

## Do It With Others: Hardware Hacking in South America

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**Figure 1** A bowl with chipá (a typical food from Paraguay and some regions of Argentina and Brazil) in a hardware hacking workshop. Photo © Sebastian Rey, used by permission.

### Background

When invited to participate in the new edition of this book, we agreed that what interests us most, and what we want to make visible about hardware hacking, is the nature of meetings and networks that the activity fosters. In our individual experiences as artists, managers, educators and hackers living in Buenos Aires, we share a vision of what these encounters mean to us. For this overview of hacking culture in South America we reached out to self-identified hackers in Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador and Peru, using a "snowball" or chain letter method in which artists invite other artists to participate.<sup>1</sup> What follows are some observations from the information collected. Our intention was to track the networks that are born around hardware hacking and reveal those areas of "doing" that are not embodied in objects or works. Our text does not claim to be exhaustive, but rather to offer an account of a scene in vibrant ebullition and permanent change. We will give particular attention to cases in which hacking engages with growing feminist movements in South America.

## **From being being to being doing<sup>2</sup>**

For many, hardware hacking is rooted in finding alternative uses for existing devices—transforming a talking toy into an ominous synthesizer for example. For us, it means much more—a collective attitude that expands to create social and artistic networks.

For the last few years, the hacking virus increasingly infected Buenos Aires, fostering crossovers between disciplines and instigating research groups. We have observed three notable phenomena from our experiences in these activities. The first is the free circulation of information as an open source, to quote our friend Jorge Crowe. Information is shared to enhance the projects of others; it is not hidden or protected for personal profit.

The second is a pedagogical approach that contrasts with more traditional models in which it is assumed that to justify standing in front of a class, the teacher must know the subject matter thoroughly. Hacking revels in the potential that exists when teachers know only a little bit more about what they are teaching than the students. Our workshops generate communities of apprentices. Hacking hacks *us*, makes us use our ability to teach and learn in a different way and to foster new communities.<sup>3</sup>

The third characteristic of our scene is the frequent emergence, from workshops and other learning spaces, of new artistic groups and collectives. The energy released from newly acquired knowledge unfolds in new forms of aesthetic expression, but also in new means of production, performance and distribution. Buenos Aires has recently seen the emergence of groups such as Corpiños Luminosos y sus Guantes Sonoros (“Luminous Bras and their Sound Gloves”) and Aureola Electrika, audiovisual projects such as "Ludotecnia" and "Barbados", publishing labels such as MUN DISCOS, and collectives that work around education, art and technology such as Los Aparatos (“The Devices”) and SONIDOC!NICO (“Cynical Sound”)<sup>4</sup>.

We can think of hacking independent of hardware, as something we use to relate to others and to reconfigure our linkages. We gather together to learn to solder and build an oscillator or an optical theremin, and to see how we can extract new expressiveness from an electronic toy. A stranger teaches us the differences between components in an electronics store. We exchange knowledge and experiences. We bring fresh air to our daily lives and we disrupt our status quo. What is more, we seem to be "breeding" our machines more than "creating" them.<sup>5</sup>

This process of constant doing is the essence of the hacker's work, not as a means to reach a certain end, but as an end in itself. During the process we are forging ourselves and finding hints about how to continue walking the road. It is an open practice in which even mistakes can be included in the creative production. It is a practice of social emancipation.

## **Throwing a snowball at a network**

To research hacking in South America we sent a kickoff questionnaire to some hackers we knew. We asked each person to answer some questions about their practice, send us a photo, and identify seven additional hackers. We then sent the same questionnaire to these new contacts, and each of them supplied the names of seven more hackers, and so on, and

so on. We wanted to utilize and reveal the affectionate bonding mechanism that is part of hardware hacking at a regional level.<sup>6</sup>



**Figure 2** Students at a hardware hacking workshop in Puerto Libertad, Misiones, Argentina. Photo © Sebastian Rey, used by permission.

Several of our contacts associate hardware hacking with creative and critical action that helps us rethink the function of technology and things. Claudia González (Chile) defines it as "rebellion against the domain of knowledge," and maintains that "in Latin America it has always been done, with Third World economy things always end up hacked to give them new uses and to modify them." For OzZu ukumari (Bolivia), hardware hacking is "a way in which we have learned to cope and survive beyond transnational interests and the dominant thought of 'doing things correctly,' which prevails in West." This hacker says that everyone, especially in Latin America, "has an integrated hacking chip" with which "we have learned to hack all technology and adapt it to our needs [...], it is the day by day, you use it to get free cable tv signal, you use it to modify the exhaust pipe of your car or motorcycle, to evade the ID of your IP."

In the same sense, Giuliano Obici (Brazil) argues that hacking is "a way of *gambiarra*," a Brazilian term for an informal and improvised way of solving a problem in the absence of proper resources or tools. This hacker and sound artist finds that both hacking and *gambiarra* "emerge from the need to keep a certain autonomy of the individual in the face of restrictive circumstances" and that both "point to the limitations of an instituted technical and/or ideological system and with that, its action can generate the collapse of the system, be it in a social, political or artistic way."<sup>7</sup>

We should emphasize that this appropriation of the concept of hacking has political implications and is anchored in the socioeconomic conditions of the region. Hackers position themselves as producers of technologies, and not as mere consumers.

Often in South America, hackers link with the community and with local practices. Many examples originate in education and local communities, such as "la Jaquer Escool," the education program of the Platóhedro cultural center in experimental art and technology for young people (Medellín, Colombia), or the electromagnetism workshop for children in Montegrande (Chile) organized by Claudia Godoy.<sup>8</sup> Sandra de Berduccy (A.K.A. Aruma), from Bolivia works with local ancestral practices, making weavings on traditional looms and incorporating circuitry, LEDs and speakers. She developed her research independently in rural locations and started hardware hacking "as a weaver, getting to know the depth, structures and processes of Andean tissues, and how energy works inside them."

Hacking technologies are not just electronic. A sort of biohacker, the Argentinian Ana Laura Cantera uses electronics and microorganisms, as she considers nature an interface. Her work *Nidos de equilibrio* ("Balance Nests") uses energy generated by microbial cells, while her *Utópicas reconstituciones* ("Utopian Reconstitutions") uses physical structures created with mushrooms that she builds with GIY (Grow It Yourself) techniques.

## **Feminisms**

Feminist movements have a long history in South America (and worldwide), but have become widespread and more visible in recent years. They usually have a pluralistic perspective and respond to a diversity of demands. They often link to local cultures and problems, and demonstrate different perspectives throughout the continent. In the last decade, feminism's call was popularized by slogans that reached several previously divided social groups, and inspired them to join in globally growing movements. Massive demonstrations against femicide and in support of Women's Day, mass campaigns to legalize free abortion, and groups of women demanding more participation and representation in different artistic, professional and political spaces, summoned large masses of women, lesbians and LGBTQ+.

In the work of the surveyed artists we found examples of feminist activism associated with hardware hacking, such as the performances of Corpiños Luminosos y sus Guantes Sonoros (Buenos Aires), a group of female hackers who wired bras with LEDs.<sup>9</sup> The Colectivo 22bits (Santiago, Chile), an independent technofeminist group, runs workshops in electronics and "noise" for women. In 2018, they held a workshop on the construction of portable amplifiers installed in purses, backpacks and bags that were used to carry out a collective performance during the Women's Day demonstration that year. Through the

amplifiers, the women played sounds of past demonstrations in Chile. #VIVAS is a transnational collective based in Buenos Aires presenting feminist collaborative projects that began with the creation of a free open sound bank filled with interviews, poetry, conferences and field recordings of demonstrations. Over time it has expanded its scope, always linking to the affective use of technologies, adding multimedia workshops, production workshops and meeting spaces.



**Figure 3** An image from a tutorial to make a luminous bra from Corpiños Luminosos y sus Guantes Sonoros. Photo © Carolina Andreeti, used by permission.

The Chilean hacker Constanza Piña (A.K.A. Corazón de Robota) has created clothes and accessories with electronics, and blogs step-by-step instructions on how to create a homemade feminine pad, "My blood is my revolution".<sup>10</sup> With Claudia Gonzalez she founded ChimbaLab, one of the first entirely female medialabs.

## Conclusions

We started our research by positing hardware hacking as a practice of free circulation of information, as a non-formal pedagogical approach and as a contagious energy that can be the basis for collective projects. The results from our survey surpassed our expectations. Through it we discovered hackers and artists who develop work with a playful and creative spirit. We found and shared some deep and lucid reflections. It's exciting to see how hacking is embedded in context: it thrives on local and regional experiences, it takes "data" from, and dialogues with, very old practices, and it embodies contemporary feminist activism.

We also note that in South America the reuse and resignification of materials considered obsolete is not merely an aesthetic decision, but a political one. In contrast with an economic model that defines wealth as the accumulation of money and new objects, in our local cultures, wealth is often linked to the management of one's own time, of being

together, and of reorganizing materials so that they are better adapted for our own purposes. We can think of hacking in the South America as a collective practice that spreads like a virus, that generates networks, that relates intimately to the economic and political situations of the region, and through which we question old inherited models of ourselves in relation to each other and our possessions.

We stop thinking about a definition of hacking based on its technical specificity, and we ask ourselves how the practice of hacking can make systems transform for the better.

The piezoelectric revolution is an eternal dream.



**Figure 4** A piezoelectric mic hangs from a wire for hanging clothes in Montevideo, Uruguay. Notice the faint poster of Che Guevara in the back. Photo © Sebastian Rey, used by permission.

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<sup>1</sup> We based our method on that of the Argentine website "Bola de nieve" (<http://www.boladenieve.org.ar/>, recovered on May 18, 2019), a project of the visual arts magazine *Ramona* and the Start Foundation, to create profiles of artists who are invited to answer a series of questions about their practices after being identified by other participating artists

<sup>2</sup> "To be being" (estar siendo) is a concept proposed by the Argentine philosopher Rodolfo Kusch, who talks about a way of thinking rooted in Latin America. We propose a wordplay between the ideas of Kusch and the "doing" of hacking.

<sup>3</sup> We can associate this idea with McLuhan's concept of environments and anti-environments. He argues that it is important to design a new environment and leave the content free: this is the logic of the anti-environment, in contrast to the ambient. We understand the space of hacking as an anti-environment, as it contains logics that differ from the traditional ones: it allows us to question inherited ways of teaching and learning, of appropriation of spaces and of use of tools and materials.

<sup>4</sup> There is a second meaning in the use of the term "cinico ("cynical") as an acronym for Circuito Independiente de Iniciativas Caseras Organizadas, ("Independent Circuit of Organized Homemade Initiatives)

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<sup>5</sup> This idea was articulated by Valeria González, who sees the verb "creating" (*crear*, in Spanish) as linked to the male creator and individual, in opposition to "breeding" (*criar*), which she uses to refer to a cooperative or family and mutual work learning.

<sup>6</sup> We are interested in the work on "friendship technologies" that Syd Krochmalny (2008) talks about.

<sup>7</sup> See also his essay, "Gambiarra: Hacking and DIY in Brazil", in this section of the website.

<sup>8</sup> Claudia Godoy made an interesting artist's book from documentation of the workshop: <https://www.claudiagonzalez.cl/publicaciones-all/bitacora-taller-de-campo-magnetico-en-montegrande/> (retrieved on May 23, 2019).

<sup>9</sup> It is relevant to mention the work of Campos Fonseca (2006, from Costa Rica) on Cyberfeminism, in which she defines it as "a cooperation practice between women, machines and new technologies."

<sup>10</sup> <https://corazonderobota.wordpress.com/2015/06/29/my-blood-is-my-revolution/> (Retrieved on May 23, 2019).