Ideal Spaces Exhibition

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Abstract. Through the years we have worked with the idea of *gestalt* through artefact creation (including virtual objects and 3D-worlds) as one surface to explore, exploit, test and communicate our ideas and concepts, that are generative rather than produced, where we try to grasp systematic insights through complex generated realities, in which an audience later is invited to interact. In our Ideal spaces exhibition for the 2016 Biennale in Venice, we tried to explore this via a combination of presenting ideal city spaces, active participation of the visitors molding their own spaces, and symbolic representation. Ideal Spaces is also a high-tech project that uses diverse technologies in new ways, also new techniques and programming developed by us.

Keywords: Art · Design · Architecture · Interaction design · Ideal spaces
Animation · Unity3d

1 Introduction

An ideal space is both space imagined, from the Greek idea and eidos; and space "ideal" in the words common use, denoting a space perfected [1]. In that latter meaning, an ideal space is an absolute model of how space should be. In this sense, it is also a utopian space.

Ideal spaces are not only about architecture but about social dreaming and imagination, expressed in 'ideal' spaces with their impacts on architecture, art, and human hopes. We tried to show this via a combination of presenting ideal city spaces, active participation of the visitors molding their own spaces, and symbolic representation. Ideal Spaces is also a high-tech project that uses diverse technologies in new ways, also new techniques and programming developed by us. The exhibition deals with ideal spaces in a double sense: as spaces imagined and as spaces utopian, or perfected. In both its meanings of being 'ideal', an ideal space relates to utopian space, an old theme deeply embedded in our cultural memory which has never lost its actuality and appeal. With a look at recent conditions, we need to re-address it more than ever.

1.1 Our Theme Ideal Spaces

Since it is a mythic theme full of hopes and dreams, and at the same time, very practical. Today, the majority of human beings live in urban agglomerations which are far away from being 'ideal' but chaotic, accompanied by an actual destruction of space

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unprecedented in history. In parallel, never before so many technical possibilities of imagining spaces existed, allowing for escape into worlds of fantasy, dream, and game. Space is lost, and at the same time multiplied.

But human beings need space, also real ones deserving the name, and they need community. Issues which have to be settled, urgently. One first step in doing so may consist in re-framing them, to look at them anew, from different but nevertheless related perspectives.

We did so by taking the theme's archaic character as a background tale, the myth of a paradise lost and to be regained again [2], and by actively involving the visitors. Today, the question arises of what an ideal space actually is, or could be. We wanted to invite visitors to join this venture, by experiencing spaces conceptualized as ideal ones: shown in a large cave, as worlds of their own, and on an "ideal" cosmic disk presenting them in connection. And by constructing their own spaces, which will allow the visitors to experience their commonly generated spaces together, both as a process and as a result.

The epitomized place for an ideal space is that of the ideal city, also one of the formers' favorized *topoi* in symbolic terms [3]. The ideal city relates to utopia, the *eu*-topia as a place of redemption and liberation in form of a second, and artificial paradise. Exemplary cases of such cities, to be conceived primarily as *space* (and not as cities) were provided on a cave-like screen measuring 3.60 × 6.0 m, so that the visitors could really "dive" into them, allowing for an experience of the respective space as a world by its own. We also presented the cathedral, a very symbolic space in occidental heritage with regard to the topic of a paradise to be regained. Moreover, at the end of our sequence of worlds, we sketched a favela, both a symbolic and real counterpoint. its symbolic value is not confined to be the epitomized opposite to an "ideal" space, but to offer a new, and different kind of utopia: instead of a pre-planned entity provided by some creators outside [4], the inhabitants of such a space have the possibility to mold it by themselves – an old democratic ideal of participation since the days of the *polis* in a new shape.

What is "ideal" in the spaces presented? The very term *ideal* relates to the Greek words *idea* and *eidos*, to have an 'idea' or an inner image of something; in case of eidos, also one which can become very concrete, and which may serve as a pattern or type [5] – e.g. for constructing an ideal city acc. to a clear and pre-given "inner" image. And as already mentioned in the beginning, *ideal* also stands for something perfected or 'ideal' in the common sense of the term: something which is an end state ('perfect'), in other words [6] (Fig. 1).

Looking at these two meanings of what *ideal* denotes, it is of decisive importance when both these meanings coincide or overlap: when a city shall be constructed as an ideal space, covering both these meanings – even in cases where its constructors have literally 'no idea' what they actually are doing. That is, when they are not decisively and explicitly reaching for utopia but nevertheless built utopian spaces, in fact, by generating a spatiality of the "non-place" addressed by critics as Augé [7] and others (e.g., [8]): a type of placeless spatiality generating real physical but essentially placeless ('*ou*-topian') spaces on the historical remnants of which we all live.

In these cases, the imagery about an ideal space must not always, and not explicitly be utopian. Since in the original meaning of an ideal, an ideal space does not only

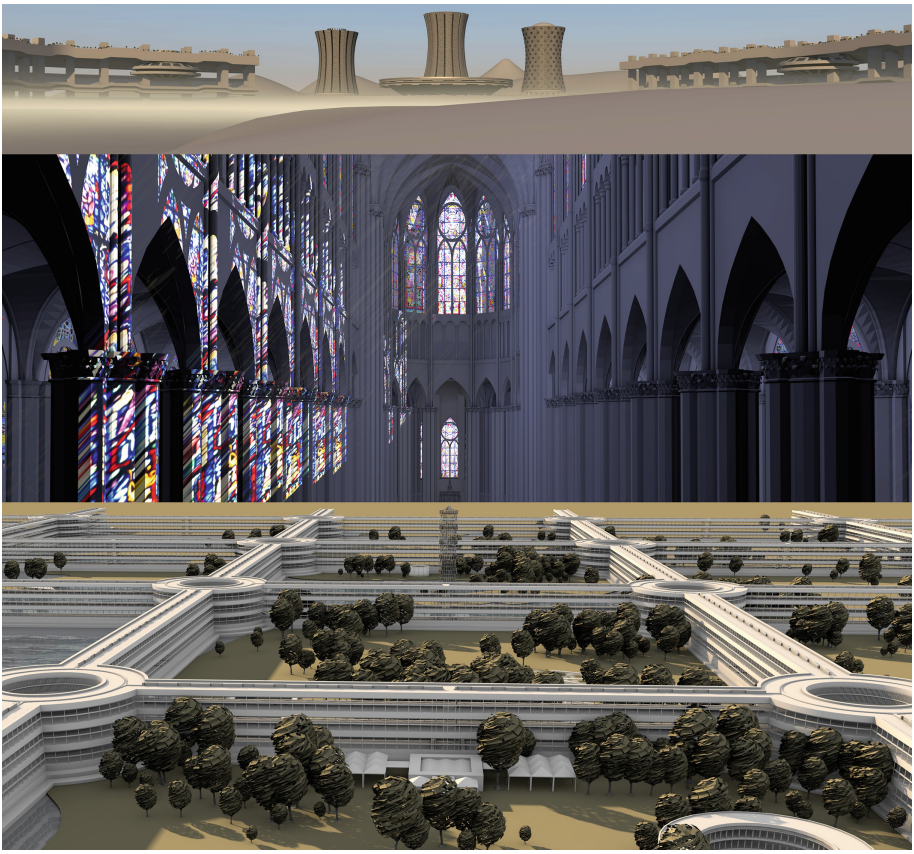

Fig. 1. Three of the ideal spaces shown in the exhibition. Babel IId, the Reims Cathedral, and Motopia

denote a space perfected, something that has to be achieved as an optimized final state; but also a space which has been conceptualized at all: an inner image, an idea about a space as it shall look like [9], pouring into plans, concepts, and other concretized imaginations about spatial design; as in city planning, layout of logistic networks, buildings, the construction of spaces for the public, and the like. These are examples which demonstrate that the notion of an ideal space does also include quite practical constructions needed for the purposes of daily life in its concrete terms.

But let's return to the epitome of an ideal space (at least in the occidental realm), the one of an 'ideal' city. Concepts about an ideal city rely upon the idea of an ideal space constructed, to provide both base and frame for a proper unfolding of the human condition, for an ideal *conditio humana*. According to our cultural imagery, the proper and genuine place for humans as "cultural animals" (McLuhan) is the city, from the start of human civilization onwards [10]. Thus, a city has to be erected which is ideal, constructed in such a way that the spatial conditions for that animal shall propagate the advent of the 'positive' traits of a general human nature; or, expressed in mythological

terms: after the first, natural paradise being lost, a second one has to be created, a paradise regained by construction. As an environment and a frame of living, these new paradises shall become man's second nature to overcome the shortfalls of existing urban environments.

For the first time in human history, the major part of humanity lives inside the frames and conditions of such environments; and judging from such a background, the topic of an "ideal" city becomes actual more than ever. There exist two major distinctions as regards the notion of an ideal city. In a classical 'old' understanding, an ideal city, as a term, refers to the search of urban theorists and others for a reconstruction of or reaching for the utopian Garden of Eden, for the creation of an ideal place in the metaphysical or religious sense of heaven on earth [11]. The other meaning is an 'ideal' city in the sense of making the best out of the actually available resources, circumstances, and geography, centering on the topics (and goals) of sustainability and of harmony with nature and culture. These distinctions, we have to add, can be understood as directions of meaning as well, to conceive the topic of an ideal space in general.

If we include its secularized variants, the interpretation of an ideal place refers to the utopian direction of meaning; the other, second direction of meaning is more pragmatic: it does not have to be the absolutely perfect end state but 'ideal' only in the sense of making the best out of the existing situation, the conditions which actually prevail. As does any other way of how to handle things in general and how to cope with reality, it presupposes a certain mindset – out of which things are handled in that way and no other, what is conceived as relevant, and so forth. And this finally depends on ideals, on inner images as mental guidelines for how to tackle things in general – in their sum, the 'world' – and for which purposes. So, even the most pragmatic mind cannot avoid ideals. If physics symbolically stands for the barely present, for that what is (also physically) in the moment, then we cannot avoid metaphysics. 'Best' solutions in this sense do not depend on physics, but on ideas, ideals: on inner images.

So, all in all, ideal space and meta- physics seem to belong together; in particular when we speak about the future, and here about a future desired, a state of being which is not present yet, but which shall become present [12]. Moreover, those spaces do not just express some architectural constructions; they are symbolic spaces, spaces which are "standing for" additional meanings behind them [13], meanings which elicited their construction at all. These spaces shall, of course, become real physical spaces then. This addresses once more the aspect of imagination, and the symbolic aspect of these spaces: we, the spectators of their images presented, have to conceive them as real spaces, as parts of an 'as if-world' that can turn into reality. This is, at the same time, a particular mode of experience: we have to look at those spatial images as if experiencing a real world, and we can compare these experiences with those we made in our real spaces we are living in.

The issue of experience and imagination is relevant for all the spaces of our exhibition: those presented as ready-made worlds, those made by the visitors themselves, and those which are symbolized and presented in the world disk. First and foremost, this applies to the worlds we wanted to present as "ready-made" ideal spaces (mostly of utopian character) which appeared in history. What has been called a *concrete utopia* [14]: space where humans shall live in an 'optimized' and planned

way; and which has been constructed, or has to be constructed, as a concrete and carefully planned environment.

In other words, these constructions shall enable the 'proper' unfolding of human nature, as an ideal place to live in. And in these regards, it also has to be a space of management and control, a place of actual conduct for such a proper life, which very often has to be supervised to ensure that everything runs according to plan [15].

The basic intention of such conceptions was to create an artificial cosmos, metaphorically speaking, an encompassing *ordo* where everything runs according to plan, serving as a frame for the welfare of its inhabitants. All of our infrastructural networks rely upon such an idea. As an idea going back to Roman times [16], it was to construct an ideal space of functional networks serving as a base for the needs of many individuals [17], up to the actual post-modern state [18].

1.2 The Exhibition and Its Design

So through the years, we have worked with the idea of gestalt through artifact creation (including virtual objects and worlds) as one surface of communicating and testing our ideas and concepts that are generative rather than produced, where we try to grasp systematic insights through complex generated realities.

Our design work which has its roots in the application of artistic discipline to the engineering of technology, in the form of pattern making for mass production, and as styling for product marketing. Later, design, as well as our work, has come into its own as a creative discipline and an origin of innovations rather than only something slapped onto existing ones. The design is one activity of creating the future, not solving old problems as much as inventing new opportunities, still with strong ties to empirical science and engineering but also with the storytelling, of branding and marketing. In parallel, industries and design have evolved from producing products to services, and recently to experiences, expressing basic human tenets to create and tell stories. This, of course, is at the core of rediscovery - learning from the unknown-known and of course fiction, both helping us make sense of what it means to be human, how to plan and live our lives and to find some purpose in our journey.

In this work the friction created by letting ideas and artifacts evolve in specific materials and media (in this project mostly between written conceptual parts [website] and 3d created/generated environments) and in a transdisciplinary team of people set us off for a complex challenge even where to start, how our findings should/could be communicated, how to both ground them in theory and find a way to visually communicate them.

Working with 3d worlds based on a variety of historical documents, interpretations as a source of communication made us explore this area by complex connections through iteration between architectural intentions/typologies, historical forces, digitally generated expressions, physical objects and script/code writing (shaders and camera movements). The key here for us was the ability to work in ambiguity – to explore different possibilities with each ideal space recreated without too early jumping to conclusions nor on how to represent the space nor on how to move through it. Often it means undoing the connections between things, signs, and images which constitutes what we intend as reality. Our design material here, even though being historical also

act as generators when they generate new and unforeseen processes, which extend into new and likewise unforeseen contexts. Where all of the ideal space team through our work process can disseminate their knowledge into the 3d worlds at first and then later into the exhibition design, that in itself is a gestalt of its own. This way of working created over its execution the time to add idea upon idea, returning in several steps to the same subject, and allowing each of the ideal spaces to in themselves through our reconstruction to be a space to think within, digest and re-work what has been the object of investigation. Here it is a matter of adding knowledge, linking what we already know, and detect insights in a sequence with other knowledge.

With the idea of Gestalt as a form of inquiry and a process resulting in some knowledge acquired during this process (the 3d worlds 1–7). This process can thus be viewed as a process of knowledge acquisition or learning from the previously unknown-known. The knowledge acquired pertains not only to the particular domain of the 3d worlds but to the gestalt process itself. That is, we acquire knowledge on how to evolve both 3d worlds, possible areas of user interaction and design process.

The exhibition space as a whole, in the final form, consists of three interrelated parts and took about 9 months to realize: The entire exhibition is a system of three related parts: Wall 1 the cave, Wall 2 interactive worlds, and wall 3 the world disk. As a whole, the system is in itself is a gestalt that constantly evolves around the ideal spaces shown on wall one, the user interaction that takes part in wall 2 and the traces of interaction that is revealed on the worlddisc on wall three.

1.3 Wall 1 Cave

The sequence of ideal spaces in history. On the left wing of the cave, the historical sequence of spaces is listed. Historically, the sequence starts with The Cathedral and ends with The Favela (Fig. 2).

Input: Reconstructions of seven ideal spaces (worlds: http://idealspaces.org)
Output: Architectural types, used as building blocks/devices in wall 2

A sequence of worlds the visitor can enter, to experience and to imagine ideal spaces; shown as utopian but inhabitable spaces, built or conceptualized in the course of history. The worlds we show cover the entire span from conceptualized up to realized versions. They are presented in a cave so that the visitor has the opportunity to really stand in the midst of these worlds, having time and the possibility to experience them; and through that, gain an impression of those worlds very aim: to be an ideal space. The sequence starts with the cathedral, a space that is symbolic but points to a final, real space to achieve in a future time, a final paradise to come. It continues with worlds conceptualized, such as da Vinci's ideal city, a first functional city in the Renaissance; as Cité Industrielle, a space of liberation through mechanics; as Motopia or Babel IID, spaces of utopian perfection for a perfect life in the age of modernity. As worlds built but still ideal such as Karlsruhe, a combination of ideal space, domination and civil freedom. It ends with the Favela, a decisive counterpoint to all the constructions shown so far. A favela seems to be the very opposite to any 'ideal' space; but here, in contrary to all the spaces shown before, the inhabitants have the possibility to actively participate in shaping their own environment. It is a one not pre-given any

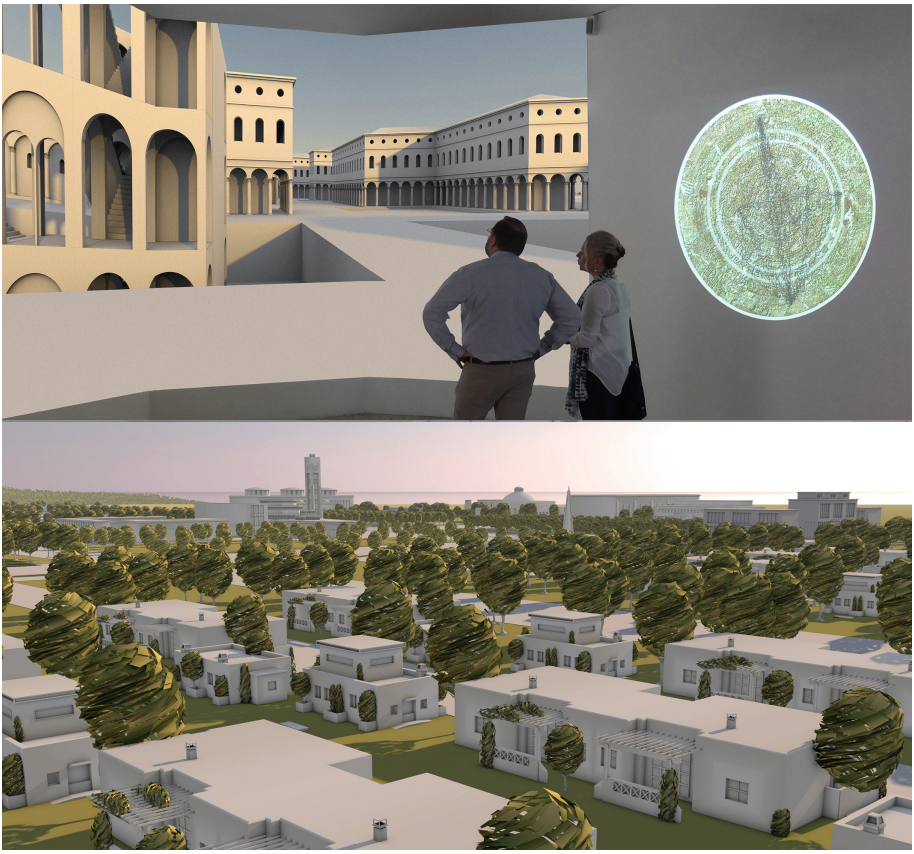

Fig. 2. Showing wall 1 the cave, Da Vinci Milano sequence and an image from the animated sequence of the Cité Industrielle.

longer as a perfect space made by some God-like demiurges, fixed for all eternity. Instead, it is a space that has the chance to unfold; molded by those who have to live on its terms. Can such a space of co-creation also turn into an ideal space?

1.4 Wall 2 Interactive Worlds

In a possible dialogue with others, you are invited to generate your common space. You mold them with your hands, together with other visitors, on a table. You see your results on the screen above the table. When your world is finished, push the switch to store them. You see a number where you can find your world in our archive, at www.idealspaces.org (Fig. 3).

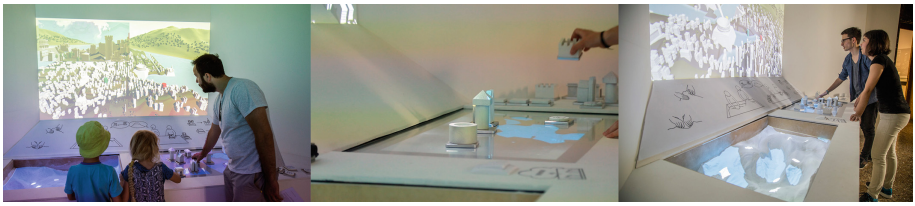

Fig. 3. Images showing wall 2 interactive worlds

The left side of the table: sand, to mold the terrain of your space imagined. You can directly see the results on the screen above the table.

The right side of the table: Architectural objects to place and move on the table. And flat discs serving as a brush to mold out areas of a certain type (indicated by icons placed on top of them).

Input: Architectural types represented by Architectural objects from the Cave (concepts).
Output: Data of generated worlds (the sequence of how the Architectural objects shaped the world built by the visitor), as input for the World Disc.
Output: Architectural types (as physical representations), used as building blocks/devices in wall two.

The created worlds are composed of different physical elements such as sand and building blocks/devices that generate, in their different combinations, a virtual space projected in front of the visitors. The sand is for forming the terrain, as one element of an ideal space. The building devices, symbolizing certain kinds of architecture, are either mapped directly into the virtual world as landmarks, such as temples, towers, etc.; or represent a local change in the virtual world, such as an area or streets. For the visitors molding the worlds with their own hands, a direct haptic experience becomes possible. By seeing the influence in real time on the spatial gestalt as a visual representation, the space built up appears as a totality. By that, a basic anthropological experience combines with imagination in direct visibility: The ideal space becomes a space immediately experienced, in the making of one's own world. Architectural types derived from the historical sequence of the worlds shown in the cave are serving as input for the building devices offered to the visitors. In this way, the two parts of the exhibition become connected.

1.5 Wall 3 World Disc

As a cosmic symbol of dynamic change, it is a cosmic symbol for the spaces appearing here: of the historical spaces shown and the ones generated by the visitors. Highlighted rings appearing on disc mark the epoch where the respective ideal space is located, in terms of history. In the center, the rings begin with the epoch of the cathedral and ends at the outward rim with the favela Black lines on the disk: evolving and changing constantly, showing the frequency of related objects used in Interactive Worlds The disc is dynamic, changing in appearance over the entire duration of exhibition (Fig. 4).

Fig. 4. Wall 3 world disc. Showing recorded user interaction (left), the world disc image that consists of a hand painted map based on historical references (middle) and to the right the world disc with overlay of user interaction and which world is shown on wall 1

Input: Images from spaces and buildings of the epochs shown; data of the worlds generated by the visitors, from Interactive Worlds
Output: Data for scientific evaluation

Here, the results of those spaces generated by the visitors transform into a real historical process reflected in changes taking place on that cosmic disk during the exhibition's entire duration. It is composed of different rings aligned in a concentric order, each ring representing a century, starting with that of the cathedral in the disc's center, and ending with that of the favela at its outer rim. Each ring is composed of images of typical architecture belonging to the respective century, and those centuries where our worlds in the cave come from appear larger. Thus, the visitor can see where the respective world is located, inside the entire historical context. The disk receives input from the worlds created by the visitors and it translates these inputs into changes taking place on the disk itself. Through that, it reflects what is going on in the process of the visitors' world making, and it does so constantly: each day, the disk will look different, as does a real world formed by human beings. The disk thus connects with the ideal spaces shown in the cave, as well as with the spaces made by the visitors.

In these ways, the three parts of the exhibition align together, to form a coherent system. Since it was our original intention to conceive the topic of ideal spaces as a whole, the single parts of which present a unity, of both experience and of making.

1.6 Lessons Learned

Through this work, we have learned that configuring space through user interaction is not easy. Early in our development, there was a conflict between if a visitor should layout architectural objects, in which the visitor recombines already developed building blocks into city environments- a lego like an approach, based on distributing predefined objects in space. Or if the visitor through a more symbolic system would be able to configure a city space through a set of symbolic rules that could be combined in different ways - a design fiction approach, based on a calculation that generates environments. We ended up with a system in which visitors could create spaces, by connecting different topologies (symbolic objects) extracted from our seven worlds

shown on wall 1 and as a series of predefined developed architectural shapes. Even though there was a lot of technological freedom for the user in our designed system (and we could record and store how worlds was created), it, unfortunately, locked the visitors into a very limited process for exploring and expressing spatial ideas - spaces could be laid out but not configured, the user could arrange pre-given architectural objects but was not able to change the ideas and configuration of those objects or the environment - which in the end created spaces that were too similar to each other. Looking back we were not clear on what level of abstraction we wanted to involve the visitors on and what symbolic objects could be used for such explorations.

1.7 Future Work

For our next project, we have chosen to approach the visitor how they can configure and create their own worlds a bit differently. This will be done through navigation and through a series of choices that the visitor constantly has to do navigating the space of our world disc in VR - experience and creating at the same time as they go along and in the choices they make a long that way, when and where they make their transition between different points in time and space - creating their own historical exploration of real and fictitious spaces and that in the end also generate a space based on their choices taking part of this journey. Which is an important part of our future work: to conceive process as gestalt, as an order emerging out from the interaction.

1.8 Conclusion

Through our work, we try to emphasize the importance of a multiperspective view of space and its entities based on the idea to transcend merely scientific or artistic approaches into a more comprehensive and immediate approach and working practice. It is about symbolic objects and entireties (the issue of gestalt), not about mere construction and functions. This can help to re-detect the world and its entities in all the richness and variety they actually have while at the same time transferring new and fruitful knowledge and methodology back to the disciplines. Where we through user interaction try to have them conceiving wholes instead of fragments as a way to re-detect the world could gain new understanding in the domains of science, humanities, and art and therefore increase their explanatory potentials within their already existing domains.

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