

**Research paper**

Received: 21 January 2026, Accepted: 02 March 2026, Published online: 30 June 2026

DOI: 10.21625/essd.v11i1.1284

**Trends in Postmodern Landscape Creations: From Deconstructed Space to Augmented Space—The Cases of Tschumi and Hahm****Sami Kamoun<sup>1</sup>**<sup>1</sup>*Assistant Professor at the Higher School of Science and Technology of Design (TUNISIA).***Abstract**

This study aims to explore the notion of landscape by analyzing its various spatial and aesthetic expressions through the lens of two postmodern architectural trends: deconstructivism and parametricism. From a theoretical standpoint, these two movements oppose the rigidity of modernism while developing fundamentally distinct conceptual approaches: one is rooted in philosophical reflection, whereas the other privileges a technological approach. However, research on this issue remains limited, particularly in the fields of landscape and garden design.

In this context, the study is based on the analysis of two emblematic projects: the *Parc de la Villette*, designed by Bernard Tschumi and completed in Paris in 1987, and the installation *Augmented Grounds* by Soomeen Hahm Design, developed in Canada in 2020. The adopted methodology relies on an in-depth literature review, complemented by a visual analysis based on photographic and video materials.

The first project, conceived at the landscape scale, implements a spatial deconstruction based on the superposition of points—the *folies*—a system of lines structuring circulation, and surfaces defining green and recreational spaces. The second project, at the architectural scale, presents itself as a landscaped playground composed of an assembly of ropes, combining a craft-based weaving technique with parametric precision enabled by the use of augmented reality.

Through this comparative perspective, the study examines the notion of landscape in light of these two major yet distinct postmodern movements. It aims to identify the spatial forms, aesthetics, philosophical foundations, and technologies mobilized in these projects, as well as to highlight their similarities, differences, and respective contributions to the field of landscape and garden design.

© 2026 The Authors. Published by IEREK Press. This is an open-access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>). Peer review under the responsibility of ESSD's International Scientific Committee of Reviewers.

**Keywords***Augmented space; Deconstructivism; Parametricism; Landscape; Architecture.***1. Introduction**

Our reflection on the notion of landscape is structured around two major architectural movements: deconstructivism and parametricism. From this perspective, the concept of landscape assumes multiple meanings and constitutes an important, albeit discontinuous, chapter in the history of art, particularly architecture. According to lexicographical definitions, the term “landscape” refers both to a boundary and to an expanse, and also to “the part of a country that nature presents to an observer” (Rey, 1984, p. 1383). It therefore refers to “the representation by humans of what surrounds them” (Merlin & Choay, 2009, p. 621), as well as to “a perception implying a gaze” (Tiberghien, 2001, p.148), in other words, to a construction of perspectives. It is also defined as the “appearance of a country” (Furetière,

1690, p. 2177), a “situation within a domain” (Larousse, 2005, p.797), or even as a “characteristic physiognomy” (Béguin, 1995). In common language, the notion of landscape expresses both the human gaze cast upon a visible portion of territory and the sensory experience resulting from it (Périgord et al., 2012).

The art of landscape in architecture, much like that of the garden, has generated growing interest. Among the earliest examples are the Hanging Gardens of Babylon in Mesopotamia, conceived as an artificial forest arranged in superimposed terraces. The gardens of Asia Minor, Egypt, Rome, and Mexico, meanwhile, were distinguished by a remarkable richness of erudition and imagination. Later, the monastic gardens of the Middle Ages emerged as places devoted both to meditation and rest. Within a comparable logic, the Islamic garden, through its enclosed character, constitutes an earthly replica of the Quranic model, that is, a representation of the promised Paradise.

During the Renaissance, the French formal garden, dedicated to strolling, was characterized by a rigorous organization based on grand axes, controlled perspectives, and geometric layouts. Conversely, the so-called English style, picturesque and rich in surprises, claimed a freer relationship with nature. It favored winding paths and deceptively natural perspectives. In the nineteenth century, the development of horticulture and botany granted the landscape architect a major role. Influenced by the ideals of the Arts and Crafts movement, the latter advocated an aesthetic grounded in rusticity. At the same time, a more stylized tendency, close to Art Nouveau, emerged in emblematic works such as Antoni Gaudí’s Park Güell. This project is characterized by the sinuosity of its forms and its tectonic approach to space.

In the twentieth century, “public parks” established themselves as a response to the transformations of industrial society. The art of the garden and landscape thus asserted itself as a structuring component of the modern city, at the intersection of urban rationalization and aesthetic research. In the postwar period, public parks gradually gave way to “diffuse green spaces,” forming a landscaped background upon which the modern city developed. Le Corbusier’s projects provide a significant illustration of this phenomenon: vegetation — trees and lawns — becomes a unifying element connecting the different components of the urban composition (Cortesi, 2000).

From the 1970s onward, postmodernism emerged and reached its peak during the following two decades. One of the earliest theoretical references is attributed to Ihab Hassan, who played a decisive role in disseminating the concept and extending it to all the arts. Other major figures, such as Jean-François Lyotard, who theorized the postmodern condition, and Charles Jencks, who announced the end of the Modern Movement in 1972, contributed to structuring this theoretical field. Moreover, scientific publications devoted to landscape during this period remained relatively scarce (Eplényi, 2015).

In reaction to modernism, postmodernism sought to rehabilitate ornament, which had previously been marginalized by the rigor and austerity of modern architecture. It introduced irony, lightness, eclecticism, and even a certain populist dimension. In the field of landscape, this orientation resulted in a profound renewal of forms, making it difficult to outline an aesthetic typology. Nevertheless, certain recurring tendencies can be identified. Among them is the reinterpretation of historical traditions, as in the Piazza d’Italia designed by Charles Moore in 1978, where references ranging from the Renaissance to the Baroque are combined. One may also mention the attraction to undulating forms, illustrated by the Garden of Cosmic Speculation, designed by Charles Jencks and Maggie Keswick. In this project, sculptural landforms visually translate scientific phenomena such as fluid turbulence.

A striking characteristic of postmodern landscape and garden art lies in its use of humor and even gag-like effects. Certain works by Michel Corajoud, notably the amorphous sculptures of the Parc du Coudray, constitute significant examples. The theme of the ruin is also explored in James Wines’s Best Forest Building project, where architecture appears to be absorbed by nature, producing an ambiguous coexistence between the built environment and vegetation. In the *Parc de la Villette*, designed by Bernard Tschumi, this logic of architectural ruin overtaken by vegetation is extended through a deconstructivist approach inspired by Derrida’s thought. Likewise, the projects of François Roche explore a hybridization between architecture and vegetation. In *Maison dans les arbres*, the building conceals itself within the foliage, thereby blurring the reading of the constructed form. With *Dustyrelief / B-mu*, designed in Bangkok in 2002, the building transforms itself according to environmental conditions, particularly atmospheric pollution levels. This tendency to consider vegetation as an artistic component in its own right, interacting with architecture, is also expressed in ephemeral garden festivals, such as those of Chaumont-sur-Loire (since 1992) or Grand-Métis in

Quebec (from 2000 onward). The resulting works constitute genuine laboratories for formal, landscape, and media experimentation. Among the most remarkable examples is *Augmented Grounds*, a project in which a singular reconciliation between tradition and the landscape avant-garde emerges.

Postmodernism unfolds into a plurality of currents. Deconstructivism is characterized by fragmented forms that give the impression of a collapse of spatiality. High-tech architecture stages the structural framework of construction by exposing the technical elements of architecture, particularly metallic structures and piping networks, elevated to the status of formal expression. Historicist postmodernism is defined by an ironic, eclectic, and fragmented return to historical references. Neo-rationalism, meanwhile, seeks to reinterpret classical architectural typologies through a logic of simplification and typological reinterpretation. Critical regionalism proposes to inscribe the particular culture of the region into the form and material reality of the work (Frampton, 1983), reconciling modernity with contextual grounding. Neo-postmodernism may be interpreted, following Charles Jencks, as a “profound renaissance” of postmodernism (Jencks, 2011). This evolution is made possible through the integration of digital tools and the production of forms that had previously been impossible to realize. Finally, parametricism belongs to this continuity while asserting a sharper rupture, as a paradigm founded upon algorithmic variation, computational modeling, and the generation of continuous forms.

Following this contextual framework, we propose to examine and compare two specific forms of garden art embedded within these contemporary dynamics: deconstructivism, on the one hand, and parametricism, on the other. This comparative approach seeks to identify and better understand the manifestations of postmodernism in landscape architecture, while also outlining its limits and potential shortcomings. It also aims to highlight the convergences and divergences specific to contemporary landscape design practices. From this perspective, we analyze the *Parc de la Villette*, completed in Paris in 1987 and regarded as one of the emblematic examples of deconstructivism. We also examine the installation *Augmented Grounds*, experimented with in Quebec in 2020 as part of an annual festival, considered here as a characteristic expression of parametricism. The selection of these two projects is based on the tension they establish between several conceptual oppositions: futuristic / anti-historical, permanent/ephemeral, macroscopic/microscopic, rhetorical/technological.

We therefore formulate the hypothesis that a deconstructed landscape leads to a radical transgression of the conception of “green” space in architecture, whereas a parametric landscape engages in a digitization, or even a virtualization, of this same “green.” This cross-examination between a deconstructed landscape work and a parametric vegetal installation raises several fundamental questions: what spatial forms, aesthetics, and technologies are mobilized in these two projects? What are their convergences and divergences? Finally, what lessons, challenges, and perspectives may emerge from such a comparative analysis?

## 2. Materials and Methods

The selection of the *Parc de la Villette* as an emblematic example of deconstructivism applied to a Parisian green space is justified by several factors. This project was chosen for its historical significance, its landscape scale, its permanent character, as well as for its design, which is closely associated with the philosophical thought of Jacques Derrida. By contrast, *Augmented Grounds* belongs to a small-scale landscape experimentation conceived to be presented within the framework of a Quebec festival. This work is distinguished by an avant-garde approach to construction techniques, integrating virtual reality while also mobilizing heritage craftsmanship, notably weaving inherited from Indigenous traditions. The opposition between these two approaches — both in terms of scale and of their conceptual and technological frameworks — thus reinforces the relevance of an aesthetic and technological comparison of postmodern forms of landscape art.

The research tools and methods employed are based on a critical analysis of these two projects, aiming to explore their aesthetic, spatial, and technological dimensions. This methodology is rooted in both a descriptive and analytical approach, structured around several axes.

First, a graphic analysis is conducted through the examination of plans, sections, photographs, and particularly videographies derived from the studied works, a large portion of which is accessible online. This stage makes it possible to examine different aesthetic aspects: the choice of formal language, the overall composition, the colors and

textures employed, as well as the spatial configurations and their intended uses. It also allows for a better understanding of the construction techniques and technologies mobilized. These appear relatively “classical” in the case of the *Parc de la Villette*, whereas they prove to be decidedly “avant-garde” in the case of *Augmented Grounds*.

Second, a documentary analysis, based on the use of theoretical texts and critical exegeses, aims to document the design processes of the studied projects. This approach makes it possible to clarify their context of realization while highlighting the conceptual intentions underlying them, particularly on the philosophical level. These intentions are notably manifested in the way they address the notion of the postmodern landscape and, more specifically, that of green space design in contemporary architecture.

Third, a comparative analysis, synthesized in the form of an analytical table, highlights the convergences and divergences specific to each conceptual approach. It also makes it possible to better identify their advantages, limitations, as well as the difficulties they raise. To this end, several evaluation criteria are retained: the studied work, the adopted style, the mobilized concepts and philosophical foundations, scale and dimension, composition and formal language, aesthetic expression, spatial typology, as well as the technologies and construction techniques implemented to express the notion of landscape.

The adopted methodology thus aims, in light of the graphic materials and theoretical sources mobilized throughout this research, to develop a comparative synthesis articulating the notion of landscape through the prism of deconstructivism and parametricism.

### 3. Results

#### 3.1. *Parc de la Villette* by Bernard Tschumi

##### 3.1.1. The *Parc de La Villette*: History of an International Competition.

Bernard Tschumi is a French-Swiss architect who graduated from the Swiss Federal Institute of Technology in Zurich in 1969. He founded his own architectural practice in Paris in 1983 and later in New York in 1988. His reputation was consolidated through his participation in the exhibition *Deconstructivist Architecture*, organized by Mark Wigley and Philip Johnson at the Museum of Modern Art in New York in 1988, which established him as one of the major figures of this movement. It was in continuity with these eclectic conceptions derived from deconstructivist architecture that Tschumi won, in 1982, the competition for the *Parc de la Villette* in Paris. Completed in 1987, this project is now regarded as his most famous work and as one of the emblematic models of the deconstructivist style in landscape design. The development of the park notably draws upon the issues explored in his manifestos *Screenplays* (Tschumi, 1978) and *The Manhattan Transcripts* (Tschumi, 1981).

The *Parc de la Villette* (**Figure 1**) constitutes a space of coexistence in which flows of energy are woven together between city and suburb, leisure and creation, culture and architecture, heritage and avant-garde. It opens a new chapter in the history of gardens while revitalizing a site of memory. It draws its roots from both geography and history. Successively, a plain, a Roman road, a hamlet, and later a working-class district during the Middle Ages, it became a cattle market and slaughterhouse during the Haussmannian era. In the twentieth century, it was transformed into an industrial wasteland whose emptiness, situated on the outskirts of the capital, opened up new possibilities.



**Figure 1.** Current aerial view of the *Parc de La Villette*,

Source. <https://www.offi.fr/a-travers-paris/parc-de-la-villette-2927.html>

The site of the *Parc de la Villette* underwent nearly a century of activity before becoming an unsanitary place. In 1974, following a governmental decision, it was officially closed. It subsequently became the subject of a vast decontamination program. More than 55 hectares of wasteland and abandoned buildings were then subjected to a complete redevelopment process oriented toward the creation of facilities dedicated to culture and science. Within this perspective, an ideas competition was launched in 1976, followed in 1982 by a major international competition aimed at creating a “park of the future,” conceived as a prototype of the twenty-first-century garden city. According to the program, this park was intended to be “a place of reconciliation, an open-air cultural instrument” (Cortesi, 2000, p. 42). It was also intended to encourage “the encounter and union of opposites: nature and the city, body and mind, knowledge and action” (Labedade, 2003, p. 592). Finally, it was expected to offer a wide diversity of cultural, educational, sporting, and leisure activities.

The Public Establishment of the Parc de la Villette (EPPV), responsible for the development of the site, emphasized that the park should become “the heart of the district” rather than merely “the lung [of the city]” (Aljon, 1992, p. 39). According to François Barrès, director of the park mission, it was meant to be a “place of gathering, crossbreeding, and integration — active, evolving, diverse, complex, multiple, everyday, symbolic, experimental, attractive” (Goulet, 1983). It was also intended to “participate in the search for a civilization of the city, affirm the urban idea of density, and encourage the emergence of a pluralistic and popular culture” (Lavalou, 2002). The 1982 competition generated nearly five hundred proposals from thirty-six countries, many of which revealed uncertainties in their conceptual confrontation. The jury selected nine projects *ex aequo*, invited to a second phase, at the conclusion of which Bernard Tschumi was designated the winner (**Figure 2** and **Figure 3**).



**Figure 2.** Model of the winning proposal for the *Parc de La Villette* competition, produced by Bernard Tschumi's team.  
Source. Goulet, P. (1983). *Concours international pour le parc de La Villette* [International competition for the Parc de La Villette].  
*L'Architecture d'Aujourd'hui*, 225, 90–99.



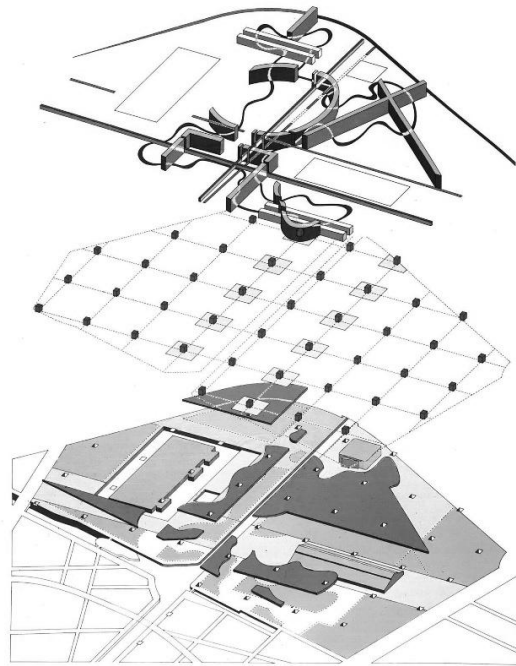
**Figure 3.** The model of the project ranked second in the competition, designed by the OMA team.  
Source. Goulet, P. (1983). *Concours international pour le parc de La Villette* [International competition for the Parc de La Villette].  
*L'Architecture d'Aujourd'hui*, 225, 90–99.

### 3.1.2. Points, Lines, and Surfaces.

Situated halfway between an amusement park and an exhibition park, the *Parc de la Villette*, designed by Bernard Tschumi, aims to produce spaces “that signify nothing, that are (...) pure signifiers without a usual signified” (Tschumi, 1988, p. 45). It thus belongs to a logic of destabilization of meanings. The project generates conflicts of iconographic interpretation, an “explosion,” a “rupture,” and a “dissociation” (Orlandini, 1999, p. 67), giving rise to a form of formal euphoria. Indeed, as it is conceived, the *Parc de la Villette* establishes a critical distance between the built environment — particularly its composition and formal configuration — and any predetermined meaning. It implements an architecture — and, by extension, a landscape — subjected to the absolute of its own formal language. The result is a spatial atmosphere founded on divisions that can no longer refer to any ideal capable of legitimizing the grand narratives of modernity.

The design of the *Parc de la Villette* is based on the superimposition of three abstract and interdependent systems: points, lines, and surfaces (**Figure 4**). To achieve this, Bernard Tschumi mobilizes the notion of “disjunction” between architectural signifier and signified (Tschumi, 1994). This disjunction leads, according to him, to an “inexorable erosion of meaning” (Tschumi, 1988, p. 43). Indeed, the feeling of disjunction, manifested through the formal conflicts traversing the composition of the grid of points, produces in the spectator-walker a loss of meaning. It destabilizes their habitual perception of space by decontextualizing it, thereby placing them in a state that is both “unpleasant” and “uncomfortable” (Tschumi, 1988, p. 197). By mobilizing this notion, Tschumi elaborates the model of a deconstructivist park: an architecture “against itself,” an example of spatial “dis-integration” (Tschumi, 1988, p.

40), or even a form of “tabula rasa” (Meyer, 1991, p. 24). From this perspective, the park calls into question both the architectural discipline and the landscape project itself.



**Figure 4.** Superposition of a system of lines (top), points (center), and surfaces (bottom) in the design of the *Parc de La Villette*.

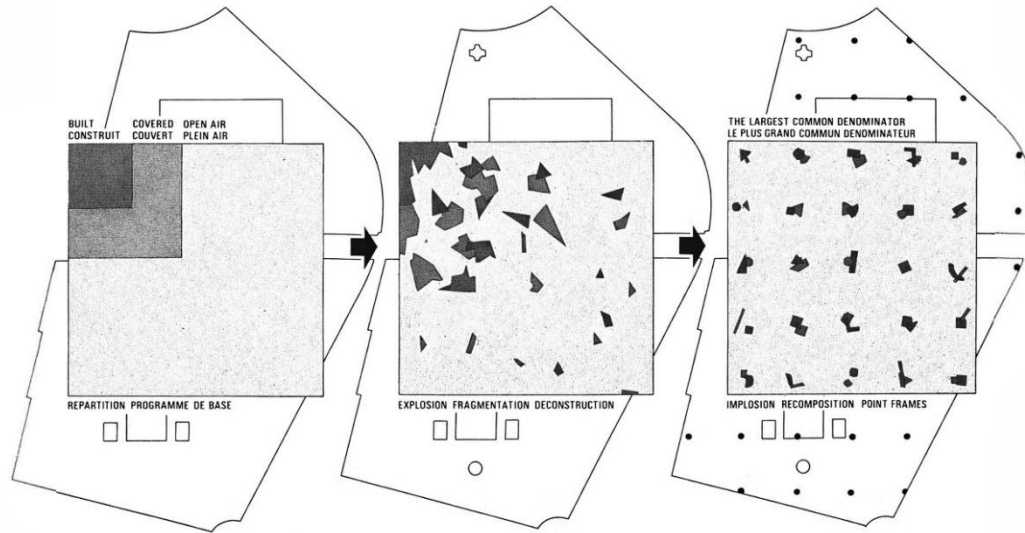
Source. De Araujo, N. (2015). *New Age Architecture*. Retrieved from <https://commons.mtholyoke.edu/architectualblog/2015/12/14/reflection-and-summary/&é>

The design of the *Parc de La Villette* is based on the superposition of three abstract and interdependent systems: points, lines, and surfaces (**Figure 4**). To this end, Bernard Tschumi mobilizes the notion of “disjunction” between architectural signifier and signified (Tschumi, 1994). According to him, this disjunction leads to an “inexorable erosion of meaning” (Tschumi, 1988, p. 43). Indeed, the sense of disjunction, manifested through the formal conflicts that traverse the composition of the grid of points, produces in the viewer-walker a loss of meaning and destabilizes them by decontextualizing their habitual perception of space. It thus places them in an “unpleasant” and “uncomfortable” state (Tschumi, 1988, p. 197). By mobilizing this notion, Tschumi develops the model of a deconstructivist park: an architecture “against itself,” an example of spatial “dis-integration” (Tschumi, 1988, p. 40), even a form of “tabula rasa” (Meyer, 1991, p. 24), calling into question both the architectural discipline and, by extension, the landscape project itself.

In the *Parc de la Villette*, the system of points consists of a grid of cubes subjected to effects of spatial destabilization. The system of lines organizes circulation throughout the park, while the system of surfaces is composed of varied geometric forms intended to accommodate diverse outdoor activities. The superimposition of these three systems engages an open, even random, spatial combinatory process, particularly evident in the system of points, which constitutes the central element of the process of landscape deconstruction. Thus, when these three systems interact, they tend to overlap, influence, and contaminate one another within a “mannerist planimetry evoking an ordered chaos” (Cortesi, 2000). They therefore invite the visitor to shift from one system to another, to navigate between heterogeneous spatial logics. As Bernard Tschumi emphasizes: “We seek first to demonstrate that every ‘otherwise’ passes through combinatorics, that every form is the result of a combination” (Tschumi, 1985). The combination of these systems of points, lines, and surfaces obeys strong and distinct internal logics. According to Tschumi, it leads “to the pleasure and shock of the event that will emerge from architecture” (Labedade, 2003).

The grid of points, representing the first combinatory system, is also referred to as the “*folies*.” It consists of a punctiform space implanted at the intersection of an autonomous geometric grid, independent of the site’s preexisting constraints. The “*folies*” are intended to accommodate — like magnets attracting and repelling each other through the play of their bipolarities (Merlini, 2014, p. 21) — the fragments of a fragmented program. As points of “activity,”

“anchorage,” or “event,” each of these *folie* houses a specific function or programmatic sequence, such as an ice rink, a piano bar, a greenhouse, a restaurant, a café, or thermal baths. They thus constitute a structuring yet disseminated ensemble at the scale of the park. The second system is that of lines: it corresponds to circulation and movement, whether rectilinear, organized according to two orthogonal axes, or curvilinear. It thereby introduces the idea of a “cinematic promenade,” that is, a winding pathway articulated around multiple elements succeeding one another like sequences in a film strip. Finally, the third system is that of surfaces, defined by simple geometric forms — circle, triangle, or square — and corresponding primarily to green spaces. These create vast grounds intended for play, relaxation, and leisure activities.

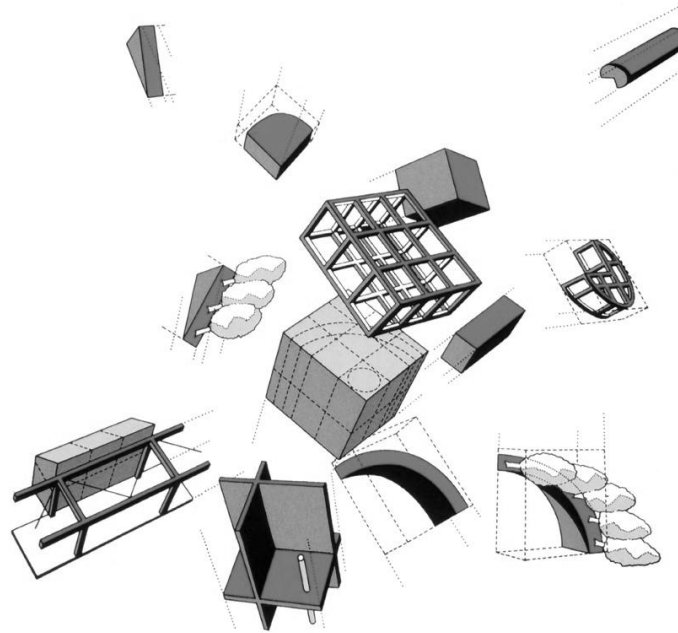


**Figure 5.** Programmatic deconstruction of the park was developed in three phases.

Source. Tschumi, B. (1987). *Cinéma Folie: Le Parc de la Villette*. New York (USA): Princeton Architectural Press.

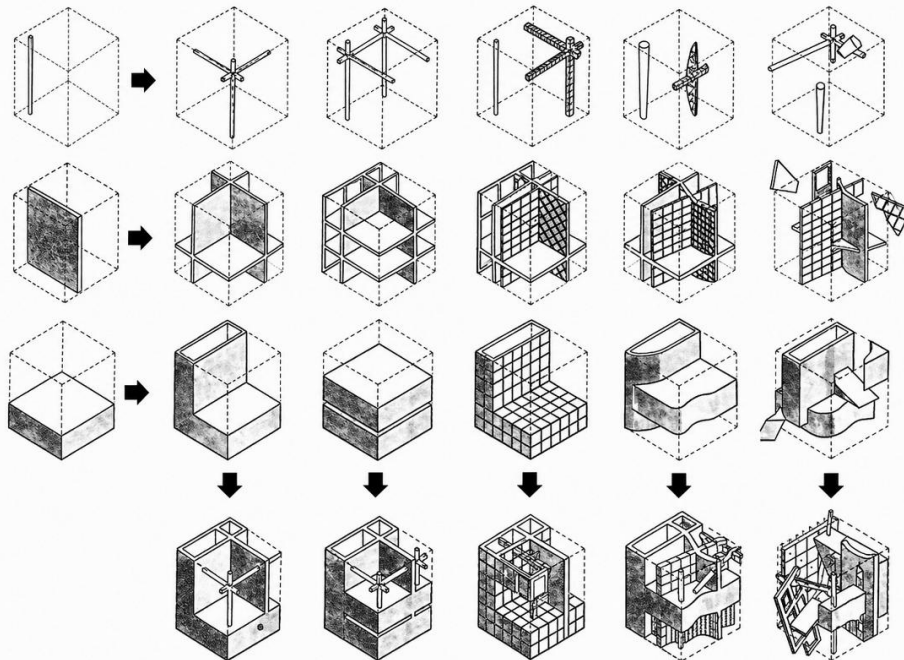
By substituting itself for a cinematic montage, the *Parc de la Villette* generates encounters, collisions, and programmatic deconstructions embodied through a grid of points (Figure 5). The “*folies*,” numbering twenty-six, structure this dispositif. Open to the exterior and painted in a vivid reflective red, they evoke strange machines, recalling the aesthetics of 1920s constructivism. They also echo an architectural typology inherited from seventeenth-century European country residences. Moreover, these architectural objects intersect several disciplinary fields: the literature of Georges Bataille, the philosophical language games of Jacques Derrida, the structuralism of Roland Barthes and Michel Foucault, as well as cinema and psychoanalysis, which approach them in terms of disjunction and dissociation.

On the architectural standpoint, the “*folies*” appear as a series of chaotic constructions resulting from the abstraction, or even the fragmentation, of a Platonic volume that has become irrational, at once self-referential and anti-functional (Figure 6). Their deconstructed form derives from the variation of a cube measuring 10.8 meters on each side, subjected to various transformational mechanisms: translations, rotations, defragmentation, substitutions, intersections, repetitions, and interruptions (Figure 7). This process generates landmarks for the spectator-walker, constituting an unprecedented visual signage system that Bernard Tschumi describes as “transplant grafts” (Tschumi, 1994, p. 88). More or less hollow or protruding, sometimes slender and sometimes sculptural, the “*folies*” are scattered with ramps, spiral staircases, and occasionally marked by an effect of an “empty cage.” In this respect, they evoke the skeletal structures of Sol LeWitt from the 1960s. Distributed at regular intervals of 120 meters across the entire site, they function simultaneously as anchoring points and enclaves. They become both rallying signs and places of experimentation open to multiple uses.



**Figure 6.** Image illustrating a fragmented “*folie*”

Source. Tschumi, B. (1987). *Cinéma Folie: Le Parc de la Villette*. New York (USA): Princeton Architectural Press

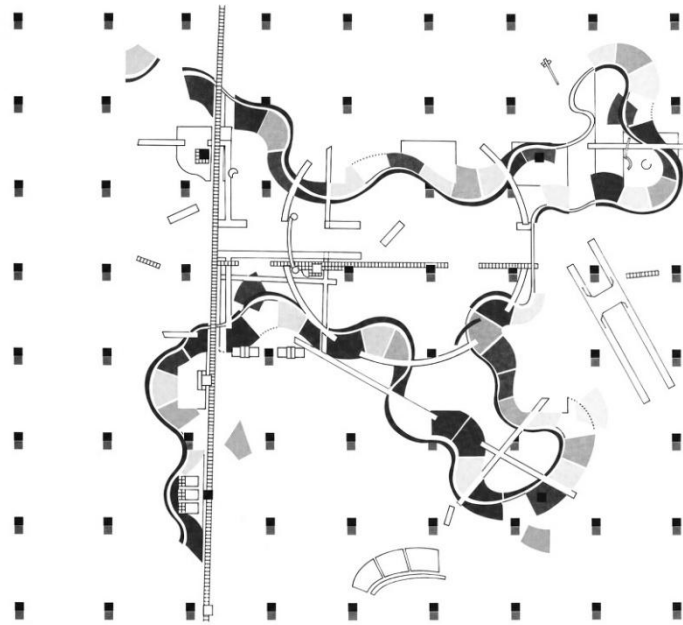


**Figure 7.** Deconstruction process of a “*folie*”.

Source. Tschumi, B. (1987). *Cinéma Folie: Le Parc de la Villette*. New York (USA): Princeton Architectural Press

The “*folies*” of *Parc de la Villette*, these “allegorical hypostases of an Unreason,” to paraphrase Jacques Derrida (Derrida, 1987, p. 94), thus act as “a common denominator” (Tschumi, 1994, p. 89). They establish conflictual relationships between architectural objects, spatial events, and the simple spectator/walker. Without destroying architecture, they dislocate, destabilize, and deconstruct its semantics (Derrida, 1987). Some are positioned along the canal, while others intercept existing buildings. Attached to the canopies of footbridges or erected on vast lawns, they provide open spaces for diverse activities. Each bears a name evocative of a theme or event that the architect integrated into activities with fragmented programs.

The system of lines corresponds to movements of circulation, pathways, and pedestrian passages tracing various directions. It offers the “*folies*” possibilities of access as well as constantly renewed viewpoints (**Figure 8**). These lines are straight for long covered galleries, notably those of the *Ourcq* and *La Villette* galleries, crossing the site from north to south and from east to west. They accommodate the park’s most frequented activities and act as genuine urban routes. Moreover, other lines — sometimes curved for tree-lined paths, sometimes arabesque-like for the garden promenade — are traversed in the manner of a cinematic strip. By walking along these winding paths, the spectator wanders through a succession of endless sequences where various thematic gardens offer broad perspectives. Whatever the explored theme may be, the visitor becomes engaged in an unprecedented landscape space, both driven and moving, like a cinematographer. Immersed in a series of potential scenarios, the visitor is stimulated through all five senses by means of poetic, visual, sonic, tactile, and olfactory evocations.



**Figure 8.** Lines running through the *Parc de la Villette*.

Source. Tschumi, B. (1987). *Cinéma Folie: Le Parc de la Villette*. New York (USA): Princeton Architectural Press.

The system of surfaces is composed of vast meadows, lawns, and forecourts with forms that are sometimes regular and sometimes irregular. It is defined as a filling space resulting from the intersection of the systems of lines and points. This variety of surfaces allows complete programmatic freedom, ranging from playgrounds to fitness trails, from figure skating to open-air performances, including thematic gardens. These gardens are dedicated to diverse landscape experiences. Visitors discover resonances produced by an immense cylinder as well as unusual sounds. They also pass through a bamboo chime and encounter a dragon materialized by a strange tongue-shaped slide. Other spaces stage artificial fogs and computer-controlled waterfalls. Concrete monoliths adorned with mirrors generate hallucinatory optical effects, while certain dispositifs evoke childhood fears inspired by stories of getting lost in the woods. The journey continues through atmospheres of violent winds, acrobatic installations, balancing games, and sand dunes. Finally, the urban furniture designed by Philippe Starck, as well as sculptures such as the gigantic *Buried Bicycle* created by Claes Oldenburg and Coosje van Bruggen, fully contribute to the striking originality of the *Parc de la Villette*.

### 3.1.3. Deconstructivism in the *Parc de La Villette*.

Certainly, the *Parc de la Villette* is now recognized as one of the most accomplished models of deconstructivist landscape design of the late twentieth century, but also as a pioneering example of the practical application of philosophy in architecture. In this project, Bernard Tschumi collaborated with Jacques Derrida, regarded as the founding father of deconstruction. Introduced at the beginning of the 1970s, this notion “designates the set of

techniques and strategies used (...) to destabilize, fracture, and displace texts” (Hottois, 2005, p. 399), leading to shifts of meaning and “swarming crowds of metaphors” (Zima, 2007, p. 28).

In philosophy, deconstructivist thought is “open [both] to reasoned argumentation and counter-argumentation” (Zima, 2007, p. 106). It does not aim at the destruction of discourse but rather at its dissolution, dissemination, defragmentation, and undecidability with the intention of “(...) robbing the reader, deceiving him, or trapping him...” (Ramond, 2001, p. 131). In architecture, the term was borrowed to title a controversial exhibition held in 1988 at the Museum of Modern Art. This exhibition reflected a period during which the discipline had become “not only an arena of arguments, but above all a kind of Babylon, where all the new journals and critics sought to compete” (Schulze, 1996, p. 330).

This exhibition evoked a heritage, a tension, and a “parody of an ideology” (Wilson, 1988) inherent to the Russian avant-garde of the 1920s. It challenged the built environment to the point of its supposed annihilation, illustrating its own “disturbance, [its] dislocation, [its] deflection, [its] deviation, [its] distortion, [its] deformation...” (Johnson & Wigley, 1988, p. 17). Thus, whereas in Constructivist architecture pure forms were used to create impure compositions, those of Deconstructivism, embodied in projects such as the *Parc de la Villette*, appear extremely “contaminated” and “tortured” (Idem: 11). For some, they generate “a feeling of unease and anxiety” (Idem: 17), and for others, an experience close to nightmare or even schizophrenia.

It is evident that the deconstructivism of the *Parc de la Villette* generated numerous debates and considerable commentary. A text that has since become widely disseminated, entitled *Point de folie – Maintenant l’architecture*, was written by Jacques Derrida himself in 1985 to describe the aesthetics of Bernard Tschumi, notably through the park’s “*folies*.” These are designated by the philosopher as “nonsense,” as the “greatest common denominator” of an unprecedented approach of “programmatic deconstruction” carried out by the architect (Derrida, 1987). As an architecture of heterogeneity, interruption, and non-coincidence — to use Derrida’s terms — the “*folies*” of *La Villette* constitute a privileged site of deconstruction. They do not destroy: they deconstruct in order to reconstruct. They challenge, dislocate, and destabilize the notion of habitual space by pushing its limits beyond norms and conventions. They “make manifest the irrationality of rationalist reason” (Migayrou, 2014).

### **3.1.4. Technological Approach in the Construction of the *Parc de La Villette*.**

From a technical standpoint, the “*folies*” appear as concrete structures clad with pre-lacquered red metal sheets. The construction process seems relatively conventional: it is based on earthworks and foundation works, followed by the pouring of concrete into wooden formwork, allowing the erection of load-bearing columns. These structural elements are associated with slabs, as well as with a system of beams and floors constituting the building’s framework. The envelope and roofing are then ensured by cladding panels, particularly corrugated metal sheets, which provide a certain formal freedom. Finally, metal ramps and staircases are grafted onto this architecture of varied morphologies while remaining based on a cubic module. This cube is itself subdivided according to a regular grid; its façade is composed of a grid of nine rectangles. Subjected to a process of spatial deconstruction, these elements alternate between solids and voids, giving rise to architectural variety.

The lines, meanwhile, take the form of either rectilinear layouts or curved pathways. The straight alleys — notably those of the *Ourcq* and *La Villette* galleries — take the form of metal lattice structures covered by an undulating roof extending over nearly one kilometer and suggesting an impression of spatial floating. The span between two vertical supports exceeds twenty meters, implying anchorage to the ground ensured by relatively deep concrete foundations. In contrast, the curved pathways are conceived as a film strip extending over approximately four kilometers. They are animated by concrete paving and flowerbeds composed of varied materials and textures. They frequently reveal level variations between the different parts of the park — notably the thematic gardens, playgrounds, and programmatic spaces — through the integration of staircases, ramps, and footbridges accompanying the routes.

The surfaces illustrate a great variety of thematic gardens, designed according to a sequential approach to green spaces and their pathways. Transitional gardens, bamboo gardens, gardens of childhood fears, trellis gardens, balance gardens, island gardens, mirror gardens, dune and wind gardens, acrobatic gardens, dragon gardens, and finally shadow gardens: this diversity composes a rich and experimental landscape ensemble. The implementation of these

spaces required multiple interventions, ranging from varied plantations — trees, lawns, vegetable gardens — to the arrangement of ornamental pools. It also relied on significant earthmoving and excavation works, reconfiguring the existing topography. Added to this are constructive and landscape devices such as planting pits for hedges and flowerbeds, vegetal carpets, as well as built elements — concrete panels, canopies, and overhangs — structuring the space. Footbridges, level variations resulting from excavation strata, as well as sculptures, artistic installations, and urban furniture design complete this ensemble, contributing to the realization of a deconstructed garden art that is both singular and immersive.

### 3.1.5. Synthesis and Discussion.

The analysis of the notion of the postmodern landscape, stylized according to a deconstructivist approach as explored in the *Parc de la Villette*, has allowed us to highlight a set of aesthetic concepts linked to the notion of chaos (**Table 1**). Among these are decomposition, the fragmentation of form and geometry, disjunction, as well as spatial explosion, affecting both the “green” and the built architecture.

The transgression of the geometry of a cubic module, embodied by the “*folies*” designed by Bernard Tschumi and distributed homogeneously across the entire site, leads to a global questioning of landscape space. This approach generates a deconstruction not only of architecture but also of the very notion of landscape, in which the grid, far from imposing a stable order, becomes an instrument of disturbance and spatial disruption.

The forms and spaces resulting from the Deconstructivism implemented in the *Parc de la Villette* constitute one of the rare examples of postmodern landscapes in which the “violence” applied to the geometry of pure form transforms green space into a singular immersive experience. However, this approach, founded on the deconstruction of landscape, has been experimented with on a large scale, and its spatial and aesthetic expression still appears difficult to transpose to smaller-scale garden projects, whose spatial qualities remain, to this day, relatively underexplored.

In the *Parc de la Villette*, the aesthetics of deconstruction, applied to a former abandoned heritage site dating back several centuries, contributes to rehabilitating and revalorizing the history of the place. By transgressing space and the geometry of forms, it rehabilitates and extends the life of a historic site placed in a state of abandonment, while assigning to it new uses and a sustainable program. In this sense, the Deconstructivism of this Parisian park represents one of the rare postmodern landscape conceptions associating formal experimentation, historical reinterpretation, and reflection on an alternative form of sustainable development applied to the contemporary landscape.

**Table 1.** Summary table of the *Parc de La Villette* project.

<b>Work</b>	<i>Parc de la Villette.</i>
<b>Project architect</b>	Bernard Tschumi.
<b>Client</b>	Public Establishment of the Parc de La Villette (EPPV).
<b>Date</b>	1987.
<b>Location</b>	Paris (France).
<b>Site</b>	Heritage site.
<b>Area</b>	55 hectares.
<b>Element of heritage inspiration</b>	European country residences of the 17th century.
<b>Scale</b>	Landscape scale.
<b>Type of work</b>	Leisure park and cultural exhibition park.
<b>Style of the work</b>	Deconstructivist style.
<b>Description of the work</b>	Public park based on Jacques Derrida’s philosophy of deconstruction, articulated around the “ <i>folies</i> ,” which transgress the classical perception of architectural space and, by extension, landscape space.
<b>The aesthetic aspect of the work</b>	<p>The project is based on a superposition of points, lines, and stratified surfaces. Its fragmented composition is governed by a grid of cubes, from which lines—sometimes rectilinear, sometimes sinuous—as well as surfaces with varied geometries are organized.</p> <p>Points constitute the basis of a deconstructed cubic system, intended to produce effects of spatial destabilization.</p> <p>Lines resemble “cinematic” paths, unfolding as successive sequences.</p> <p>Surfaces, finally, alternate between regular and irregular forms, contributing to the overall morphological diversity.</p>
<b>The Philosophical aspect of the work</b>	The project is part of the extension of Jacques Derrida’s thought and his philosophy of deconstruction. It aims to question geometric form and space through processes of fragmentation, disjunction, and transgression of architectural language.
<b>The Technological aspect of the work</b>	The construction techniques employed remain relatively conventional: reinforced concrete structures clad with pre-lacquered metal panels for the “ <i>folies</i> ”; metal lattice structures covered with undulating roofs for the pathways; and landscape developments composed of green spaces animated by playgrounds and themed gardens for the surfaces.

### 3.2. *Augmented Grounds* by Soomeen Hahm Design.

#### 3.2.1. *Augmented Grounds*: The Emergence of a Landscape Installation.

Soomeen Hahm is both an architect who graduated from the Architectural Association Design Research Lab (DRL), as well as a teacher and robotics researcher at the Southern California Institute of Architecture. Her work reflects a marked concern for a harmonious ecology between human intuition and the computational power of the computer. The *Augmented Grounds* garden, which we will examine in the following lines, expresses this desire for hybridization. It highlights an unprecedented experience of augmenting human artisanal skills through the precision and formal possibilities offered by digital machines.

*Augmented Grounds* (Figure 9) is a landscape installation created for the International Garden Festival of *Métis* during its 2020 edition. It measures 112 square meters. The theme of the event revolves around the concept of *métissage*. This installation was one of the five proposals selected among the 200 submitted applications. However, due to the COVID-19 pandemic, the designers of the selected projects, who were expected to come from all around the world, were unable to travel to the site. Nevertheless, the Festival team took charge of the construction of all the installations, including that of *Augmented Grounds*.



**Figure 9.** General view of the *Augmented Grounds* installation.

Source. S. Hahm (2020b) SoomeenHahm Design. Retrieved from <https://soomeenhahm.com/>

The *Augmented Grounds* installation draws its inspiration from the traditional sash of the *Métis* Nation of the Northern and Western Plains of Canada. This sash represents a symbol of “pride and [cultural] identity” (Canadian Museum of History, 2024). The *Métis* are indeed a people “of mixed European and Indigenous origin [spread] throughout Canada” (Gaudry, 2009). They are known for their brightly colored wool sashes, handwoven and imbued with historical, artistic, and sentimental values. In this sense, the *Augmented Grounds* installation reinterprets the chromatic palette of this heritage through colored ropes meticulously arranged and sculpted on the exhibition site. This place offers a unique and soothing experience for visitors wishing to connect with nature.

Ranked among the 150 best botanical gardens in the world, the *Jardins de Métis* are considered one of the most beautiful gardens in North America. They were created thanks to the talent of Elsie Reford, a Montreal horticulturist and philanthropist who developed them in the Bas-Saint-Laurent region of Quebec between 1926 and 1958. These gardens were successively known as *Domaine Reford*, *Parc Métis*, and later *Jardins de Métis*. They became renowned for their exceptional botanical collection and today play a leading role in the tourism industry of eastern Quebec. In order to maintain their reputation, a festival bearing their current name was created. Since its inauguration in 2000,

the latter has succeeded in attracting more than one million visitors, thus becoming a laboratory of ideas where history, tradition, modernity, and innovation engage in harmonious dialogue.

The *Métis* sash, also known as the arrow sash or colored wool sash, is a significant element of the clothing heritage of the *Métis* of Canada (**Figure 10**). It represents an icon and a widely recognized identity symbol of their culture. Its enduring influence lies in its aesthetic qualities, practicality, and great versatility. This long, brightly colored woolen cloth was used in various ways. It served alternately as a carrying strap, a blanket for protection against the cold, a rope, an emergency bridle, an improvised pouch for small objects, a saddle cover, a towel, or even a hand towel. Moreover, it was generally draped over the shoulder or tied around the waist. Traditionally, artisans crafted it from colored wool combined with other materials such as silk, horsehair, vegetal fibers, or human hair, using the finger-weaving technique. Furthermore, this sash was notably adorned with complex herringbone arrow patterns extending to its extremities. It constituted a form of social distinction and prestige, even becoming “an almost protocol-like gesture widely practiced in *Métis* political assemblies” (Simard & Rousseau, 2004, p. 15). Numerous books, lectures, and demonstrations have been produced for the general public and professionals of Canadian folklore in order to transmit this know-how and keep alive the memory associated with the making of this object.



**Figure 10.** Arrow sash of the Métis of Canada.

Source. Barbeau M. Ceinture fléchée. 2016. <https://www.thecanadianencyclopedia.ca>

### 3.2.2. The Role of Augmented Reality in the *Augmented Grounds* Project.

To understand the intrinsic meaning of *Augmented Grounds*, it seems necessary to establish a terminological clarification. The choice of the title of this landscape installation is not insignificant and requires an examination of the notions of augmented reality, augmented space, and augmented human beings. First of all, the term augmentation, from the Latin *augmentatio*, refers to “the action of increasing” or to “that which is added” (Rey, 1984, p. 130). It relates to “a change of state obtained through addition or extension” (Hahm, 2021, p. 450). In this sense, the expression augmented reality designates a technology or artifact that enables the addition, extension, enrichment, or the “superimposition of a [digital] layer onto the user’s visual field” (Do Kim, 2019), or, in other words, the “overlaying of computer-generated material onto the real world” (Caudell & Mizell, 1992, p. 662). Similarly, augmented space is a “physical space onto which constantly evolving [digital] information is superimposed” (Manovich, 2002, p. 11). Finally, the augmented human being refers to “a set of procedures, methods, or means, whether chemical or technical, whose purpose is to surpass the natural or habitual capacities of a subject” (Claverie & Le Blanc, 2013). In summary, the *Augmented Grounds* installation by Soomeen Hahm Design is situated within a physical environment enriched by digital information, thereby enabling the surpassing of the conventional limits of

the architectural fabrication experience. This work encourages us to reflect upon the future of design and the possible realization of buildings.

Certainly, the work of Soomeen Hahm draws inspiration from a determining folkloric element of the culture of the *Métis* of Canada, namely the *Métis* sash. However, it mobilizes an augmented method of design and fabrication, in close dialogue with artisanal craftsmanship, in order to produce an unprecedented topographic, chromatic, and playful experience. The work *Augmented Grounds* thus represents, according to its designers, “the hybridization of cultural pride and innovation” (Hahm, 2020b). To this end, the *Métis* sash is reinterpreted in the form of colored ropes, twisted and superimposed in harmony with the garden’s topography. These ropes, with their complex geometries, are arranged precisely on the site through the use of a headset acting as a holographic guide. Their morphology generates a continuous flow of lines, bubbles, and geometrized contours conforming to the site’s existing reliefs. They also evoke the different strata of *Métis* history. Within this landscape installation, visitors are invited to move freely, to walk, run, or jump along the ropes. They may also sit or relax on the coiled seating surfaces of this giant dispositif, which appears to come alive by vibrating in rhythm with the surrounding forest.

The fabrication of *Augmented Grounds* is based on the use of an augmented reality headset developed by *Microsoft*, the *Microsoft HoloLens* (Figure 11). This portable interface, fixed onto the user’s head, projects virtual models generated through parametric modeling software onto an integrated screen. It also incorporates headphones, contributing to the creation of an immersive atmosphere within a panoramic virtual environment while maintaining anchorage in the real world. The device is equipped with a battery ensuring relative autonomy, as well as motion sensors capable of tracking the user’s movements and enriching the optical thickness of real-world appearances. Within this dispositif, the initial perception takes the form of a pre-established programming grid within which virtual images are inscribed. These act as a guide intended to accompany the assembly of the installation throughout its realization.



**Figure 11.** Image showing the HoloLens augmented reality headset.

Source. Tillinac, H.(2017) Le casque holographique de Microsoft sera bientôt disponible sur le marché français [Microsoft's holographic headset will soon be available on the French market]. <https://echotechno.fr>

For sanitary reasons, the realization of *Augmented Grounds* was carried out remotely and simultaneously, within the framework of close collaboration between designers and builders. The designers continuously and remotely monitored the fabrication process of the work through a digital replica of the site based on *Cloud Computing* technology. This dispositif enabled them to control and instantly transmit, through remote servers, the instructions necessary for the proper execution of the construction process, independently of their location and in real time. The

builders, for their part, were guided by holograms displayed on the screen of the headset they wore, indicating predefined locations for the precise and meticulous assembly of the ropes. These virtual images acted as a medium augmenting the builders' perception throughout the assembly process. They reinforced their sensorimotor and cognitive capacities and more broadly enriched the experience of collaborative human–machine fabrication. In this sense, the interest of augmented reality lies in its capacity to orient and precisely locate anchoring points and assembly methods, notably through phenomena of occlusion between real and virtual scenes.

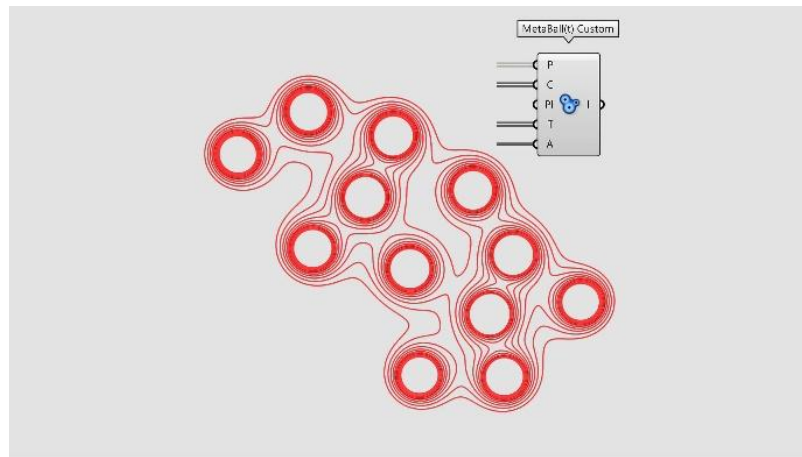
### 3.2.3. *Augmented Grounds*: A Singular Case of Parametric Landscape.

In the work of *Augmented Grounds*, the designers explore a singular ecology in which humans, machines, and computers interact harmoniously, thereby adopting an avant-garde approach dedicated to the creation of a fabrication process for complex forms that can only be calculated computationally. This approach is known today as the parametric style. It is considered a successor to modernism in terms of architectural creativity, notably replacing postmodernism and deconstructivism, which are perceived as mere transitional phases that failed to provide effective responses to the increasing complexity of our contemporary societies (Schumacher, 2009, p. 15).

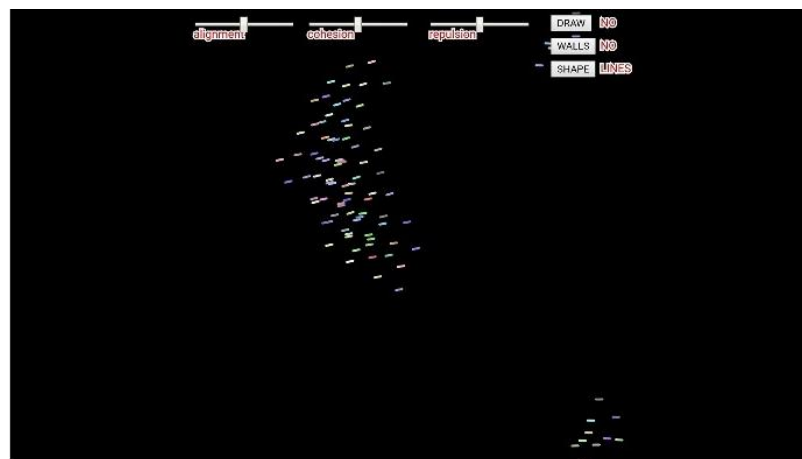
Parametricism extends deconstructivism by questioning the foundations of the Modern Movement, particularly on the aesthetic level. However, it develops a more complex and curvilinear formal repertoire made possible through the rise of digital tools. Thus, the geometric transgression characteristic of deconstructivist architecture — expressing impressions of collapse and spatial dislocation — gradually gives way to logics of continuity and fluidity, as well as to a proliferation of curves and counter-curves. This formal renewal does not result from a simple shift in habits. It reflects a profound mutation in modes of design and forms of plastic expression, characteristic of a new phase of postmodern architecture situated within the context of the rise of digital technology.

Parametric design, initiated by Luigi Moretti as early as 1942 and theorized by Patrik Schumacher in 2008, advocates the production of dynamic and evolving forms in which every variation of a parameter triggers a global transformation of the architecture (Woodbury, 2010, p. 226). This morphology, often sponge-like and curvilinear, implies the use of parameterized algorithmic scripts rather than fixed and standardized models (Al-Azzawi & Al-Majidi, 2021, p. 4). Numerous design software programs have thus been developed to support this architectural approach, demonstrating a certain aesthetic homogeneity due to similarities in their modes of manipulation.

In the case of *Augmented Grounds*, the formal language of the installation originates from mathematical algorithms such as *Metaballs* and *Boids*, developed during the 1980s (**Figure 12** and **Figure 13**). *Metaballs*, assimilable to convolution surfaces, correspond to spherical entities characterized by their ability to aggregate and merge fluidly. As for *Boids* — derived from the term *bird-oid* — they refer to the form and movement behaviors of birds and are commonly used to simulate the collective dynamics of a moving flock. In this respect, these two algorithmic models are particularly suited to the elaboration of a curved and continuous aesthetic, widely present in *Augmented Grounds* and characteristic of parametric formalism. This formalism generates an impression of collision between bubble-like forms, resulting from a repeated homothety of elliptical and concentric lines and evoking wave interference phenomena. The ensemble simultaneously recalls the impact of raindrops on a water surface — producing splashes and ripples — and, on a more metaphorical scale, a dynamic mixture close to a “big bang” effect.



**Figure 12.** An image showing a component parameterized by the Metaball algorithmic function.  
Source. Ananthram A.(2020) Algorithms In Nature [Part-1]. <https://medium.com>



**Figure 13.** An example of a flocking simulation of a group of birds using the Boids algorithm.  
Ananthram A.(2020) Algorithms In Nature [Part-1]. <https://medium.com>

To model the fluidity of the forms in its work, Soomeen Hahm Design mobilized the Grasshopper plug-in, whose language and visual programming environment operate within *Rhinoceros 3D*. Developed by David Rutten during the 2000s, Grasshopper constitutes a visual programming interface enabling the generation of families of parametric forms and the exploration of evolving spatial configurations. As such, its use requires a certain mastery of computer programming logic. The visual scripts developed in Grasshopper are directly interconnected with *Rhinoceros*, allowing instantaneous visualization of the geometry of the entire work as well as its continuous modification in order to produce different spatial or landscape scenarios. The two computational environments therefore function simultaneously and synchronously: any modification operated in one is immediately reflected in the other, generating a bidirectional workflow.

### 3.2.4. Technological approach in the work *Augmented Grounds*.

The work *Augmented Grounds* was disseminated online as a video of approximately four minutes, uploaded on October 5, 2020, on the Vimeo platform (Hahm, 2020a). The video opens with a series of images presenting the five proposals awarded by the committee of the International Garden Festival of *Métis*, with particular emphasis on the project by Soomeen Hahm Design: its conceptual intention, its motivations, and the spatial atmosphere envisioned for a future landscape space.

From the twenty-sixth second onward, the video presents a prototyping sequence composed of several simulated models of the work, each placed within a cubic basin of approximately thirty centimeters. These successive experiments illustrate different stages: an algorithmic generation with cut-out without filling; a simple cut-out; the projection of a pattern; then a model translating the actual thickness of the rope, followed by its projection onto the

ground. Other tests show an augmented reality projection at ground level, first without color or thickness, then enriched with these parameters. At the thirty-fourth second, a hologram of the prototype appears, placed on a QR code and simulated using parametric modeling tools, notably *Rhinoceros 3D* associated with the *Grasshopper* plugin. This modeling is then concretely tested using a head-mounted display, through an assembly of ropes, fabrics, and white resin.

At the end of the first minute of the video, a series of film sequences documents an in-situ real-scale test of the parametric model, previously developed in the studio. One first observes earthworks operations aimed at faithfully reproducing the simulated topography, guided by markings drawn on the ground using high-visibility paint. Pieces of fabric are then laid out on this morphology and subsequently combined with twisted ropes, which are fixed and glued. At one minute ten seconds, the result of this test is presented, followed by two-dimensional and three-dimensional simulations of the entire project. At one minute and twenty seconds, the modeled and animated work highlights the rope-wrapping process, accompanied by technical indications such as weight, dimensions, and colors.

At one minute and thirty seconds, an overlay of the virtual version of the work onto a real photograph of the site makes its integration visible. Ten seconds later, sequences appear showing remote exchanges between designers and builders, made necessary by the constraints of the pandemic. The different phases of the construction site are thus filmed, transmitted, and analyzed to ensure monitoring, coordination, and, where necessary, adjustments. At the end of the second minute, a series of images and video sequences documents the progress of the construction site. One observes earthworks, clearing, and backfilling operations intended to reconfigure the existing topography. These are followed by layout and surveying operations guided by head-mounted displays, then the installation of textiles and the wrapping of colored ropes. These elements are transported, fixed, checked, and adjusted in order to correspond faithfully to their digital counterparts. Finally, starting from the third minute, the final result of this meticulous assembly appears.

### 3.2.5. Synthesis and Discussion.

The analysis of the notion of postmodern landscape, stylized according to a parametric approach as explored in the work *Augmented Grounds*, highlights a set of aesthetic concepts linked to contemporary digital technologies (**Table 2**). Among these are, notably, an engagement with organic forms, as well as an aesthetics of softness and fluidity. Such a choice of forms is made possible through homothetic, iterative, complex, continuous, and homogeneous processes affecting both the “green” and the built architecture.

The parametrization of spongy and analogous forms, conforming to the topography of an existing garden, leads to a redefinition of the notion of “green” as a spatial design driver of the installation. In this sense, the variation of a parameter in the geometry of modeled forms induces a global transformation of the architecture.

The forms and spaces resulting from the work *Augmented Grounds* represent one of the rare examples of postmodern landscapes in which the digitization of the geometry of complex forms—whose realization was made possible through the use of a head-mounted display during the assembly of the work—transforms the green space into a singular immersive experience. However, this parametric approach to landscape has been experimented with at an architectural scale. While its spatial and aesthetic expression reveals undeniable qualities, these remain relatively underexplored in large-scale landscape projects, where issues of scale, materiality, and implementation raise new challenges.

In the work *Augmented Grounds*, the aesthetics of parametricism, applied to a nearly century-old heritage garden, contribute to rehabilitating and revaluing the site’s history. It extends the life of a historic garden through, on the one hand, the parametrization of space and forms and, on the other hand, the optimization of construction materials. Indeed, conforming to the site’s topography reduces waste associated with construction work and inscribes the landscape project within a logic of sustainable development. In this sense, the use of Parametricism as a design driver constitutes one of the rare examples of postmodern landscapes combining formal experimentation, heritage reinterpretation, and an avant-garde reflection on an alternative form of sustainability.

Table 2. Summary table of the *Augmented Grounds* project.

<b>Work</b>	<i>Augmented Grounds.</i>
<b>Project architect</b>	Soomeen Hahm Design.
<b>Client</b>	International Garden Festival of Métis.
<b>Date</b>	2020.
<b>Location</b>	Québec (Canada).
<b>Site</b>	Heritage site.
<b>Area</b>	112 square meters.
<b>Element of heritage inspiration</b>	Sash of the <i>Métis</i> Nation of Canada.
<b>Scale</b>	Architectural scale.
<b>Type of work</b>	Playful installation with a temporary vocation.
<b>Style of the work</b>	Parametric style.
<b>Description of the work</b>	<p>Landscape installation based on the principles of parametricism, employing a curvilinear, continuous, and evolving formal language.</p> <p>The work unfolds as a generative system whose morphology results from the interaction between digital data and site constraints.</p>
<b>The Aesthetic aspect of the work</b>	<p>The work is organized around a continuous flow of curved lines, structured by a family of homothetic forms with elliptical, repetitive, and concentric contours, conforming to the relief of the existing terrain.</p> <p>The formal language is based on an interplay of curves and counter-curves, derived from the repetition of a single parametric gesture, whose variations remain conditioned by parameters introduced into the modeling software.</p> <p>The resulting spatial configurations engage the user in a dynamic and immersive experience, in line with the playful vocation of the installation.</p>
<b>The Philosophical aspect of the work</b>	<p>The work extends the parametric theories developed by Patrick Schumacher, advocating an architecture based on organic and evolving forms generated through digital tools. In this approach, any parametric variation induces a transformation of the architecture, reflecting a logic of continuity and adaptability.</p>
<b>The Technological aspect of the work</b>	<p>The installation relies on hybrid techniques combining craftsmanship—particularly the manual layering of ropes—with advanced augmented reality technologies, using a head-mounted display to assist construction through the visualization of holographic models.</p>

#### 4. Conclusions

We have explored two forms of landscape art belonging to two distinct architectural currents, each proposing a particular approach to garden design: deconstructivism, on the one hand, and parametricism, on the other (**Table 3**). The *Parc de la Villette*, resulting from an international competition aimed at creating a futuristic landscape space, uniquely reconfigures the site of a former abandoned slaughterhouse through a play of points, lines, and fragmented surfaces. Conversely, the installation *Augmented Grounds*, developed within the framework of a renowned botanical festival, reinterprets a vestimentary tradition specific to a *Métis* nation of Canada by integrating digital technologies. It thus reconciles artisanal know-how with augmented parametric fabrication.

If the *Parc de la Villette* offers a cinematic, themed, and large-scale promenade, the work *Augmented Grounds* implements a topographic and chromatic experience at a reduced scale. While Tschumi's project deconstructs space through fixed forms and fragmented programs, Soomeen Hahm's installation develops an evolving and flexible parametric formalism, more closely aligned with the dynamics of bodily movement.

Although Tschumi's park is inscribed within a heritage site, it presents itself as a largely self-referential space devoid of meaning. Its cubic structures, known as "*folies*," generate constructivist forms sometimes perceived as "tortured," producing in visitors a sense of unease or spatial discomfort. Conversely, the installation by Soomeen Hahm Design unfolds as a landscape of heritage reinterpretation: an experimental ground with soft, dynamic, and playful forms, offering an immersive and sensory experience.

In Tschumi's work, deconstructivism is embodied in fixed architectural devices, notably through the "*folies*," whose transgressive cubic forms are designed to disrupt the viewer's perception. Such an approach appears to maintain a more distanced relationship with the natural landscape, whether gardens or landscaped lawns. In contrast, in Hahm's work, parametricism manifests as an organic and complex formal language capable of resonating with plants and trees, grafting itself onto an existing landscape and harmonizing with it. From an aesthetic and spatial standpoint, this suggests that parametricism, relying on contemporary digital technologies, is more easily adaptable to landscape integration than deconstructivism, which remains largely centered on the transgression of pure geometric forms. Moreover, deconstructivist projects explicitly addressing green spaces—and landscape more broadly—remain, to our knowledge, relatively rare.

Finally, the cross-analysis of these two projects, both aesthetic and technological, highlights differentiated approaches to the question of sustainability. In the case of the *Parc de la Villette*, this issue is expressed through the deconstructivist conversion of an abandoned heritage site, as well as through the durability of the program developed there. In the case of *Augmented Grounds*, by contrast, this concern is mainly expressed through the exploration of site topography as a generative matrix for parametric form-making. Such an approach makes it possible both to optimize material use and to reduce waste associated with fabrication and implementation processes.

**Table 3.** Comparative Table Between *Parc de la Villette* and *Augmented Grounds*.

Work	<i>Parc de la Villette</i> .	<i>Augmented Grounds</i> .
<b>Project architect</b>	Bernard Tschumi.	Soomeen Hahm Design.
<b>Client</b>	Public Establishment of the Parc de La Villette (EPPV).	International Garden Festival of Métis.
<b>Date</b>	1987.	2020.
<b>Location</b>	Paris (France).	Québec (Canada).
<b>Site</b>	Heritage site.	Heritage site.
<b>Area</b>	55 hectares.	112 square meters.

<b>Element of heritage inspiration</b>	European country residences of the 17th century.	Sash of the Métis Nation of Canada.
<b>Scale</b>	Landscape scale.	Architectural scale.
<b>Type of work</b>	Cultural and leisure park.	Temporary playful installation.
<b>Style of the work</b>	Deconstructivist.	Parametric.
<b>Description of the work</b>	Park structured by “ <i>folies</i> ,” challenging the classical organization of landscape space.	Generative installation with curved and complex forms derived from digital data and site conditions.
<b>The Aesthetic aspect of the work</b>	Fragmented composition combining points, lines, and surfaces, based on a cubic grid generating pathways and spatial diversity.	Continuous composition of curves and repetitive elliptical forms, creating a fluid and immersive spatial experience.
<b>The Philosophical aspect of the work</b>	Inspired by the writings of Jacques Derrida: deconstruction, fragmentation, and questioning of pure form.	Inspired by the writings of Patrick Schumacher: continuity, parametric variation, and geometric adaptability of forms.
<b>The Technological aspect of the work</b>	Conventional construction techniques (concrete, metal, landscaping).	Hybrid techniques: craftsmanship combined with augmented reality (head-mounted display).

## Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors/individuals.

## Ethics approval

Not applicable.

## Conflict of interest

The author(s) declare that there is no competing interest.

## References

- Al-Azzawi, T., & Al-Majidi, Z. (2021). Parametric architecture: The second international style. *4th International Conference on Engineering Sciences (ICES 2020)*, *IOP Conference Series: Materials Science and Engineering*, 1067(1), 1–14. <https://doi.org/10.1088/1757-899X/1067/1/012019>
- Aljon, L. (1992). *Designing parks: An examination of contemporary approaches to design in landscape architecture, based on a comparative design analysis of entries for the Concours International: Parc de la Villette, Paris, 1982–3* (Doctoral dissertation, Wageningen University). Architectura & Natura Press. <https://doi.org/10.18174/200964>
- Béguin, F. (1995). *Le paysage* [The landscape]. Flammarion.
- Canadian Museum of History. (2024). *First Peoples of Canada: The Inuit way of life*. <https://www.museedelhistoire.ca/cmhc/exhibitions/aborig/fp/fpz4b01f.html>
- Caudell, T. P., & Mizell, D. W. (1992). Augmented reality: An application of heads-up display technology to manual manufacturing processes. In *Proceedings of the Twenty-Fifth Hawaii International Conference on System Sciences* (Vol. 2, pp. 659–669). IEEE. <https://doi.org/10.1109/HICSS.1992.183317>
- Claverie, B., & Le Blanc, B. (2013). Homme augmenté et augmentation de l’humain [Augmented man and human augmentation]. In E. Kleinpeter (Ed.), *L’humain augmenté* [The augmented human] (pp. 61–78). CNRS Éditions. <https://books.openedition.org>
- Cortesi, I. (2000). *Parcs publics: Paysages 1985–2000* [Public parks: Landscapes 1985–2000]. Actes Sud.
- Derrida, J. (1987). *Psyché: Invention de l’autre* [Psyche: Inventions of the other]. Galilée.
- Do Kim, S. (2019). La ville augmentée et l’avenir de l’écriture: Épistémologie et archéologie des inscriptions urbaines dans l’ère numérique [The augmented city and the future of writing: Epistemology and archaeology of urban inscriptions in the digital age]. In B. Galinon-Melenec, S. Zltni, & F. Liénard (Eds.), *L’homme-trace: Inscriptions corporelles et techniques* [The trace man: Bodily inscriptions and techniques] (pp. 129–149). CNRS Éditions. <https://books.openedition.org/editionscnrs/25606?lang=fr>

- Eplényi, A., & Oláh-Christian, B. (2015). Postmodern landscape architecture: Theoretical, compositional characteristics, and design elements with the analysis of 25 projects. *Acta Universitatis Sapientiae, Agriculture and Environment*, 8(1), 71–81. <https://doi.org/10.1515/ausae-2015-0006>
- Frampton, K. (1983). Towards a critical regionalism: Six points for an architecture of resistance. In H. Foster (Ed.), *The anti-aesthetic: Essays on postmodern culture* (pp. 16–30). Bay Press.
- Furetière, A. (1690). *Dictionnaire universel* [Universal dictionary] (3 vols.). Slatkine Reprints.
- Gaudry, A. (2009). Métis (Metis). *L'Encyclopédie canadienne*. <https://www.thecanadianencyclopedia.ca/fr/article/metis>
- Goulet, P. (1983). Concours international pour le parc de La Villette [International competition for the Parc de La Villette]. *L'Architecture d'Aujourd'hui*, 225, 90–99.
- Hahm, S. (2020a, October 5). AUGMENTED Grounds [Video]. Vimeo. <https://vimeo.com/464926379>
- Hahm, S. (2020b). *Augmented grounds: International Garden Festival 2020*. SoomeenHahm Design. <https://soomeenhahm.com>
- Hahm, S. (2021). Augmenting human designers and builders: Augmentation discussed in architectural design research. In R. Hyde & F. Filippidis (Eds.), *Design studio Vol. 2: Intelligent control* (pp. 111–125). RIBA Publishing.
- Hottois, G. (2005). *De la Renaissance à la postmodernité: Une histoire de la philosophie moderne et contemporaine* [From the Renaissance to postmodernity: A history of modern and contemporary philosophy]. De Boeck.
- Jencks, C. (2011). *The story of post-modernism: Five decades of the ironic, iconic and critical in architecture*. John Wiley & Sons.
- Johnson, P., & Wigley, M. (1988). *Deconstructivist architecture*. Museum of Modern Art.
- Labeledade, N. (2003). Bernard Tschumi. In *Architectures expérimentales, 1950–2012* (pp. 592–596). FRAC.
- Larousse. (2005). *Le Petit Larousse illustré 2005*. Éditions Larousse.
- Lavalou, A. (2002). *La Villette: Cité de la musique, parc et grande halle, cité des sciences* [La Villette: City of music, park and grand hall, city of science]. Patrimoine CMN.
- Manovich, L. (2002). *The poetics of augmented space: Learning from Prada*. <http://manovich.net/index.php/projects/the-poetics-of-augmented-space>
- Merlin, P., & Choay, F. (2009). *Dictionnaire de l'urbanisme et de l'aménagement* [Dictionary of urbanism and planning]. Presses Universitaires de France.
- Merlini, L. (2014). *L'archipel Tschumi* [The Tschumi archipelago]. B2.
- Meyer, E. (1991). The public park as avant-garde (landscape) architecture. *Landscape Journal*, 10(1), 16–26.
- Migayrou, F. (2014). *Bernard Tschumi: Architecture, concept et notation* [Bernard Tschumi: Architecture, concept and notation] (Exhibition catalog). Centre Pompidou.
- Orlandini, A. (1999). *La Villette 1971–1995: Histoires de projets* [La Villette 1971–1995: Project stories]. Somogy.
- Périgord, M., Pierre, D., & Régis, B. (2012). *Le paysage: Entre natures et cultures* [The landscape: Between nature and culture]. Armand Colin.
- Ramond, C. (2001). *Le vocabulaire de Derrida* [The vocabulary of Derrida]. Ellipses.
- Rey, A. (1984). *Petit Robert I*. Le Robert.
- Schulze, F. (1996). *Philip Johnson: Life and work*. University of Chicago Press.
- Schumacher, P. (2009). Parametricism: A new global style for architecture and urban design. *Architectural Design*, 79(4), 14–23.
- Simard, F., & Rousseau, L. P. (2004). La ceinture fléchée au carrefour des convoitises des communautés canadiennes-françaises, amérindiennes et métisses du Canada [The ceinture fléchée at the crossroads of the aspirations of French Canadian, Indigenous, and Métis communities in Canada]. *Revue d'histoire de la culture matérielle*, 59, 8–19. <https://journals.lib.unb.ca/index.php/MCR/article/view/17973>
- Tiberghien, G. (2001). *Nature, art, paysage* [Nature, art, landscape]. Actes Sud.
- Tschumi, B. (1978). *Architectural manifestos*. AA Publications.
- Tschumi, B. (1981). *The Manhattan transcripts: Theoretical projects*. Wiley-Academy.
- Tschumi, B. (1985). *Des transcripts de la Villette* [Transcripts from La Villette]. IFA.
- Tschumi, B. (1988). Architecture: Stratégie et substitution [Architecture: Strategy and substitution]. *Diagraphe*, 43, 39–45.
- Tschumi, B. (1994). *Architecture and disjunction*. MIT Press.
- Wilson, W. (1988). Debating the pros and cons of the deconstructivists. *Los Angeles Times*.
- Woodbury, R. (2010). *Elements of parametric design*. Routledge Taylor & Francis Group.
- Zima, P. V. (2007). *La déconstruction: une critique* [Deconstruction: A critique]. L'Harmattan.