https://doi.org/10.48417/technolang.2026.02.05
Research article

The Machinery of Weaving and the Woven Being: Decolonial Voices through Textile Computation

Maria José Ríos (✉)
Universidad de Chile, Av. Libertador Bernardo O'Higgins 1058, Santiago, Chile Santiago Chile
lelex76@gmail.com

Abstract

This article presents *TmaqT*, a research-creation project that explores how the notion of voice-sound can be reconfigured through physical interaction with a handcrafted textile surface, where tactile contact continuously modulates sonic processes. Instead of treating the voice as a pre-existing expressive capacity of the speaking subject, this idea redefines it as a relational and emergent acoustic field produced through the interaction between the body, the textile material, and algorithmic artificial intelligence systems. The system consists of a textile interface with integrated sensors that register variations in touch and translate them into real-time sonic transformations. These transformations are not conceived as linear input/output operations, but rather as dynamic covariations within a distributed field of material, temporal, and computational relationships. In this configuration, sound emerges as an unstable modulation process, rather than a discrete signal or a fixed sonic representation, avoiding dependence on presets or predefined audio files and instead activating latent computational spaces and AI-based processes. Framed within media archaeology and decolonial theory, *TmaqT* re-examines Mapuche textile and sonic practices, including weaving, but specially the *kultrun,* as alternative genealogies of memory, tactile interaction, and sound. This archaeological perspective brings historical tactile media into dialogue with contemporary algorithmic systems, proposing relational modes of sonic interaction based on touch rather than control. In this way, the project conceives of textile practices not as peripheral craft traditions, but as computational and epistemic systems that challenge linear narratives of technological progress. In general, a conceptual framework is developed in which the voice is understood not as an individual property, but as a co-emergent phenomenon that arises from the continuous interaction between textile surfaces, body gestures, algorithmic processes, and is approached as a distributed acoustic field generated through constant tactile variations, where material, temporal and bodily relationships become audible without stabilizing in a single origin, subject position or fixed representational structure.

Keywords: Textiles; Voice-Sonification; Media Archaeology; Relational Systems

Citation: Ríos, M. J. (2026). The Machinery of Weaving and the Woven Being: Decolonial Voices through Textile Computation. *Technology and Language,* *7*(2), 57-65. https://doi.org/10.48417/technolang.2026.02.05

УДК 677.024: 534
https://doi.org/10.48417/technolang.2026.02.05
Научная статья

Механизмы ткачества и тканое существование: Деколониальные голоса через текстильные вычисления

Мария Хосе Риос (✉)
Чилийский университет, пр. Либертадора Бернардо О'Хиггинса, 1058, Сантьяго, Чили
lelex76@gmail.com

Аннотация
В данной статье представлен исследовательский проект *TmaqT*, изучающий, как понятие голоса-звука может быть переосмыслено посредством физического взаимодействия с текстильной поверхностью ручной работы, где тактильный контакт непрерывно модулирует звуковые процессы. Вместо того чтобы рассматривать голос как уже существующую выразительную способность говорящего субъекта, эта идея переопределяет его как реляционное и возникающее акустическое поле, создаваемое посредством взаимодействия между телом, текстильным материалом и алгоритмическими системами искусственного интеллекта. Система состоит из текстильного интерфейса со встроенными датчиками, которые регистрируют изменения тактильных ощущений и преобразуют их в звуковые преобразования в реальном времени. Эти преобразования рассматриваются не как линейные операции ввода/вывода, а как динамические ковариации в распределенном поле материальных, временных и вычислительных взаимосвязей. В этой конфигурации звук возникает как нестабильный процесс модуляции, а не как дискретный сигнал или фиксированное звуковое представление, избегая зависимости от предустановок или предопределенных аудиофайлов и вместо этого активируя скрытые вычислительные пространства и процессы на основе искусственного интеллекта. В контексте медиаархеологии и деколониальной теории *TmaqT* переосмысливает текстильные и звуковые практики мапуче, включая ткачество, но особенно культрун, как альтернативные генеалогии памяти, тактильного взаимодействия и звука. Эта археологическая перспектива вводит исторические тактильные медиа в диалог с современными алгоритмическими системами, предлагая реляционные режимы звукового взаимодействия, основанные на прикосновении, а не на управлении. Таким образом, проект рассматривает текстильные практики не как периферийные ремесленные традиции, а как вычислительные и эпистемологические системы, бросающие вызов линейным нарративам технологического прогресса. В целом, разрабатывается концептуальная основа, в которой голос понимается не как индивидуальное свойство, а как совместно возникающее явление, формирующееся в результате непрерывного взаимодействия текстильных поверхностей, жестов тела, алгоритмических процессов, и рассматривается как распределенное акустическое поле, генерируемое постоянными тактильными вариациями, где материальные, временные и телесные отношения становятся слышимыми, не стабилизируясь в одном источнике, субъектной позиции или фиксированной репрезентативной структуре.

Ключевые слова: Текстиль; Озвучивание; Медиаархеология; Реляционные системы

Для цитирования: Ríos, M. J. The Machinery of Weaving and the Woven Being: Decolonial Voices through Textile Computation // Technology and Language. 2026. № 7(2). P. 57-65. https://doi.org/10.48417/technolang.2026.02.05

INTRODUCTION

TmaqT (The Machinery of Weaving and the Woven Being) is an artistic research project that will explore how sound emerges from continuous tactile interaction with a textile interface. The system will consist of a large-scale woven surface with conductive fibers and capacitive sensing zones that detect variations in touch, pressure, and movement on the fabric. These signals will be captured and translated into real-time data streams, which will be processed using artificial intelligence tools such as latent spaces and the self-organization of haptic-tactile information, leading to sound generation. The interface will not be designed as a wearable device or a purely passive installation, but as a tactile instrument: a hybrid of textile, sensing infrastructure, and sound-generating system activated by direct bodily contact.

In this context, sound is understood as an emergent form of voice, not in the linguistic sense of speech or semantic articulation, but as a relational acoustic expression arising from bodily interaction. Here, the notion of voice emerges and is redefined as a process of enunciation without language: a dynamic modulation of sound production, shaped by gesture, intensity, and the temporal variation of touch. Instead of representing pre-existing sound material, the system produces sound through a continuous translation of tactile relationships, where the body does not "trigger" sounds but rather participates in their constant formation. For this research, the notion of voice is conceived as an acoustic field that emerges from the dynamic interaction between the body, the textile material, and algorithmic processes.

Instead of functioning as a conventional input-output interface, the textile will operate as a relational surface where bodily gestures, material transformations, and algorithmic dynamics co-evolve. Within this framework, the voice is not understood as the expression of a pre-existing speaking subject, nor as the simple sonification of tactile data. Instead, it is conceived as an acoustic field that emerges through the continuous interaction between the body, the textile materiality, and algorithmic processes. Therefore, the voice appears as a distributed and relational phenomenon, produced through continuous tactile variation and without a fixed origin, speaker, or representational structure.

The artificial intelligence would operate through mathematical structures that compress and reorganize information into lower-dimensional representations, reducing the complexity of the data to essential relationships and facilitating its interpretation and transformation without the need for exhaustive or literal processing. In this case, this information comes exclusively from tactile contact data and can also adapt to learn from interaction gestures. It is from this space of compression that sound synthesis emerges, not as a reproduction of pre-recorded events, but as a form of continuous articulation between variations of touch and their acoustic translation. In this sense, the voice is not understood as a fixed result or a stored entity, but as a process in flux: an acoustic emergence that occurs in the very interval between gesture and its transformation, where sound does not represent something prior, but is constituted as it unfolds.

In this context, latent spaces do not function as repositories of predefined sounds, but as dynamic environments of relation: systems where the distances and proximities

between tactile data are constantly reconfigured, allowing variable associations to emerge between gesture, memory, and sonic materiality. This dynamic does not stabilize a single form of sound, but rather sustains a field of continuous variation in which the "voice" can be understood as an entity always in transit, belonging neither to the body nor to the machine separately, but to their momentary coupling.

According to Goodfellow, Bengio, and Courville, latent spaces in machine learning are lower-dimensional internal representations in which a neural network organizes input data so that relevant variation factors are continuously and structurally encoded, facilitating data generation, interpolation, and reconstruction (Goodfellow et al., 2016).

The project's name derives from the idea that weaving is not only a process of producing a material structure, but also a relational condition in which all components of a system continuously affect, assemble, intersect, and transform one another.

In *TmaqT*, touch, textiles, sound, memory, and algorithmic processes will participate in a dynamic feedback loop. Information is woven through interaction, which simultaneously reshapes the informational and sonic conditions of the system. Therefore, the project does not conceive of technology as a linear sequence of input and output, but rather as an environment in which bodies, materials, and algorithms continuously coexist.

This conception departs from the idea of the voice as an individual expressive property and, instead, approaches it as a relational and emergent sound phenomenon. Rather than originating in a stable speaking subject, the voice is conceived as an acoustic event that arises through the continuous interaction of bodies, materials, and computational processes (Cavarero, 2005; Dolar, 2006).

The textile surface operates as an active modulation field where tactile variation would reorganize the system's sonic behavior in real time. Within this framework, *TmaqT* functions simultaneously as an artistic research platform, a system, and a conceptual model for investigating the voice as a distributed and emergent phenomenon, that is, a phenomenon that belongs neither to the body nor to the machine, but rather emerges in the vibratory interval of their continuous coupling: a relational machinery of sonic coemergence.

VOICE AS RELATIONAL EMERGENCE: TEXTILE SURFACES, TOUCH, AND SONIC RELATION

In this research, the voice is approached not as an expressive attribute of a pre-existing subject, but as a relational and materially situated phenomenon that emerges through the dynamic coupling of the body, the textile surface, and computational processes. The voice that emerges in this idea is understood as a distributed event produced in and through contact, where tactile interaction and material modulation co-constitute the conditions for real-time sound emergence.

Within this framework, the textile surface in the *TmaqT* system is not conceived as a neutral interface that transmits input to output, but as an active field in which these distinctions are produced. That is, contact will not function as a discrete signal to be interpreted, but will be considered as a continuous modulation of a material-semiotic environment in which sound phenomena take shape. In this sense, the system moves from

transmission models to modulation models, where the body, matter, and computation operate as inseparable components of a shared process of becoming-sound.

This reconfiguration implies a broader epistemological shift in the understanding of voice-interaction: instead of the exchange of information between predefined entities, what is at stake is the continuous reorganization of a relational field in which agency is distributed. From this perspective, the voice is neither something produced by a subject nor calculated by a machine, but rather a resonance that arises from the continuous covariation of tactile, material, and algorithmic dynamics.

To provide historical context for this proposal, textiles are considered here not as a prehistory of computing, but as autonomous systems of inscription that challenge linear narratives of technological development. While references such as the Jacquard loom have often been used to establish a genealogy of computing, this interpretation risks reducing textile practices to a transitional stage toward modern computational regimes (Zielinski, 2006; Kittler, 1999). In contrast, textile practices should be understood as heterogeneous systems of knowledge in which memory, materiality, and technique are inseparable.

From a decolonial perspective, this shift is crucial. Instead of integrating textile traditions into a Eurocentric history of media evolution, it is necessary to recognize multiple epistemologies of material thought that do not conform to linear temporal models of technological progress (Mignolo, 2011; Rivera Cusicanqui, 2010). In many contexts, textiles do not function as supports for inscription, but rather as active environments for knowledge production in which relational, spatial, and embodied forms of memory are encoded through practice.

In this sense, textiles are not interpreted as antecedents of writing or computing, but as parallel regimes of material intelligence. This allows us to rethink technology not as an external instrument applied to matter, but as a field of co-constitution in which symbolic, perceptual, and material processes continually generate one another.

Within this expanded framework, *TmaqT* does not propose a textile interface that produces sound solely through computational mediation. Rather, it investigates the conditions under which the voice can emerge as a relational resonance in a system where touch, matter, algorithmic processes, and sonic materiality participate in a shared field of variation. Artificial intelligence, in this context, does not operate as an autonomous entity with decision-making capacity, but as a distributed modulating layer that accompanies the system's dynamics without predetermining them. Its function is not to interpret or classify tactile information, but to participate in the continuous reconfiguration of relationships within the sonic field (Barad, 2007; Manning, 2013).

Consequently, the voice ceases to function as a property or a result, and appears as an emergent process situated within the ongoing co-constitution of bodies, materials, and computational environments. What becomes audible is not the translation of gesture into sound, but the relational intensity produced in the interval of their interaction.

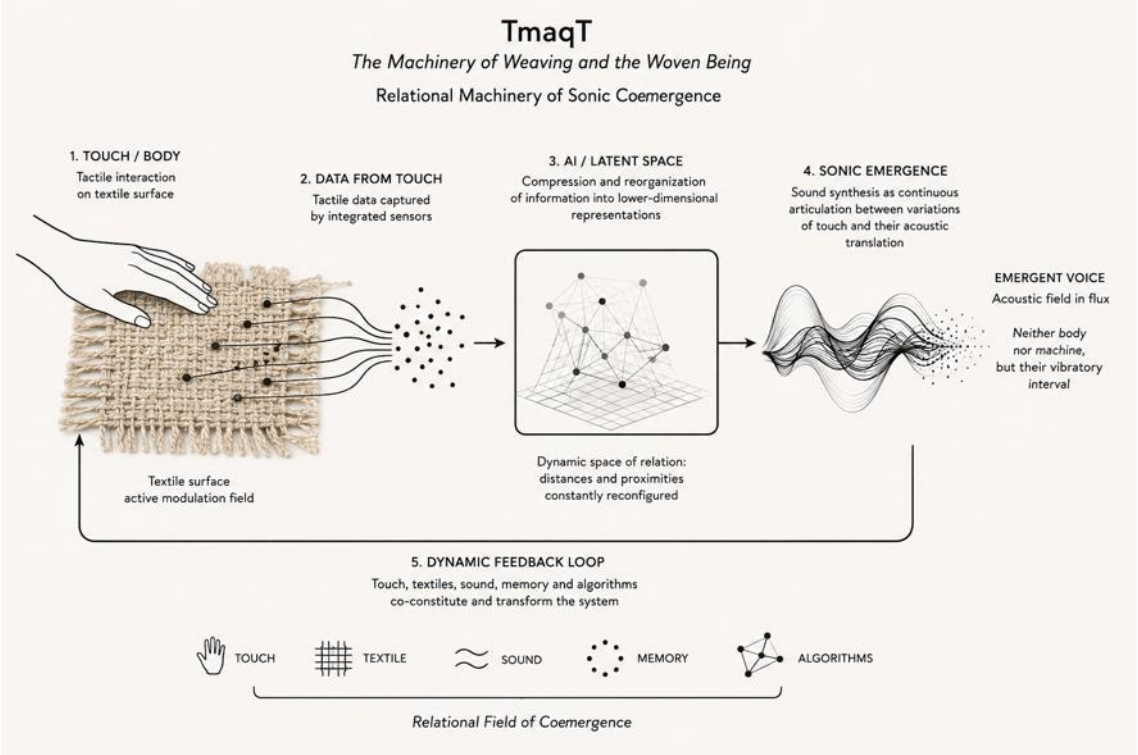

Figure 1. Outline of *TmaqT*: The overall structure of the proposed system is illustrated.

TEXTILE, TOUCH, AND VOICE: A RELATIONAL FIELD OF EMERGENCE

The textile surface, understood not as a passive support but as an operational material environment, sustains contact over time and allows for the continuous variation of sound production. In this configuration, sound does not appear as a fixed result, but as a process of continuous modulation that arises from the encounter between body and material. Touch operates here as a relational threshold through which the system is constantly reorganized, not as a stable configuration, but as a dynamic field of variation.

Within this framework, the pattern does not refer to a fixed form, but to the persistence of relational tendencies across temporal variations. Instead of being understood as a representation or translation of gesture, sound emerges as modulation: a continuous transformation of relational conditions rather than a conversion between discrete domains (Hayles, 2017). What is produced is not information in the classical sense, but an unstable configuration that is continually reassembled through contact.

From this perspective, sound does not constitute a secondary representation of touch. Based on Barad's (2007) notion of intra-action, what is at stake is not the transition between pre-existing entities, but rather the emergence of relationships through which matter, gesture, and sound mutually co-constitute one another. In this sense, vibration is not a sign of touch, but its material continuity in becoming.

The textile surface does not function as an external interface between body and system, but as the condition through which both are constituted. In this framework, perception, computation, and sound production operate as inseparable processes within a shared material field, in which touch extends into sonic variation and becomes audible as distributed resonance.

From this continuity, the voice does not emerge as a fixed property of the subject nor as a transparent expression of interiority, but rather as a relational effect of vibratory coemergence between the body, the textile, and computational and/or algorithmic processes. Following Manning (2013), the voice can be understood as movement rather than articulation: a process that does not originate from a stable source, but rather develops within relationships.

However, this relational understanding does not imply the disappearance of the situated subject. Instead of dissolving identity, the system redistributes agency throughout the interaction, while the specificity of each tactile contact remains irreducibly singular. In this sense, what is decentralized is not the subject itself, but the medium through which expression is produced. Therefore, the voice does not belong entirely to a user nor is it completely autonomous from them, but rather emerges as a situated and embodied event, shaped by their particular mode of contact, pressure, rhythm, and gesture. Thus, the voice is not produced as a closed result, but as a continuous modulation of the contact between bodies, materials, and temporalities.

The affective and attentional dimensions participate in this process. Affect can be understood as a pre-personal intensity that permeates bodies and technical environments (Massumi, 2002), while attention can be understood as a receptive orientation toward emerging, yet unstabilized, relationships (Weil, 1951). Within this field, the voice does not appear as expression or representation, but as a resonance sustained by a continuous relational negotiation.

Finally, this research situates *TmaqT* within textile and oral epistemologies in which knowledge is inseparable from material practice. In Shipibo-Konibo narrative embroidery and Mapuche textile traditions, the voice is not separate from making, but rather emerges in relation to situated configurations of body, territory, and memory. More than something said about the world, the voice here is understood as something that participates in its continuous material reconfiguration.

CONCLUSION

The voice, then, does not describe this future system; rather, it permeates it, sustains it, and makes it act in real time so that sound emerges from the interplay between body, skin, and matter. Here, a crucial question arises: *what becomes of voice when it ceases to belong to the speaker and begins to belong to that which intertwines in the friction between bodies, technologies, and situated memories?*

From a decolonial perspective, this question shifts the understanding of voice away from a neutral, objective or universal structure toward a situated historical composition. In this sense, voice does not appear as a property of the modern subject, nor as a purely technical effect, but as a form traversed by histories of extraction, translation, erasure,

and mixing. What "sounds" in the system is therefore not only a computational or technical operation, but also the capacity to generate resonances across long temporalities in which bodies, territories, and technologies have been continuously organized, fragmented, and rearticulated under different regimes of power.

From this perspective, thinking about voice implies recognizing that there is no purity in either fabric or tactile data: every surface is already historically and materially inscribed. Latin America, in this sense, cannot be conceived as a stable "origin," but rather as a field of tensions in which textile, oral, and technological epistemologies intertwine with histories of conquest, coloniality, globalization, and the migration of technical systems. The fabric here is not only metaphorical, but also a material and political condition: it is woven through local memories, but also through global infrastructures, imported languages, processes of data extraction, and contemporary regimes of sensory capture.

Within this framework, *TmaqT* presents itself not as a closed or autonomous system, but as a situated practice of reweaving: a machine that does not only produce a surface, but one in which the surface is itself designed to be continually rewoven. This weaving is enacted through human and non-human relations, ancestral and computational techniques, and heterogeneous frictions. In these frictions, the work does not aim to resolve tensions, but rather to render them audible, sustaining them as a condition for the very existence of the sonic field.

From this perspective, reflecting on the voice in *TmaqT* implies recognizing that there is no purity in either textiles or tactile data: each element is already historically and materially inscribed. The textile interface, therefore, is not a neutral sensing device, but a situated material system, shaped by specific technological and cultural lineages.

In this sense, what is often called "Latin America" should not be understood as a homogeneous origin or a stable cultural category, but as a situated field of technological and material conditions in which textile practices, oral traditions, and techno-technological infrastructures intersect. In relation to this future project, this perspective would become relevant insofar as the textile interface itself operates within a global circulation of technologies: sensors, microcontrollers, and data processing systems, which are never culturally neutral, but are always embedded in unequal histories of production and access.

Thus, the notion of weaving is not only metaphorical, but is situated materially and politically: it is interwoven through local practices of creation and memory, while intertwining with global infrastructures, imported technical languages, and contemporary regimes of data extraction and sensory capture.

If voice is understood as the ongoing reconfiguration between body, technology, memory, and power, then the central question becomes: *what forms of life, what memories, and what futures are woven when sounds: voices no longer belong to anyone, and yet continue to permeate everything?*

REFERENCES

Barad, K. (2007). *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Duke University Press.

Cavarero, A. (2005). *For more than one voice: Toward a philosophy of vocal expression*. Stanford University Press.

Dolar, M. (2006). *A voice and nothing more*. MIT Press.

Goodfellow, I., Bengio, Y., & Courville, A. (2016). *Deep learning*. MIT Press. https://www.deeplearningbook.org/

Hayles, N. K. (2017). *Unthought: The power of the cognitive nonconscious*. University of Chicago Press.

Kittler, F. A. (1999). *Gramophone, film, typewriter*. Stanford University Press.

Manning, E. (2013). *Always more than one: Individuation's dance*. Duke University Press.

Massumi, B. (2002). *Parables for the virtual: Movement, affect, sensation*. Duke University Press.

Mignolo, W. D. (2011). *The darker side of Western modernity: Global futures, decolonial options*. Duke University Press.

Rivera Cusicanqui, S. (2010). *Ch'ixinakax utxiwa: A reflection on the practices and discourses of decolonization*. Tinta Limón.

Weil, S. (1951). *Waiting for God*. Routledge & Kegan Paul.

Zielinski, S. (2006). *Deep time of the media: Toward an archaeology of hearing and seeing by technical means*. MIT Press.

СВЕДЕНИЯ ОБ АВТОРЕ / THE AUTHOR

Мария Хосе Риос, lelex76@gmail.com
ORCID 0000-0001-7520-2430

María José Ríos, lelex76@gmail.com
ORCID 0000-0001-7520-2430

Статья поступила 14 марта 2026
одобрена после рецензирования 1 июня 2026
принята к публикации 13 июня 2026

Received: 14 March 2026
Revised: 1 June 2026
Accepted: 13 June 2026