



**7TH  
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CONFERENCE ON  
PLACES AND  
TECHNOLOGIES**

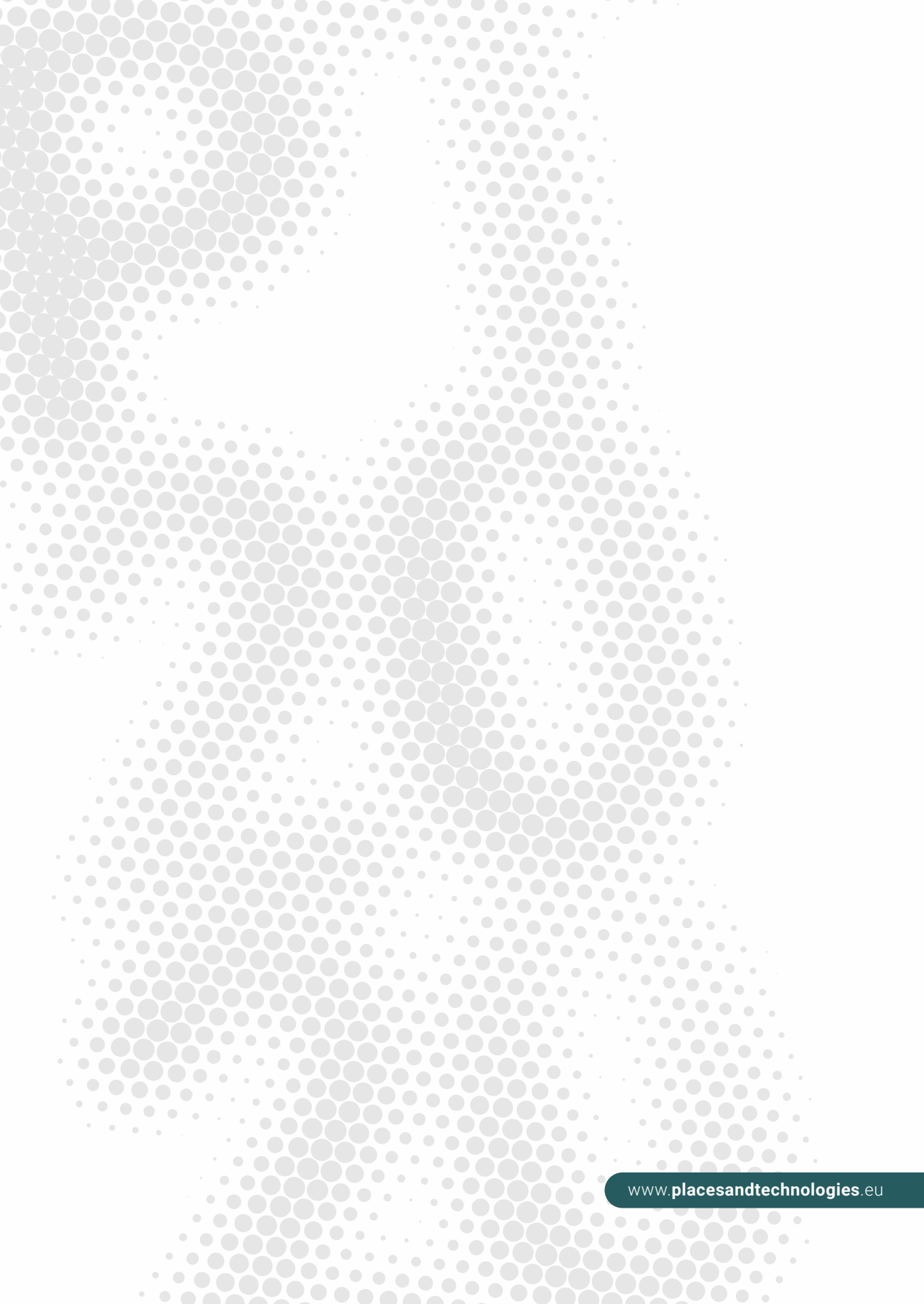
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**Proceedings**

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Eva Vaništa Lazarević  
Milena Vukmirović**



# KEEPING UP WITH TECHNOLOGIES TO ACT RESPONSIVELY IN URBAN ENVIRONMENT

**PLACES AND  
TECHNOLOGIES**  
2020

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**7th International Academic  
Conference on Places and Technologies**  
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## WORD OF THE CONFERENCE DIRECTOR

### **— Aleksandra Djukić**

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This Proceedings from the 7th International Conference Places and Technologies: Keeping up with Technology to act Responsively with Urban Environment, which was held in Belgrade in October 2020, contributes to the discussion about the future of society and places and the role of technology in it and discussions with respect to strategy for responsive quality environment. More than 70 papers from 18 countries were presented during the conference. The organizers of the conference were: University of Belgrade (Faculty of Architecture) and Professional Association Urban Laboratory (UrbanLab). The aim of the conference was raising the questions about the future of our cities and environment, understanding from the critical aspect, the importance and role of technology in designing creative ideas to improve places. The stated general objectives point to the necessity of a multidisciplinary approach to this matter and comes under the framework of different disciplines: engineering and technical sciences, humanities and social sciences that share the same visions and goals. However, new urban and building concepts have been created mostly relying on ICT. Furthermore, the main focuses of the articles are related to what extent the technologies could provide responsive development of built environment. In contemporary progressive practice, urban environments have been designed to act responsively to climate change, energy efficiency, protection of heritage, identity, and the main goal of successful urban development is to provide responsive urban plans and urban designs supported with new technologies as the most powerful tools for their implementations.

The Proceedings is organized into the five parts: responsive urban and territorial planning, responsive urban design, responsive architecture, responsive heritage protection and responsive technologies in architecture.

The part with the papers debating about responsive urban and territorial planning is dealing with: shrinking cities; the position of towns in digital construction technology environment; public transport; potential of maker movement on sustainable development; the impact of economic factor on transforming the urban form; segregated neighbourhoods and their integration attempts; physical planning information system; relationship between changes in technological cultures and spatial development of cities; improvement of life quality using nature based solutions and design of cultural trails.

The part dedicated to responsive urban design is dealing with: re-invented water-related spaces in the built environment; urban form evaluation; shared spaces; the sustainable construction of the old communities; spaces that stimulate innovation and creativity and provide a sense of community; pedestrian mobility and visual integration; street co-design; inspiration and cultivation of ideas in urban design; identity and resilience of open public spaces; security aspects of urban planning and design; an urban design technique regarding active aging in outdoor spaces; the challenges of dockless cycling; the use of digital technologies in creating the places of collective memory; transitioning the public space; the restorative effects of multi-sensory open space design and urban living labs for sensitive city.

The part about responsive architecture has the collection of the papers arguing about: regionalism and low-tech in contemporary vernacular architecture; temporary accommodation facility for asylum seekers; BIM based project and digital building model management; rethinking a public institutes of assistance and charity; cultural, methodological and economic aspects of the laboratory; dwelling with the water; architectural analysis of therapeutic canter for drug addicts; human comfort in artificial place; collective housing as new identity in rural areas the architecture-machine origins and frameworks of machinic line of thinking in architecture and challenges of designing remote communities.

The fourth part, responsive heritage protection is dealing with: digital design techniques to assist in the composition of traditional urban buildings; visualization of architectural heritage; systemic approaches in revitalization of old city heritage site; future development of former fortress; a responsible approach model for regeneration of spatial identity; heritage perceptions; preserving the material authenticity; sustainability and resilience in rural areas and revitalisation of the industrial heritage along waterfront.

The fifth part, responsive technologies in architecture is dedicated to: application of veneer based panels in exoskeleton architecture; raising climate resilience in buildings; digital planning, construction submission and approval processes; integration of architectural and structural aspects through the design process; indoor environmental quality; models for contemporary exploitation of balneological potential; nearly zero energy building co2 emissions; open BIM for citizen engagement in sustainable renovation projects; new technologies of construction on Serbian waters; evolution of technologies for construction of apartment buildings; origin of citizens and impact on city; conventional vs prefabricated buildings; computational method to assess the impact of urban climate on the buildings' energy performance simulations and algorithm-based BIM model analysis methodology at urban level.

The significance of this conference lies in the pressing need for the integration of smart technologies and contemporary urban concepts which provide sustainable city development. Different problems in the domains of urban design and planning, architectural design, building technologies, urban sociology, ICT, transport and traffic studies, resilience of place, climate change, adaptive reuse, cities and health, landscape architecture, identity, heritage etc. are presented and discussed in more than 70 conference papers made by professors, researchers and PhD students from all over Europe and the world.

We are committed to our initial goal to improve the level of scientific status of Serbia and the region. Places and Technologies conference become traditional international event gathering researchers all around the world and has provided an opportunity for them to advance their positions in the academic hierarchy, to build their research networks and to develop new scientific projects. Presentation and the quality of the papers that are results of new studies, debates and research strengthen our ambition to keep the importance of our conference among many European ones.

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**[KEYNOTES]**

## THE CULTIVATION OF IDEAS

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## ABSTRACT

René François Ghislain Magritte is a Belgian painter known for paintings depicting real objects in impossible relationships. The Cultivation of Ideas shows a change in the thought process frozen in one moment. Looking at the picture, viewer can assume the next steps in the development of the image. Further image change is depending on viewer perception.

The paper is the result of analyzing and interpreting the image The Cultivation of Ideas, by René Magritte, through a methodology of decomposition. As such, it has a clear connection with artistic creativity and it is the subjective grasp of the creative process embodied in the metaphor of cultivation that unfolds daily around us, through the micro-macro world. The research is a visual and linguistic demonstration of thought processes. It functions as a guideline, not by any means as a repeating pattern. It is based on short instructions, and opens the possibility for any kind of user integration.

The methodology process of two-dimensional and three-dimensional spatial decomposition is resulting in architectural order guidelines and matrix. The result of research is variable definition and re-definition of a street, a square and a park. Street is a body movement symbol, the line and an ideal way to observe the environment. It can be endless and a compound of an extremes. The square is a point of intersection of different interests, needs and ideas. It is a public knot, a static and diverse foundation on an event. The park can take on different roles. Its users are the creators of the park, and the park educates the users.

KEYWORDS \_ *aesthetics, decomposition, street, square, park*

## INTRODUCTION

The works of René François Ghislain Magritte expose ordinary objects in unusual circumstances or in strange contexts, giving them new meanings. The contradictions explain what is inexplicable. They make the impossible possible. This is the way of creative thinking that allows us to ignore logic, erase boundaries, bind opposites, and create new value. In art is often used to explain the complex-

ity of the phenomenon it is talking about (Foucault, 1983).

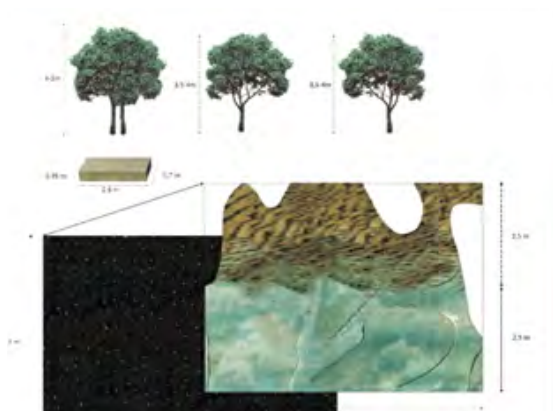
In the picture *The Cultivation of Ideas* (figure 1) we recognize the nutritious elements (wood, quad - substrate, stars, etc.), as well as surreal, artificial elements (fluid matter, texture of wood on matter, wood with two crowns growing out of the stone substrate). The picture itself is contradictory because it contains a set of elements that together have no logical meaning and build a (semi) fictitious world. Still, they create one new image that tickles the minds and widens the horizons. The contradiction is not to be resolved, but to understand the lesson it represents (Alden, 1999).



\_ Figure 1: The Cultivation of Ideas (source: <https://www.renemagritte.org/>)

## DECOMPOSITION

In a compositional sense, we can observe René's painting through the rule of the triangle in which the tree closest to the viewer is placed in a golden cross-section. Individual elements as well as the relations between them contain 'the laws of beauty', but as a whole they lose the classical conception of beauty. Beauty is not the theme of the picture as much as the expressionlessness that encourages reflection on the content. Things don't have to be pretty, but they have to be meaningful.



\_ Figure 2: Two-dimensional decomposition of the form - The Cultivation of Ideas (source: Authors)



### Two-dimensional decomposition

Three modes of two-dimensional decomposition are presented in the paper. Linguistic decomposition is a description of an image, its story and the narrative of the author. It is information based on history, experience and facts. It is the rational component of decomposition, and it is the very beginning of decomposition. Formal decomposition (figure 2) is everything we see in the picture. These are the characteristics of each element for itself through its dimension, shape, form, colour and texture. It is like a project or plan where we can look at segments of the whole. Symbolic decomposition is the subjective understanding of the image, the interpretation of the symbolism of particular parts of the image, the deeper meaning, these are the questions that the image raises in observer, it is the new context of the concept (associative, imagination, comparison, etc.). It does not have to be accurate, but represents one possibility and an assumption that overlaps with the previous two steps.

### Three-dimensional decomposition

The three-dimensional decomposition is represented by the continuation of the process of Rene cultivation observed through a wider frame. The tree with two trees has been replaced by a Renaissance sculpture (David, Michelangelo) that represents the ideal, of the individual, observing the world around him. He has the skill of changing concepts by (re) defining things with cognitive tools, and thus developing into a being of cognition. Ideal geometric shapes represent other observers who interact with one another. Fluid matter visually represents the complexity of the idea. It is like a mirror of David's inner world, an inspiration, an imagination, and a blending of the thought processes we act upon and conclude (figure 3).



\_ Figure 3: Three-dimensional decomposition of the form - The Cultivation of Ideas (source: Authors)

## MATRIX

The matrix represents a guideline that stimulates the creative mind. The matrix can be represented as a living cloud in which the input/information of whom to use is stored. Depending on the matrix user, it can work wonders. The matrix not only wants to be the template by which monotonous solutions are created, but it desires to be interactive and changeable. It lures creative potential into the process of the alchemy of ideas. It functions as a living organism that evokes and transforms. It can

function rationally, intuitively and uncertainly. It is based on definitions, transformed by trials and associations, and manifested in form and form. It is not exclusive and opens as much as its user.

### **GUIDELINES: DEFINITION, ASSOCIATION AND FORM**

Definition is a set of scientifically tested, experientially acquired meanings of a term taken as the overarching standard for all or one period of time. Any used definition may be revised and altered. The redefinition is an examination of the established standards and their useful values. It is a human habit to examine the environment and alter its boundaries.

An association represents an amalgamation of concepts by summoning the notion of one term to another. The human brain is like a cloud that collects information by contact with its environment. Depending on the focus of the senses and experience, the brain groups images, concepts, ideas into clouds of various dimensions and shapes. Inspiration comes from watching, listening, enjoying, etc. Form is a set of characteristics that influence the logic of its functioning. The form changes and can become more complex when re-defining its own parameters (definition, re-definition, association).

### **STREET**

A street is a public parcel that typically serves as a passageway in a built or unbuilt environment. The street can be unpaved, paved, and most often covered with asphalt. It traditionally connects cities and countries globally. It can be divided in size and purpose (primary, secondary, tertiary, communal, stationary, alleys, pedestrian, etc.). The streets are mostly linear (their length is greater than the width). The street can be characterized by the meaning (name) of the street, its geographical position, the objects that surround it. Street, in other professions, represents a path from the point A to point B, a coordinate or a dashed line on screen, movement or dynamics.

Although official names and cultural symbolism have changed throughout official history, the cultural notion of the street as a scene has survived and influenced European urbanism. It is necessary to mention Vitruve's descriptions of street scenes, used as backgrounds in theaters, as the first categorization. There are three types of scenes: tragic, comic, satirical, which are different and have different decoration. The tragic are marked with pillars, gables, statues and objects that glorify the king; comic scenes depict private housing, balconies and rows of windows; satirical depict trees, caverns, mountains and other rustic elements (Moughrtin, 2003).

The street is a symbol of body movement. The street is a line. It is an ideal way of perceiving the environment, its stratification. It is like a personal photo album in which we can stop and look at the picture, re-examine it or enjoy its scene. Infinite, the street is a symbol. An endless street is a unusual combination of extremes. It is polluted, but it is also a factory for the production of the essence of human existence, and that is its strength (figure 4).



\_ Figure 4: Infinite street - matrix analysis and re-definition of a street (source: Authors)

## SQUARE

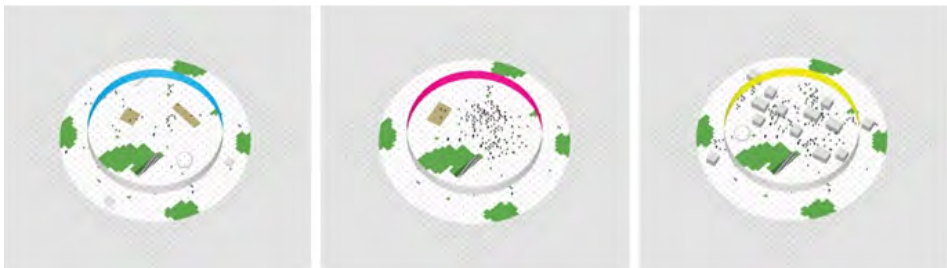
The square is an open public space most often set in the old city fabric, and is used to gather people and often contains commercial functions. There are several types that explain the term square: city center, square, square, plaza, market, etc. Most of the squares are paved spaces that serve as spaces for markets, music concerts, gatherings and other events. Set centrally, they are often surrounded by a variety of shops. Within the square we often find a fountain, well, monument or statue. As in other aspects of urban planning, square planning depends on multiple parameters that intertwine through climate, function, and culture. For this reason, we cannot say that there is one type of square even though they contain similar or the same principles.

According to Cliff Moughrtin, we utilize two methods of categorizing a square - through its function and through its form. We can say that these two characteristics are equally important and neglected in practice. Empty, desolate and windy, the space occupied by underutilized buildings is a common phenomenon in modern cities, while otherwise we have congested traffic islands or parking lots around which are scattered unrelated buildings, also becoming frequent on the urban scene (Moughrtin, 2003).

According to Alberti, there should be several different squares set up in different parts of the city. Alberti highlights the activity in the square, considering the possibilities of using the square. Particular emphasis is placed on the square through the broader context of the city and its role associated with different parts of the city. Activities inside the square are a sign of its vitality (Alberti, 1986).

The Viennese architect Camilo Sitte points out in the discussions that in the Middle Ages, as in Antiquity, there was a greater activity of the square through the needs of the community and thus a special intimacy with the surrounding buildings. . If we look at the square through activities, we focus on the very need of the city. In this way, we view the square as part of the whole that serves the city or, conversely, as an injection that should improve the vitality of the city. The types of open spaces needed by the city are: open spaces next to buildings; main meeting places; spaces for ceremonial events, entertainment spaces around facilities such as theatres, restaurants and cafes; shopping areas, shopping streets, arcades and markets; spaces surrounded by administrative buildings; semi-public spaces surrounded by housing; spaces connected to urban transport links (Moughrtin, 2003).

The square is a public meeting/residence place for different people and serves as a landmark of the city. The square is a point of intersection of different interests, needs and ideas. What is the food that a man goes to the square for today? Is it in a tangible or intangible physical state? Is that food intellectual or entertaining? Is the square, a source of information, a sense amplifier or an extended tool? The square is a knot. The square is public. The square is static. The market is a group of diversity. The square is the basis for what is happening. The square is practical (figure 5).



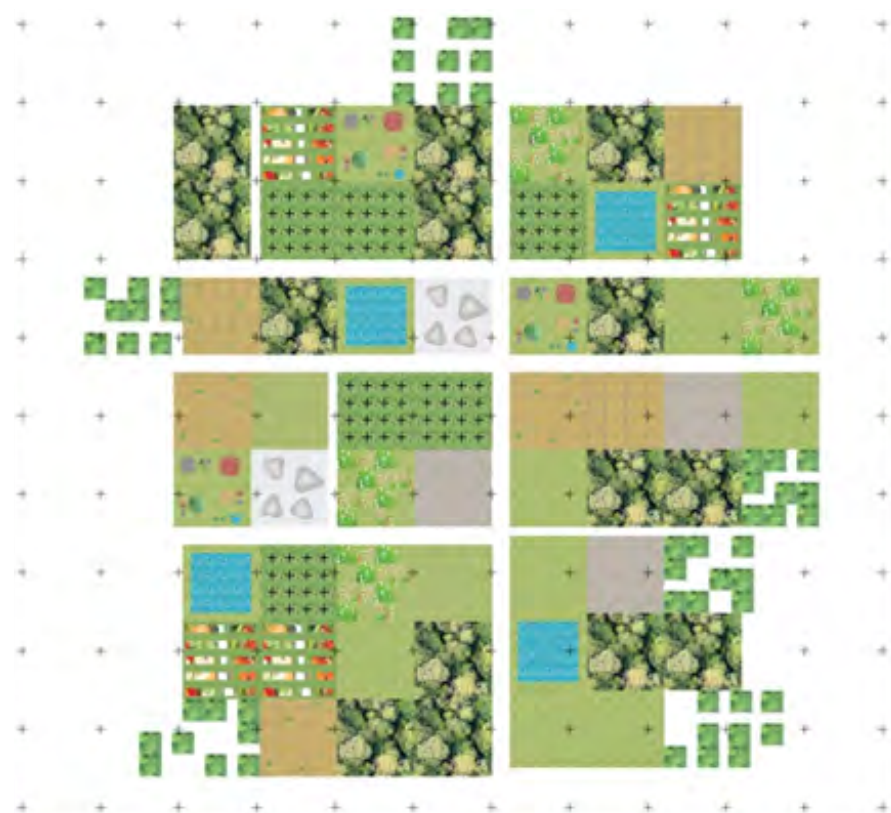
\_ Figure 5: Three-dimensional decomposition and re-definition of a square: sitting, concert, exhibition (source: Authors)

## PARK

A park is a green area located in a city or settlement. It can contain: paths, furniture, terrains, lakes and various plants. Parks are often surrounded by significant buildings. The function of the park can be aesthetic, recreational or park as a stabilizer of the microclimate. City parks reduce air pollution and can also lower the temperature during high heat. It is often used for walking, sitting, recreation, resting and playing. A typical park contains trees, shrubs, paths, trails, alleys, ponds, pools, streams, sculptures and fountains (Wright, 2013).

Throughout history, we record different types and kinds of parks in different sub lands. For example: Mesopotamian Garden, Semiramide Gardens, Egyptian Garden, strictly geometric, walled, tree-lined avenues and lotus pools, Persian Gardens, rectangular, divided in the shape of a cross with pools and canals, Chinese Gardens, harmony of seven symbols, Garden of Enchantment, horrors and pastimes, Greek gardens, garden next to the house, Medieval Italian and French, rectangular with straight paths, enclosed by walls, the size of the monastery, containing orchards, pools and ponds, Renaissance, regular, cascading, fenced, Baroque gardens, large with various contents, with a long alley (Campbell, 2016).

The park can accept diverse roles. The park can be unarranged wilderness, performance, manifestation, fruit and vegetable growing area, sustainable strategy, recreational space, playground, etc. (Stilgoe, 2015). The users of the park are the unknown creators of the park, and the park educates the users. The park is flexible and appreciates every user on the planet. Park is an application. Park is a video game (figure 6).



\_ Figure 6: Two-dimensional decomposition and re-definition of a park (source: Authors)

## CONCLUSIONS

The paper is the result of the analysis and interpretation of the painting *The Cultivation of the Idea*, by René Magritte, through the methodology of decomposition. As such, it has a clear connection with artistic creation and represents a subjective understanding of the creative process embodied in the metaphor of cultivation that takes place around us every day, through the micro - macro world. The paper is a visual and linguistic demonstration of thought processes. It functions as a guideline, not as a recurring pattern. Research sets as the main task the examination of concepts of spatial definition and redefinition. It is based on brief instructions and offers the possibility for any user integration. At the very beginning, when we collect basic data about the project (definition), until the moment when we actively start designing, we enter the creative process - we redefine. The next step is to start the cultivation process, merging the definitions with the forms and vice versa. Once we generate information, we are capable to act associatively. We connect the information into pictures and start with the first ideas. After the first forms that offer an adequate answer to a given problem, its examination begins. The results are varied, and we can often give multiple answers to the same problem. The paper presented linguistic and two-dimensional and three-dimensional redefinition of the street, the square and the park.

## REFERENCES

- \_ Alden, Todd. 1999. *René Magritte*. New York: The Wonderland Press.
- \_ Alberti, L. Battista. 1986. *The Ten Books of Architecture: The 1755 Leoni Edition*. New York: Dover Publications.
- \_ Campbell, Gordon. 2016. *A Short History of Gardens*. Oxford: Oxford University Press.
- \_ Foucault, Michael. 1983. *This Is Not a Pipe*. Berkeley: University of California Press.
- \_ Moughrtin, Cliff. 2003. *Urban design: Street and Square*. Burlington: Architectural Press.
- \_ Magritte, Rene. 2020. "Biography, Paintings, and Quotes." Accessed February 28, 2020. <https://www.renemagritte.org/the-cultivation-of-ideas.jsp>
- \_ Stilgoe, John R. 2015. *What is Landscape?*. Cambridge: The MIT Press.
- \_ Wright, Amalie. 2013. *Future park: imagining tomorrow's urban parks*. Collingwood: CSIRO PUBLISHING

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