BMWART**CLUB**
— PRZYSZŁOŚĆ TO SZTUKA

CURATOR'S TEXT
Michael Hansmeyer 'Digital Grotesque'
Stach Szabłowski, curator of *BMW Art Club. The future is art*

The work of Michael Hansmeyer plays out at the intersection of architecture, programming, machine learning and visual arts. His artistic practice is a kind of laboratory for experimenting with the new possibilities that the development of intelligent technologies opens up for us in the fields of shaping space as well as creating beauty. The next stage of this research will be presented at Nowy Teatr as the latest edition of the *BMW Art Club project. The future is art* project.

BMW Art Club. The Future is Art is a programme of the BMW brand supporting innovative artistic projects in cooperation with leading cultural institutions. It is devoted in particular to those areas of culture where new ideas, responses to the challenges of the present and visions of the future emerge at the interface between art and technology. For decades, BMW has been an active patron of the arts and a partner of artists in the belief that imagination and creativity are the driving force behind development in all areas of life.

Michael Hansmeyer's work fits perfectly with the ideas behind the creation of *BMW Art Club*. In this year's edition, the artist will present the multimedia installation 'Digital Grotesque' and an architectural object created using innovative, proprietary algorithms that support the design process.

Michael Hansmeyer introduces himself as the creator of 'computational architecture'. Born in 1973, the artist belongs to a generation that grew up with the rapid development of digital technology and the popularisation of computer techniques. Hansmeyer combined his interests in the arts and humanities with the development of his programming and coding skills. In the 1990s, he used them on Wall Street to develop algorithms supporting transactions conducted by large financial institutions.

"It was exciting, especially at the beginning, but in the long run also frustrating in its own way," says Hansmeyer. "Big financial transactions are pure abstraction. 5,000 people enter the office building in the morning and leave in the evening; all day long they are engaged in value creation, but nothing material results directly from their work. All you can see are abstractions, the numbers on the screen. I longed for a more tangible result of my work and began to study architecture at Columbia University.

Hansmeyer knows the world of contemporary architecture very well. He gained experience in the studios of architects such as Arata Isozaki and the Herzog & de Meuron studio – charismatic authors of iconic buildings. However, while admiring their creativity and studying their ways of working, Hansmeyer set himself a different path. He was leaning towards experimental architecture. He was interested in how developments in technology were redefining before our very eyes what was possible in architecture and, above all, what was conceivable.

"Historical advances in technology have always worked in two dimensions," says Hansmeyer. "It allowed us to look at innovative inventions through the lens of existing archetypes, while at the same time reinvigorating existing forms of art with new aesthetic possibilities. This is particularly evident in architecture, which is closely linked to engineering.

Architects always use the most advanced technologies available at the time in which they operate. At the same time, the introduction of each technological innovation not only causes quantitative changes, but also transforms the way architecture is practised. Concrete, steel structures, plastics – each of these innovations has transformed architecture, expanding the imagination of designers and posing questions that also occupy me: what new creative freedoms have we gained? What are the things that were previously unattainable and became possible thanks to innovation?"

Hansmeyer found the answer to this question in coding and creating proprietary algorithms supporting design. The algorithms he writes allow for the creation of forms with a complexity that is unattainable for a human being, or even for a whole team of humans.

Architecture, both historically and today, is always stretched between two poles. One is determined by function, defining the social and political dimensions of the field, as well as its economic conditions. The other pole is the form. Hansmeyer decided to focus primarily on the latter.

"In my research, I wanted to liberate myself from the issue of function, to deal with forms and structures in a way that is independent of what they are meant to do," says the artist. "I was interested in the question: what hitherto unknown forms are we able to create? The issue here is not so much what we consider necessary or essential, but what is possible – how far we can shift the boundaries in design by employing new tools, abstracting during experiments not only from function, but even from limitations dictated by currently available materials or building technologies."

Such thinking brings Hansmeyer closer to the attitude that is characteristic of visual artists, in which form as well as aesthetics are autonomous values that exist separately from practical applications. The art world, by the way, greeted Hansmeyer's proposal enthusiastically; many of his most important projects were presented and discussed specifically by art institutions. When asked whether this makes him more of a sculptor than an architect, Hansmeyer replies that he does not feel the need to definitively separate these fields.

"My practice takes place at the intersection of different disciplines," he says. "It arouses the interest of the art crowd, but also of mathematicians and physicists. Architecture, on the other hand, always has a sculptural and, of course, aesthetic dimension. However, my point of reference and horizon of aspiration is still architecture, thinking in terms of shaping space."

An example of a space that would have been impossible to design without the use of algorithms and that completely absorbs the viewer is 'Digital Grotesque', one of Michael Hansmeyer's iconic projects, whose latest première edition was created especially for the *BMW Art Club. The Future is Art* and that will soon be exhibited at Nowy Teatr.

The first work in the 'Digital Grotesque' series was created in 2013 for the FRAC Centre in Orléans and was added to the institution's collection. It took the form of an immersive architectural installation – an artificial grotto with an extraordinary degree of complexity of the structures comprising it.

When Hansmeyer began experimenting with designs created with algorithms, the possibilities for materialising existing forms in virtual space were very limited. However, advances in 3D printing technology soon began to catch up with the artist's vision. This vision took on a spectacular physical shape as early as 2010 in the project called 'Subdivided Columns' presented at the Gwangju Biennale in Korea. It was a forest of 3D printed, arabesque pillars, created by algorithmically transforming a classical Doric column.

In 'Digital Grotesque', the artist goes even further, no longer generating individual objects but an integral, computer-generated space.

"Our aim is to create an architecture that escapes classification and reductionism," wrote Hansmeyer commenting on 'Digital Grotesque'. "We explore unprecedented levels of resolution and topological complexity in architecture, developing compositional strategies based on geometric processes. In the 'Digital Grotesque' project, we use these algorithms to create a form that appears simultaneously synthetic and organic. In this way, the design process strikes a delicate balance between the expected and the unexpected, between control and its relinquishment and welcoming what is determined but unpredictable."

The second edition of 'Digital Grotesque' was commissioned by the Centre Pompidou in Paris and was also added to the collection of this prestigious art centre. The Warsaw edition, presented in the form of a multimedia projection surrounding the viewer from all sides, allows not only to immerse oneself in the world of computer-generated forms, but also to follow the process of their creation. The counterpoint to the multimedia installation will be an ornamental column designed especially for the Nowy Teatr space, sculpted in artificial sandstone by 3D printers of the latest generation. This physical object will allow viewers to – literally – touch the work of algorithms created by Hansmeyer.

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The forms used by Hansmeyer, such as the column or the grotto, allude to archetypes of architectural history, while at the same time referring us back to the notion of nature. The classical Doric column, which the artist transforms using algorithms, was derived by ancient architects from observations of nature. The *grotto*, on the other hand, is a theme favoured by mannerists of the late Renaissance, who created artificial caves in an attempt to emulate the unpredictable beauty of geological formations.

When creating his algorithms, Michael Hansmeyer also draws inspiration from nature. In this case, however, it is not so much a matter of imitating or representing shapes occurring in nature, but of engaging in design processes modelled on those responsible for the formation of geological and organic forms, such as crystals, plants, or entire assemblies of them, such as forests.

"Reconstructing processes that occur in nature smacks of playing God," says Hansmeyer. "These processes are a kind of algorithms. At the same time, they are incomparably more complex than anything we are able to achieve today with even the most powerful computers. However, we can get close to the way nature works and be inspired by the procedures it uses."

To illustrate the nature of the relationship between the designer and the algorithms that support him, Hansmeyer uses the metaphor of a garden. In this model of work, the creator outlines the framework of the project without specifying its details. In order to turn his idea into reality, he initiates the processes of the formation of forms, the development of which he then oversees in a similar way to how a gardener nurtures the growth of the plants he or she planted. And, as in the case of a garden, we are no longer dealing with individual forms, but with whole families and species that can be mixed and crossed with each other.

The results of such crossings result in structures of a spectacularly ornamental character.

"At the beginning of the 20th century, at the dawn of modernism, one of its founding fathers, Adolf Loos, uttered the famous phrase 'Ornament is a crime'," says Hansmeyer "This maxim is still repeated today to students of architecture. In the modernist view, construction and structure represent truth; ornament covers it up. It is also an attribute of the privileged classes, because historically the creation and especially the industrial prefabrication of simple architectural elements was simply cheaper than the production of ornamental structures. What I am proposing, however, is a change in the way we think about ornament, especially as for new technologies, such as 3D printers, creating hundreds of identical modules is the same in economic terms as generating hundreds of elements, each of which will be different, unique. I think we're all tired of the repetitive, anonymous and monotonous architecture that surrounds us."

Hansmeyer notes that ornamentation is an indelible element of civilization, it occurs in every culture, but also in nature, which is never monotonous. Here we come to the question of beauty, which has become a kind of taboo in modern Western culture, while for Hansmeyer it remains an important point of reference in architectural practice. In the history of art, and especially architecture, there has been no shortage of attempts to codify beauty, or even to parametrise it, to translate it into universal, preferably mathematical formulas. In this area too, intelligent algorithms are now coming to the designer's aid. Hansmeyer introduces elements of machine learning into the processes he codes. Based on studies of the reactions of people reactions to the designs shown to them, computers learn which forms audiences respond to more vividly, which ones engage their attention more. In this way, they are able to generate forms that we find more interesting and ultimately also beautiful.

Does this mean that artificial intelligence is taking over from us a competence hitherto considered the most human, even fundamental to the definition of humanity – the ability to create art and beauty?

"Artificial intelligence is a very broad concept," Hansmeyer replies, "and it is understood in very different ways. Our natural tendency to personify artificial intelligence, imagining it as an autonomous being that, for example, replaces the artist in creating art, does not help in its understanding. Meanwhile, algorithms are still written by humans. I see it as an intelligent technology that is developing and in the process of being integrated into various areas of life. It is a tool, but one that, in partnership with humans, is able to help them understand themselves, recognize their capabilities and even come closer to grasping the nature of such a fleeting concept as beauty."

Stach Szabłowski