustrations and desires, treating anger as a creative driver and as early requirements documentation. Cripversation is made *with, by and for Crip artists*: the people who will use the tools are the ones who specify, test and break them. Our method is open-hardware tool-building under real, embodied constraints — we worked with Hubs and repurposed Makey Makey to meet specific users' sensory needs, favouring *collective appropriation over ad-hoc accommodation*, iterative testing, and transparent failure logs over polished documentation. This allowed a group without engineering backgrounds to produce a haptic-prosthesis prototype while presenting a live exhibition inside a four-hundred-year-old cultural centre.

3. The prototype

The environment. We appropriated AlloAda, a self-hosted adaptation of the open-source Hubs platform (since transferred to Satellite, SAT [7]). The world is made of several domes, reminiscent of an old spaceship set down in a forest; each dome is a room hosting an artwork — a 3D upload of a haptic sculpture, prosthetic dreams and stories, a fire for crip songs and poetry — all signed and audio-described. It was rebuilt multisensorially: a

cardinal soundscape orients Blind users (wind for north, fire for east, water for south, earth for west); LSQ video labels and multilingual audio description complement it; and a projection lets participants enter without a headset.

The puppet. We invited Liane Décary-Chen's expertise, who introduced us to Makey Makey; Mikki Bradshaw then repurposed the board, originally an educational kit, into a haptic navigation interface, and led the soundscaping. With Goldjian Charlo (Anne Goldenberg), the collective co-created La Renarde, a tactile fox-shaped prosthesis-puppet that is simultaneously controller and avatar, navigating through touch and sound alone, with no headset or screen. Creators and programmers tested conductive-thread configurations — density, placement, sensitivity to lighter touch — and, after weeks of iterative testing and real-time troubleshooting, produced a working IRL avatar. The prototype was then refined through use by Blind, Deaf, neurodivergent, wheelchair-using and otherwise mobility-diverse participants, and shown publicly in Montréal in 2025.

The documentation. We began documenting the project long before the residency ended: a physical book held our dreams and frustrations, our needs and our recurring failures. With the help of Blind members, we made an embossed Braille map of the VR platform, and recorded conversations too alive yet to fit on a page. Digital tools came later, and we still lack a single platform that can hold our many sensibilities and capacities at once — our surest common ground remains a full-hearted, embodied presence.

4. Making space for failure — and for embodied collaborations

Our failures are not the end of the frustration that started Cripversation; they are its continuation. We treat them as valuable and unfinished, rather than as bugs to be fixed and forgotten. To make space for them, we keep a physical and an online diary that tracks our ongoing frustrations, and also acknowledges our joyful moments and epiphanies, so that gratitude has a place beside anger. Two frustrations remain. First, entering the environment currently requires clicking a small link, so Blind participants cannot come in on their own; once inside, they also tend to leave too quickly, and we suspect more IRL grounding — a tactile haptic floor, larger puppets, tethering strings — is needed. Second, the Makey Makey needs a conductive circuit through the participant's body, yet wheelchair users may have no direct contact with the floor, and rubberized wheels electrically isolate the chair from the ground: we had to rethink what "grounding" means in an embodied interface. Neither problem is closed by a technical patch: we keep them documented and shared. Both call for physical, embodied collaboration and access intimacy, and show accessibility as a generative research practice rather than an accommodation.

5. Documenting for an epistemic community

GOSH 2026 marks a turning point. After Nepal, the installation travels to the Blind Youth Association of Nepal (BYAN), the co-living space CIL_Katmandou, and the children of Kapila Valley (Maker Space and October Dashain camp). We are moving from an informal community of practice toward an epistemic community that documents for an external public [1–3]. Documentation is itself another layer of the accessibility quest. Formalising it also means (re-)opening it: on 18 September our website went offline when its server came under attack. We had to turn to alternatives, moving to WordPress and opening a Notion page — a reminder that open documentation needs redundancy as well as accessibility. Four questions now anchor our open notes:

- (1) How can frustrations and mistakes become occasions for deeper understanding and crip-based reconfigurations?
- (2) How can a puppet double as a Makey Makey controller and IRL/VR avatar, and how do we document that transformation?
- (3) How can Hubs-like environments be adapted for inter-capacity participation of Blind, Deaf, hypersensitive and low-motricity users?
- (4) How can documentation stay accessible enough for differently abled participants to read, annotate, modify and contribute to it?

We come with unresolved problems, and invite collaboration to shape these tools and to document, failures included, what can be done for, with and by our diverse bodies and needs. Next steps include more puppet-controllers, deeper soundscaping, sign-language translation, and more Blind, Deaf and neurodivergent makers, growing toward a global crip conversation that combines onsite and online gatherings.

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