

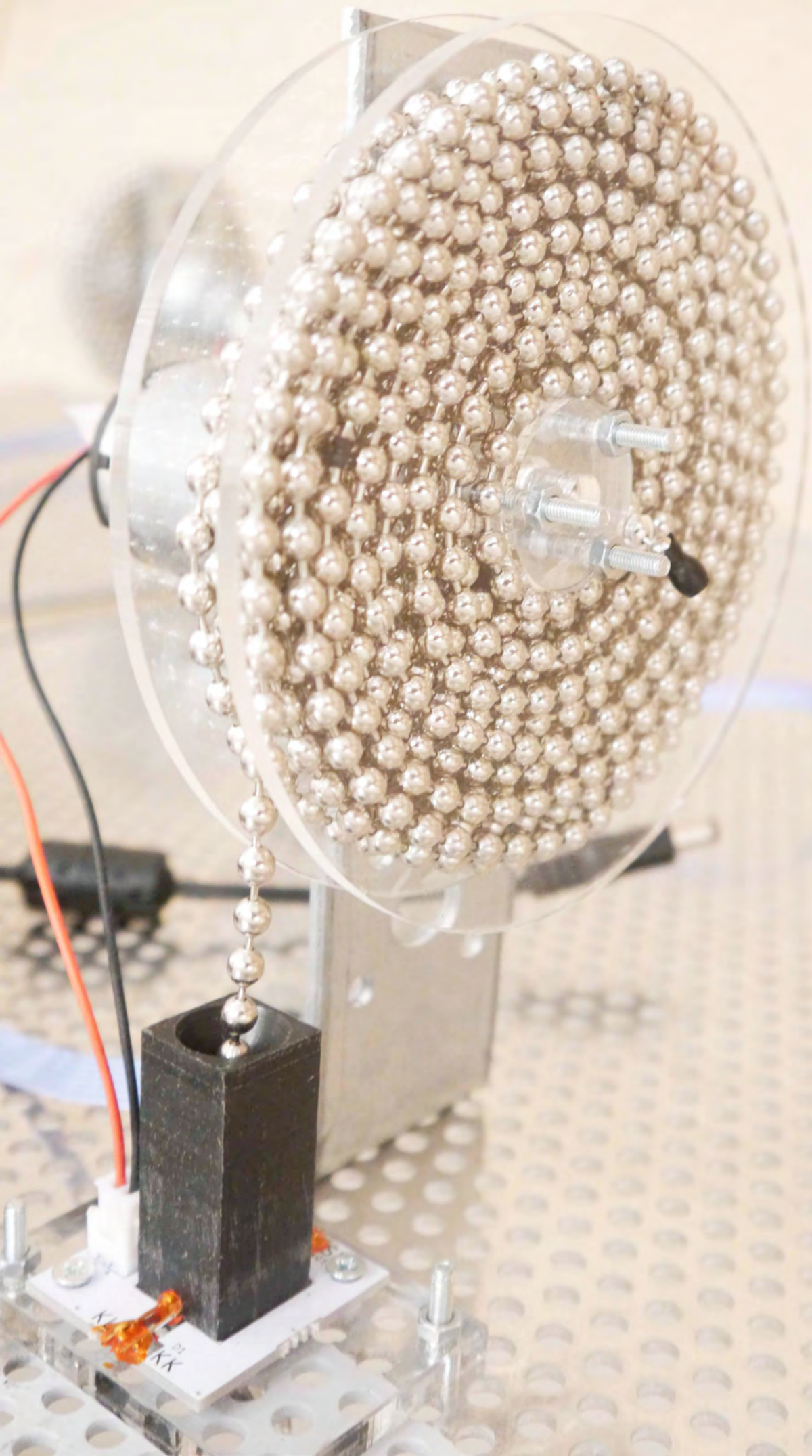
Image

Knowledge

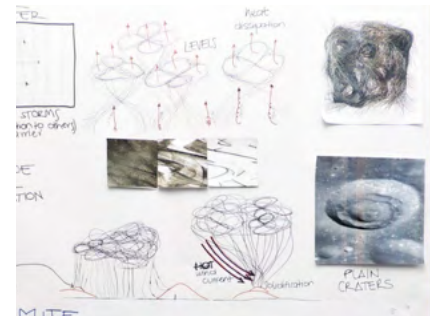
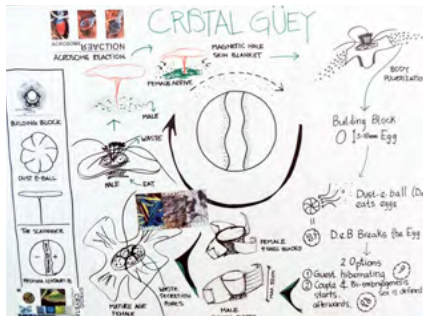
Gestaltung

Newsletter December 2016 #12

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Editorial



International students on the master's in Open Design are starting their third semester in Berlin.

Photos: Claudia Lamas Cornejo | Image Knowledge Gestaltung 2016

Dear Readers,

What does a President Trump mean for science and for science and research communication? For one thing, it indicates that wide sections of the US population do not take climate change seriously. This is also a problem for science communication. Reports on the global temperature mean value curves had the consequence here in Germany, too, that some journalists wrote about a »global warming hiatus« in 2015 without making a distinction between a »trend« and »fluctuations«. This is how mistaken beliefs arise.

My colleagues in science and science and research communication reject Trump just as vehemently as they do Brexit, and their agreement is just as strong on both issues. Does this mean that science is becoming removed from the mainstream of society? The rhetoric on Brexit and during the US presidential election was very similar: experts? – Arrogant know-alls! This kind of communication and the associated distrust have a toxic effect on the role of science and research in society. If a society has decided that it does not need experts and chooses system outsiders instead, in politics and elsewhere, then science – by very definition a pool of experts – might as well pack up and go home.

What's the solution? This question is being raised in many fields.

The result of the election could be the catalyst that inspires scientists and researchers to be even more transparent: there are some promising approaches here, such as the *Open Access* movement – you can read a report on this by the Editorial Coordination team and Alexander Struck from page 18.

But transparency will achieve nothing if scientists and researchers keep to themselves. This is why science and

research communication must present scientists as people, alongside their research interests. This is something that our free exhibition *+ultra. gestaltung creates knowledge* has been doing for two months in numerous workshops, talks and guided tours led by those involved in science and research – and followed with great interest by the public (pages 4–13).

Entering into discussions with people whom you would not otherwise speak with – the Cluster projects are constantly developing new formats to encourage this. Take the collaboration between the Anthropocene Kitchen and the Humanities Lab, which are developing a teachers' handout for the science comic for use in a school context alongside the kitchen comic (page 15), or the game developed by *gamelab.berlin* that enables visitors to play their way through the exhibition *+ultra* (page 14).

There are now more than >>30 videos from the *Interdisciplinary Laboratory*, and they are reaching a global audience on social media and addressing them as equals. The audience can directly comment on what they see and raise questions.

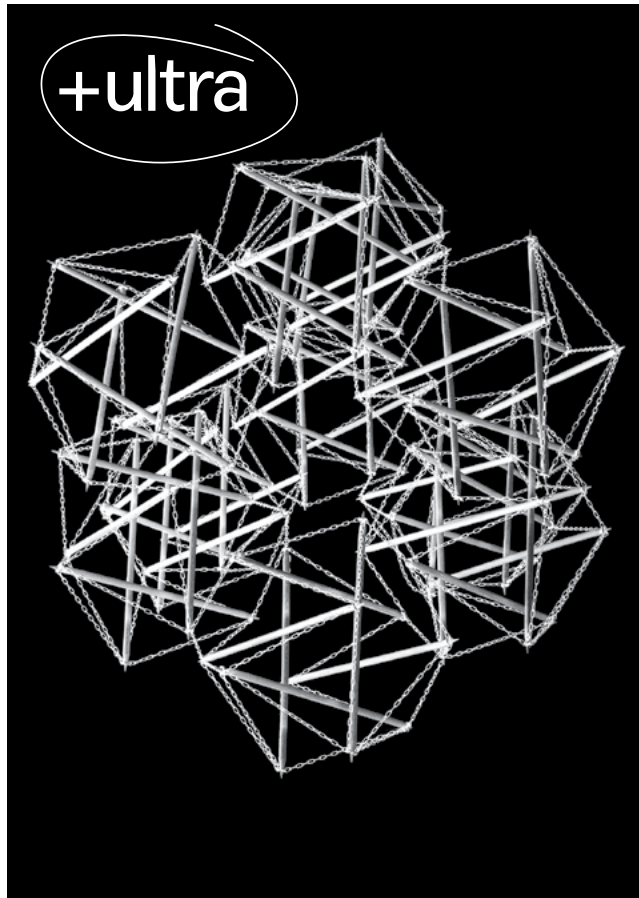
If you look at the people who voted for Trump, education is one of the important criteria. This is why getting involved in efforts to promote a broad, interdisciplinary education is another important step. Our master's in Open Design is putting this to the test together with its international students, who are now starting their second year of studies in Berlin – see the photo above. Stronger together!

Enjoy reading *Newsletter #12!*



Claudia Lamas Cornejo
Editor in Chief & Head of Public Relations

Current news



+ultra gestaltung schafft wissen

Ausstellung des Exzellenzclusters
»Bild Wissen Gestaltung.
Ein Interdisziplinäres Labor«
Humboldt-Universität zu Berlin

30.9.2016–8.1.2017
Martin-Gropius-Bau



Gefördert durch die
DFG



David Georges Emmerich, *Structure autotendante*, o.D.,
Foto: François Laugnie / Collection FRAC Centre, Orléans

Niederkirchnerstraße 7, 10963 Berlin, Mi–Mo 10–19 Uhr. Di geschlossen, Eintritt frei

A technological revolution is under way. Extending beyond science, it is fundamentally changing how we previously perceived the world and what we know about it. Tools, architectures, models and images have always been designed as means to understand the world and the order by which it operates. They are not excluded from these far-reaching digital technology processes that now determine our actions, guide our decisions, and shape and influence our knowledge of the physical and virtual worlds. The exhibition *+ultra. gestaltung creates knowledge* shows how human and technological forces are interconnected, and what challenges emerge from these technological processes for real design in the present day. From the hand axe to 3D-printed or-

gans, from biomimetic materials to feeling prostheses – the exhibition uses models and tools, images and expansive installations to present case studies of pioneering design processes in the natural sciences, the humanities, the engineering sciences and creative disciplines.

How is design understood in science and research, and how does it influence the world as it is perceived by people, animals, a nation or an ecosystem? What kind of strategically planned or random constellations are interconnected and enable innovations to occur?

How can we develop solutions and answers to current challenges, such as imaging processes in medicine and warfare?

In ten chapters, the exhibition *+ultra. gestaltung creates knowledge* presents current and historical examples of design and research, caught between the opposing forces of nature and culture, and crossing the borders into each other's territories.

An exhibition by the Excellence Cluster Image Knowledge Gestaltung. *An Interdisciplinary Laboratory* at the Humboldt-Universität zu Berlin.

Curator: Dr. Nikola Doll in collaboration with Katharina Lee Chichester
Supported by the Deutsche Forschungsgemeinschaft (DFG) and Stiftung Deutsche Klassenlotterie Berlin (DKLB).

+ultra. gestaltung creates knowledge exhibition opening



Steffen Krach, State Secretary for Science, and Gereon Sievernich, Director of the Martin-Gropius-Bau Berlin, greeted guests at the exhibition *+ultra. gestaltung creates knowledge*.



Wolfgang Schäffner and Sabine Kunst, President of the Humboldt-Universität zu Berlin, emphasised the importance of interdisciplinary research projects for Berlin as a centre for science and research.



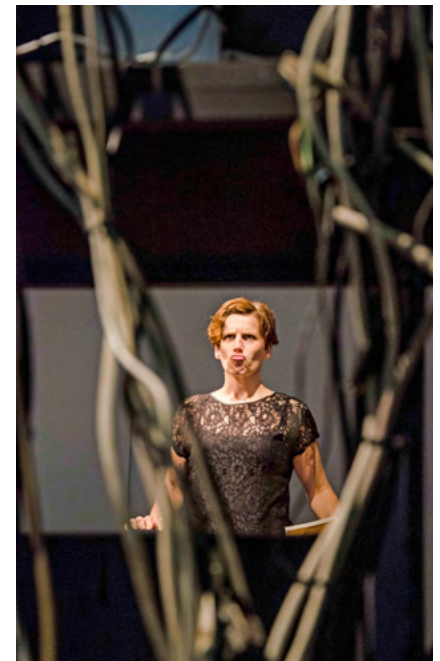
Impressions from the exhibition

Photos: Jan Konitzki 2016 | Image Knowledge Gestaltung

Nikola Doll introduced the themes explored in the exhibition *+ultra. gestaltung creates knowledge*. Horst Bredekamp praised the exhibition as an experiment and signpost for the direction of the future research programme at the Berlin Humboldt Forum and described the hand axe as one of the exhibition's highlights.



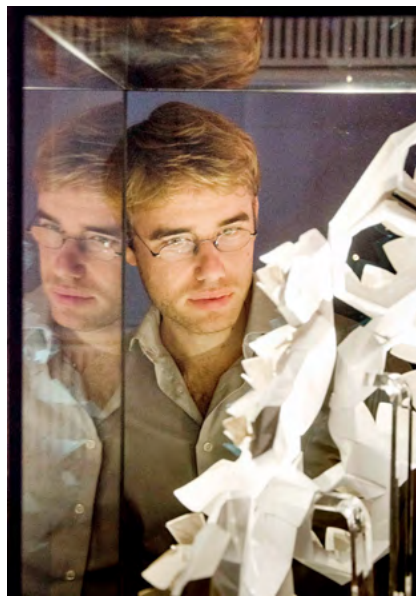
The Space Machine in *+ultra. gestaltung creates knowledge* is a kinetic installation that makes it possible to create spatial forms in real space with dynamic vertical lines. Visitors move within and through the installation, experience it and can actively engage with it. Hanging overhead, the machine consists of 384 small motors and coils. It is able to precisely control the height of the same number of ball chains. Hung in a loose grid over an area measuring 40 square metres, it creates a field of vertical lines. These lines can be any height and grouped in any density and in turn can create spatial enclosures and openings. Photos: Jan Konitzki | Image Knowledge Gestaltung 2016

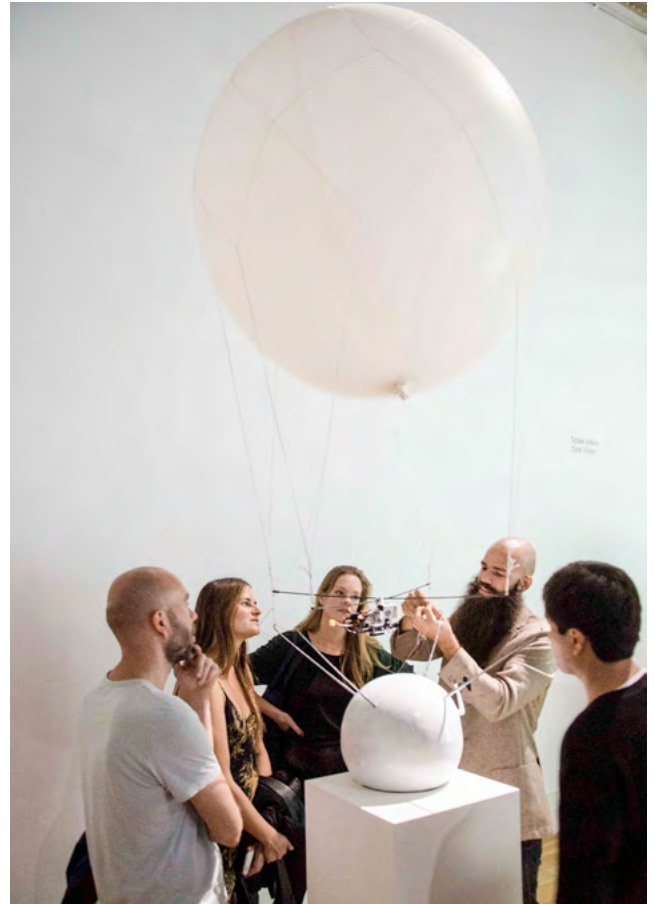


The face is considered the site of individual expression and personal characteristics. Today digital algorithms not only make automatic facial recognition possible; they can also identify feelings. With the aid of computer technology, the parameters for analysing and training human facial expressions are being refined. Established investigative methods such as the Facial Action Coding System (FACS) can be replaced with alternative codings based on individual facial expressions. Martin Grewe is developing a database of this kind. The data collected on human faces and the flexing of their facial muscles when producing expressions are used in experimental research on facial expressions. The findings can be applied in treatment or surgery. Photos: Jan Konitzki | Image Knowledge Gestaltung 2016



Images today have become tools for interaction: image operations have real effects on a reality beyond the image, for instance, in drone warfare or robot-assisted surgery. Photos: Jan Konitzki | Image Knowledge Gestaltung 2016





The Active Space provides a venue for real-life design processes. Permanent and temporary presentations of works show how design and research are interwoven. Designers' knowledge and the creative potential in science and research are presented in interdisciplinary workshops, talks and discussion forums that do not shy away from controversy. Photos: Jan Konitzki | Image Knowledge Gestaltung 2016



The *Top Shot Helmet* changes how spatial perception is viewed. Wearers see themselves from above and have to orientate themselves in space from this perspective. By moving their head, they can rotate and tilt the balloon and camera. The helmet sheds light on our relationship with perception and knowledge, and with reality and illusion. Photos: Jan Konitzki | Image Knowledge Gestaltung 2016

Smart Housing



+ultra
gestaltung
schafft
wissen

30.9.16–8.1.17

Martin-Gropius-Bau Berlin

Veranstalter



Gefördert durch die



Partner



Berliner Festspiele
Martin-Gropius-Bau



Martin-Gropius-Bau, Niederkirchnerstraße 7, 10963 Berlin,
Mi – Mo, 10 – 19 Uhr, Di geschlossen, Feiertage geöffnet, 24.12., 31.12. geschlossen
U+S Potsdamer Platz, S Anhalter Bahnhof, Bus M29 und M41

Teilförderung



Medienpartner



Eintritt frei

+ultra. gestaltung creates knowledge

Homo faber – Natura naturans

The exhibition's first room unpacks the concept of design, which is often associated with human creativity and a faculty ascribed to the creative disciplines (the arts, design and architecture) in particular. But a creative tendency is also inherent in the physical laws of matter and results in the formation of rule-based structures. The same applies to the principles of evolution, which produce the diversity of forms, symmetries and imitations, as well as to animals that make tools for particular purposes. Yet there are unique features of human design: form and material are never purely functional – they always have a meaning. Things create identity within a culture; they stabilise or deconstruct hierarchies and express invisible relationships. But random forms – such as Jan Schmidt's mineral licks or flints in a grid – can also please the eye of the human viewer, arouse associations or prompt ideas.

The room *Homo faber – Natura naturans* begins with several series of tools. Tools are among the earliest forms of human creative expression and continue to drive social change until this day. The series of hand axes alone raises fundamental questions about human design: to what extent did the handing down of a production technique that remained largely consistent over millions of years lend a sense of solidarity to early human societies, possibly across many generations? Could the geometric process that it required train thinking? Is their form purely functional, or is it also grounded in aesthetics – and when did a sense of beauty enter the equation?

Tools are formed by evolution, animals and human beings, but they also form their users. The shape and materiality of a tool reveals to anyone who picks it up how to use it. It suggests a series of actions to which it is especially suited. Using tools changes the body and thinking; tools have long since become an extension of the human body and its intellect.

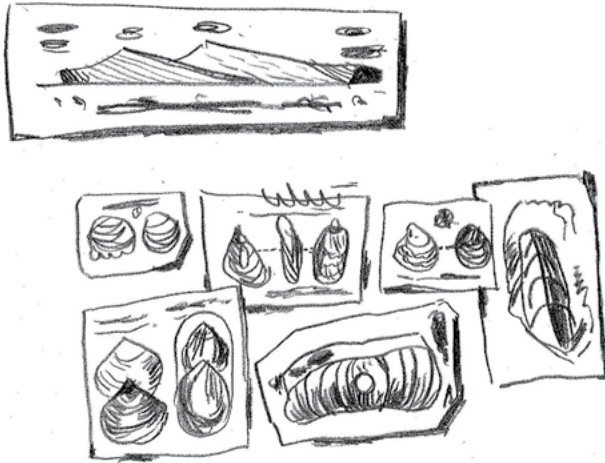


Evolutionary selection has produced an impressive diversity of forms and functions in crab claws. They are used for movement and building shelters, but also to attack and defend, for food gathering, as sensory organs and in mating. Going beyond their functional character, they can also assume a symbolic meaning: apparently far removed from any immediate purpose, the thick, bristly mats on the claws of male mitten crabs are probably the result of the females' preference for this characteristic when choosing a mate.

Text & image: +ultra. gestaltung creates knowledge. Exhibition leaflet.

Nikola Doll
Curator +ultra. gestaltung creates knowledge

Nature as grammar



Karl Marx: *Excerpts on Geology*

Karl Marx's *Excerpts on Geology, Mineralogy and Agricultural Chemistry* are amongst his last writings. They sum up contemporary developments in the natural sciences, especially those relating to the history of the earth. With Darwin's theory of evolution, the idea had become established that nature is in constant transformation – in some cases, revolutionary transformation. This had been proved by fossils and seemed to be a general law that also applied to human beings. For Marx, nature was the first prerequisite for the history of humanity – its utilisation determines social productivity and the possibility for future revolutions.

Text & image: *+ultra. gestaltung creates knowledge*. Exhibition leaflet.

Industrialisation prompted a processual form of thinking that led to the »end of natural history« (Wolf Lepenies). From this point on, nature was no longer organised spatially, as it had been in chambers of curiosities in the early modern period, but chronologically, along an axis of development. This shifting of interest towards the process promoted new analogies between art and design on the one hand and nature on the other. While nature had been analysed since the end of the 18th century in line with the industrial logic of seriality, modularisation, optimisation and standardisation, and studies of nature had sought to uncover general principles and laws, the creative process was reinterpreted as a form of evolution and ontogenesis. The metric standard, introduced to rationalise measurement technology, and millimetre paper, first produced around 1800, enabled improvements in comparisons between research results, yet they also reinforced the tendency to geometricise and symmetrise nature.

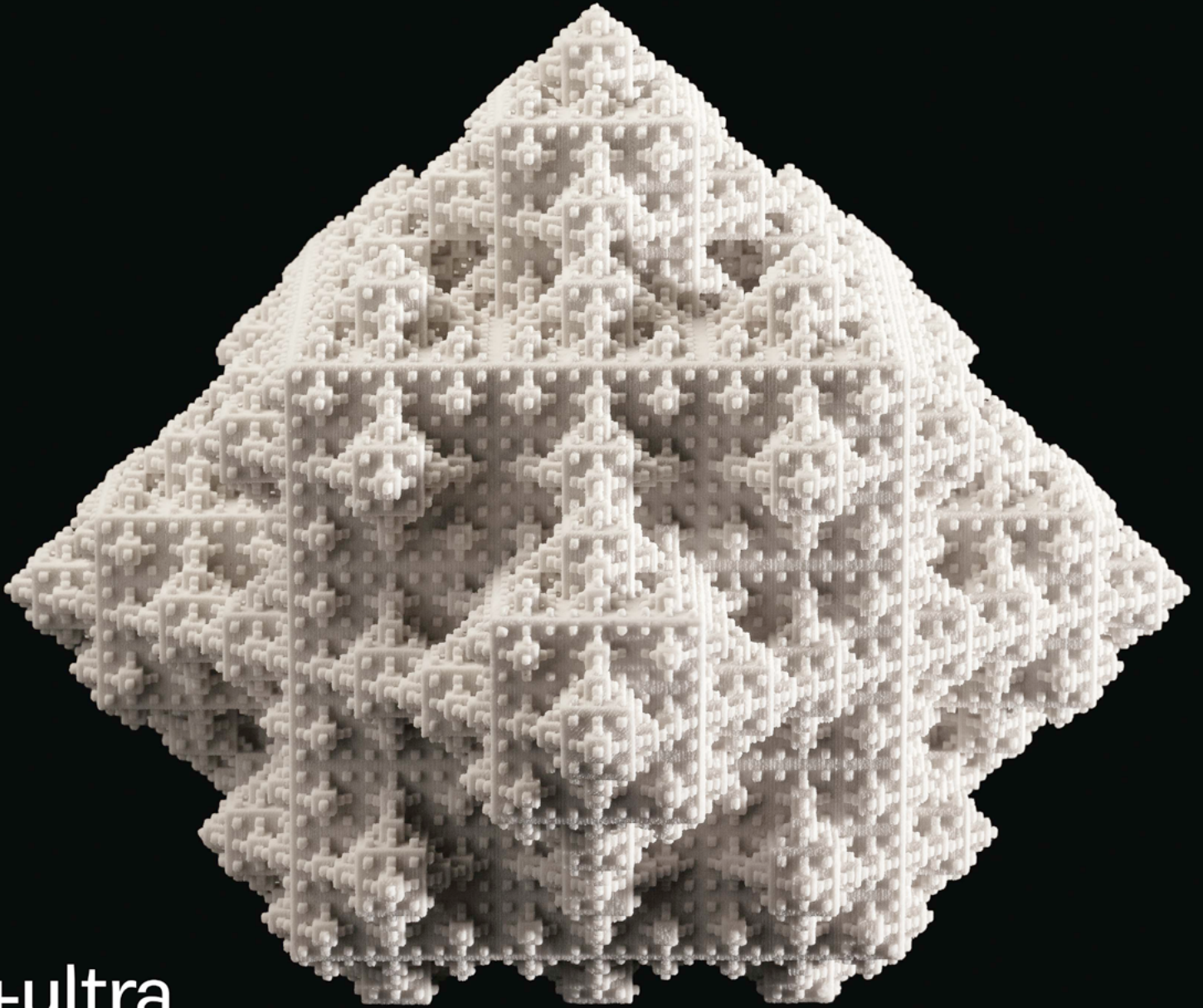
It was not just scientists who studied nature by drawing; painters and sculptors also applied their techniques and skills to deriving general laws of form and genesis from the animal, mineral and plant forms found in nature. Thanks to their training in seeing, compiling and abstracting, many believed they were able to directly access the superordinate type. They hoped to apply the laws they discovered to their own work so as to create a new, timeless style, similar to that of antiquity.

Until this day, form-creating processes in nature, in particular ontogenesis and evolution, are used as an allegory and model for creative work. These concepts are currently all the rage in computer-aided design. Digital code is seen as a genetic code that can produce an infinite variety of related yet unique forms – in the work of Greg Lynn, Michael Hansmeyer and Dawei Yang, for example. Individuality simultaneously combined with mass production is one of the biggest innovations and promises of digital design.

Nikola Doll

Curator *+ultra. gestaltung creates knowledge*

Code



+ultra
gestaltung
schafft
wissen

30.9.16–8.1.17

Martin-Gropius-Bau Berlin

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Berliner Festspiele
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Teilförderung



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ZITTY

HIMBEER

Eintritt frei

Contributions & reports

LunchTalk report *game(+ultra)* – From science communication to science communicAction

Gehen Sie spielend durch die Ausstellung – werden Sie mit unserem *game(+ultra)* zu Forschenden! Alles was Sie benötigen ist Ihr Smartphone.

*Play your way through the exhibition – in our *game(+ultra)* you can become a researcher yourself! All you need is your smartphone.*

Leihgeräte erhalten Sie am Audioguide-Stand im Foyer. Devices at the audioguide-counter in the entrance hall.



The exhibition game for *+ultra.gestaltung creates knowledge* arose from the question of what alternative forms of communication that go beyond the established formats in a museum/exhibition/collection context could be developed from the *Interdisciplinary Laboratory*. Audio guides and guided tours are tried-and-tested methods for introducing visitors to complex themes, but they merely act as an additional passive, receptive means to present ideas to visitors. They can be contrasted with the multitude of technological devices that now exist and are used in attempts to create innovative forms of accessing the exhibition content. Yet touchscreens, augmented reality, virtual reality and projections also remain trapped in an asymmetric sender/receiver logic and are therefore often perceived as mere gimmicks. The experiment developed by *gamelab.berlin*, the Cluster exhibition team and Nolgong is entering uncharted territory in science and research communication. Bertolt Brecht wanted to break through the fourth wall of the theatre and invented a new format, »Thaeter«, in his »Lehrstücke« (learning-plays). *Following Brecht's example, game(+ultra)* is daring to take a first step in turning science and research communication into science and research communicAction.

A narrative framework designed as a dramaturgical anchor incorporates a gameplay that leads visitors to actively engage with the exhibits over the course of 60 minutes. Working alongside famous figures from science and design, visitors have to complete different missions as their

assistants. The missions underscore the themes narrated in different rooms, bringing them to life. The exhibits are described in text riddles and require careful reading – only by closely observing and comparing the exhibited artefacts can the visitor progress in the game. In this way, visitors can learn about the methods and practices used in science, research and design, even if this is in a very simplified form, and they are introduced to the minds behind scientific progress. At the same time, data is generated when visitors play the game, and this could provide insights into how they move about in the non-linear game design. The game is followed by an online questionnaire, thereby turning the game itself into a research tool. In terms of the technology required, *game(+ultra)* can be played on any Wi-Fi-enabled end device (smartphone, tablet, etc.) with an Android or iOS operating system. *game(+ultra)* is played directly in a browser on a purpose-built open network in the Martin-Gropius-Bau, meaning there is no need to download an app. Have fun playing!



Tom Lilge
gamelab.berlin

Collaboration »HUMANITIES Lab« & »The Anthropocene Kitchen«



When the comic is measured against the teaching plans for Berlin and Brandenburg, many substantive overlaps with a range of subjects taught in schools are revealed. The teachers' handout is designed to support teaching staff in working with the science comic and introducing it in school-work. Drawing: Samuel Jaramillo

The project »The Anthropocene Kitchen« has been collaborating with the »HUMANITIES Lab« for school pupils since the beginning of 2016. The lab is based in the Professional School of Education (PSE), which is a central institute of the Humboldt-Universität zu Berlin specialising in teacher training. It acts as a link between educational, school-related and instructional research and practical teacher training. It also offers trainee teachers an opportunity to engage in exchanges specific to their intended profession beyond subject boundaries.

The »HUMANITIES Lab« is led by Professor Kipf and sees itself as a schools' laboratory for the humanities that can rival the »classic« schools laboratories in the natural sciences. It brings together current issues in the humanities, in particular practical theology, classical theology and German, but also archaeology and, thanks to the involvement of »The Anthropocene Kitchen«, all the associated intersections with the diverse fields that the comic addresses – including social and cultural anthropology and environmental and nutritional science.

The collaboration is based on the science comic *Eating Anthropocene. Curd Rice, Bienenstich and a Pinch of Phosphorus – Around the World in Ten Dishes*, published by »The Anthropocene Kitchen« in June 2016. A teachers' handout

is currently being developed for the science comic. It is designed to introduce and simplify the comic for use in a classroom context. To produce the handout, a student assistant position has been created from »HUMANITIES Lab« funds to be filled with a suitable staff member with a training in didactics. In addition to this financial support, the »HUMANITIES Lab« has also supported the development of the handout in its areas of expertise with suggestions and exchanges of experiences, as well as in practical terms by organising a teachers' workshop in June 2016.

The project is very grateful for the opportunity to collaborate with the »HUMANITIES Lab«, which is an important contribution to the success of the teachers' handout for the Anthropocene comic.

[further information here >>>](#)



Marc Schleunitz
The Anthropocene Kitchen

Report *gamelab.berlin* at the Frankfurt Book Fair



gamelab.berlin presented »The Future of Reading«, a collaborative project with Merve Verlag, at the Frankfurt Book Fair.

Photos: Christian Stein | Image Knowledge Gestaltung 2016

The *gamelab.berlin* project »The Future of Reading« was presented last week at the Frankfurt Book Fair and attracted many interested visitors. The project is a collaboration between *gamelab.berlin* and the Berlin publishing house Merve that aims to explore the possibilities for reading processes and reception in virtual reality. The idea behind it is based on an everyday observation: it makes a difference whether we read in the library, in a cafe, at home, in bed, on the beach or in the park. Our environment significantly influences how we read, what we retain, the direction our associations take, and what and how we mentally link to our reading. This is why many readers have favourite places to read particular text types, which provide the right atmosphere for them. With the current generation of virtual reality headsets, it is possible to actively design this environment. As before, reading is to be the central focus, but it is a reading in which the text itself is inscribed in a virtual environment. Text in the virtual space no longer unfolds in the book but in the environment itself. It can appear high up on a nearby mountain, on a carpet on the ground in front of the reader, or peep out from behind the trunk of a nearby virtual tree. The environment initially remains in the background and merely provides the basis for the atmosphere, which is designed to enhance the mood of the text and to promote receptive behaviour. Whether

this works in practice is the project's research question. To investigate this question, a specific virtual reality experience was created and optimised for text presentation. Three Merve Verlag authors wrote exclusive texts on the theme »The Future of Reading«, which are only available to read in virtual reality (VR). Before starting, visitors at the Merve stand at the book fair could choose whether to read a text by Armen Avanesian, Ann Cotten or Stefan Heidenreich. Depending on their choice, different text landscapes were then presented. After they put on the virtual reality glasses, the VR readers initially find themselves in a luxuriously furnished library, surrounded by shelves on two floors, a gramophone and lots of books. The technology enables them to look around the space freely, to look behind or above themselves, and to perceive a consistent virtual space in which they are standing. They are greeted by Tom Lamberty, the Director of Merve. As part of the project, Lamberty had previously been three-dimensionally scanned and transported into the virtual space as a high-resolution, animated 3D model. This interweaving of virtual and physical spaces had a fascinating effect, as could be seen from visitors' reactions, especially amongst those whom Lamberty had personally greeted at the stand. At this point, VR readers are already able to follow the greeting as it is read in the form of words displayed on

the shelves. But then the roof of the library opens up, and the books free themselves from the shelves and begin to swirl around the VR reader in a swarm. The swarm then flies out of the open library roof into the outdoors, pulling over the shelves and making them come crashing down. The VR reader now finds him/herself in a vast mountain landscape. Grass sprouts from the floor of the library and grows into a meadow, and a tree raises itself behind the reader. The atmosphere has transformed itself from a closed space into a floating island of green in the midst of a bright mountain landscape. Individual leaves falling from the tree tempt some VR readers to reach out with their hands to catch them. Their gaze then pans to the first block of text hovering on the horizon. Once the VR reader has seen the text block, the software registers this and then displays the following text block, which is repositioned slightly, but still within the field of vision in the landscape. The VR reader moves from text block to text block, with his or her gaze sweeping over the landscape. As he or she reads, parts of the landscape change. For example, at appropriate points in the text, the programming code in the software itself is displayed as structures in the sky that are pulling upwards, or the sun sets. The VR reader determines the reading speed him/herself and controls progression through the text by head movements. After the selected text has been received in this way, the scenario dissolves and transforms into a preview of the possible future functions of reading in VR. Several screens appear arranged in the space; they display different texts on a topic like different tabs in a browser – but alongside and on top of each other – and can be repositioned with head movements. Finally, the VR reader finds him/herself in a text universe again in which various text planets appear, linked by pulsating lines of light. This universe is designed to highlight the opportunities that interactive, parallel and algorithmically enhanced reading presents.

Depending on the individual's reading speed, the whole VR experience lasts between three and four minutes. It attracted enthusiastic responses from many of the VR readers at the fair. After the experience, most of them spoke to the team about the possibilities and limits of this kind of reading, and discussed how we could improve and expand the software. For many of them, experiencing the possibilities of VR clearly showed that it offers the potential for reading experiences that cannot be placed in the same category as a book or e-book or even an audiobook or film adaptation, and hence can present an alternative to complement the established formats. They saw opportunities for improvement primarily in the contrast and text layout, but also in a more subdued landscape design. It was also

suggested that, in future, writers should participate in the design of the changing landscapes, thereby making them a genuine part of their texts, and that teaching content and theoretical texts could be illustrated with appropriate objects and presented in a more visual form to improve understanding and recall. But for many, it was important to be able to choose the landscape freely in line with their personal preferences and, of course, to have an extensive choice of texts or, better still, the option to read any text that they had written themselves in VR.

The team at Merve and *gamelab.berlin* listened to these suggestions with interest and noted the ideas for improvement. In some cases, short videos were recorded of the VR readers talking about their experiences and commenting on them. These videos create a beautiful collage of impressions and will soon be published on the *gamelab.berlin* website (www.gamelab.berlin). A variety of collaborations with publishing houses, authors, research institutes and companies have presented themselves as possibilities and will be pursued in the coming weeks. A blog post by the newspaper FAZ reporting on the future of reading was just one of the responses to the project's appearance at the book fair. Work on the software now continues, and the diverse feedback we received will be incorporated. The next steps include automatic positioning of the text blocks, integrating a free choice of texts, displaying the archive of digital Merve texts, different landscapes and, most importantly, continuing to improve readability in order to ensure that reading longer texts is also a pleasant experience. This will be followed by an evaluation conducted on a test group of VR readers. *gamelab.berlin* is delighted with the interest that the project has received and warmly invites all members of the *Interdisciplinary Laboratory* to try out reading in VR themselves.

FAZ Books Blog on the article by *gamelab.berlin*



Tom Lilge
gamelab.berlin



Christian Stein
gamelab.berlin

Open in Action – Down with »impactitis«



The poster exhibition for Open Access Week 2016 was on display in various locations, including the Grimm-Zentrum; the Cluster's contribution can be seen in the centre. Photo: Daniela Sachse | Image Knowledge Gestaltung 2016

Findings from a panel discussion during Open Access Week

Young researchers in particular are familiar with the dilemma: as children of the digital era, they are very much sympathetic to the Open Access (OA) movement, but when it comes to their own first publications, established academic publishing houses seem like the safer bet in terms of building their reputations and being credited (cf. interview with *Fu-PusH* in *Newsletter #11*). The fees charged by publishing companies for an additional Open Access publication are so high that they put many off. Consequently, they often ultimately prevent free access to research results – and this despite the fact that the research that preceded it, including the publications themselves, is publicly funded by institutions such as the Deutsche Forschungsgemeinschaft (DFG). Previously, the DFG may not have prescribed Open Access publications, but it »expects« these from its researchers as cosignatories of the 2003 Berlin Declaration.

In contrast to earlier Open Access declarations, the Berlin Declaration requires not only that academic publications are made freely available online, but also humanity's cultural heritage. The initiative recently received fresh impetus in May 2016 when the Council of the European Union officially called for the promotion of Open Access. The Ber-

lin Senate had already adopted an Open Access strategy back in October 2015; this will now be implemented across the state of Berlin, and a coordination office has recently been set up to this end.

A great deal has been done since 2003 – this can be clearly seen from the events during International Open Access Week, which ran from 24 to 30 October 2016. In the German capital, for example, the Freie Universität Berlin, the Humboldt-Universität zu Berlin and the Technische Universität Berlin put together a poster exhibition titled »Open in Action«, which clearly demonstrated the broad spectrum of Open Access activities and infrastructure service providers in the Berlin/Brandenburg region (materials can be downloaded from: <https://rs.cms.hu-berlin.de/open-access-week/pages/home.php?login=true>). The Interdisciplinary Laboratory *Image Knowledge Gestaltung* was also represented at the event with a poster informing visitors about its ongoing projects and the objectives it is pursuing in this field – such as the *ID+ Stage*, Open Access articles and freely available software.

A panel discussion was held on 28 October 2016 in the offices of Wikimedia e. V. on Tempelhofer Ufer and provided all those involved in the project with the opportunity to discuss ideas and views on Open Access. The panel was formed of Vera Meyer (TU Berlin, Editor in Chief of

the OA journal *Fungal Biology and Biotechnology*), Sebastian Nordhoff (FU Berlin, publisher of the OA linguistics publishing company Language Science Press) and Heinz Pampel (cosignatory of the Berlin Declaration, Helmholtz Association), and it was moderated by Christina Riesenweber (OA Officer at the FU Berlin, Co-Organiser of Open Access Week for Berlin/Brandenburg).

The discussion opened with the question of the changing role of academic publishing companies. Vera Meyer remarked that the five largest academic publishing companies now control three-quarters of all the funds flowing into academic publications. In many cases, these are public funds that are in fact linked to the requirement that the research results be published Open Access, as is the case with the DFG. Criticism was also expressed of the fact that, on the one hand, renowned academic journals make substantial profits from what are often public funds, whilst in parallel to this, services that actually fall within the remit of the publishing companies – such as proofreading and typesetting – are being cut back, and responsibility for them is being offloaded on to researchers.

Unfortunately, too many researchers still perceive Open Access as inferior, said Meyer. But free is by no means a synonym for lower quality, she emphasised. On the contrary, as she pointed out, it has been demonstrated that high-impact journals also have the highest retraction index (for further information, see: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3187237/>). Meyer explained that she places great value in her Open Access journal on high-quality peer reviews and a proofreading process that are in no way inferior to those at established subscription journals. Sebastian Nordhoff also strives at his publishing company to ensure the highest standards of quality for publications and cited De Gruyter publications as a self-imposed standard. Because the company is so committed to quality and it has the support of acclaimed researchers who have promised to publish with the young press, he hopes to quickly amass the required prestige and be able to establish Language Science Press on as broad a basis as possible. It publishes in conventional Open Access downloads and in print-on-demand hardback and paperback, which can be purchased worldwide.

All the members of the discussion panel agreed that one of the main obstacles to establishing new opportunities for publications is the rampant »impactitis«, or »impact factor mania«, surrounding journals. Some highly acclaimed journals no longer publish their impact factor on their websites as a kind of advertising banner, a move that Meyer welcomes. Nordhoff, too, does not see the role of

Open Access publications as entering into an impact factor competition with the acclaimed subscription journals. Instead, they should focus on the specific advantages of Open Access publications compared to the conventional possibilities, in particular the rapid availability and excellent processability of data for scientists and researchers. The panel also stressed that it has not been possible for some time to measure research outputs by the number of publications in renowned journals alone. The publication of research data is already a mandatory requirement in some disciplines, and moves to make this general practice are receiving growing support from research funding bodies worldwide. Open source software and open platform developments are also considered research outputs. ORCID iDs (<http://orcid.org/>) are set to play an important role here in the future as they enable all research outputs to be attributed to their author(s). A variety of publishing companies and research communications platforms such as *ResearchGate.net* conduct open reviews, which can also enhance the reviewer's reputation.

Heinz Pampel noted that legal and financial hurdles to open publications also need to be overcome, particularly in the light of the objectives of the Berlin Declaration. He stressed the need to not focus exclusively on promoting Open Access by founding new outlets and instead to prioritise transferring established structures to Open Access platforms. He cited as an example the *Horizon 2020* project, which will make conventional journals available as Open Access publications as well until 2020. In his view, this is the only way to achieve widespread acceptance of the idea.

In response to the moderator's question as to what the panel members saw as the most important measure that could be taken to support researchers in publishing Open Access, each member of the panel gave their own very personal conclusion: Meyer cited promoting and spreading information on the opportunities that Open Access offers. Nordhoff proposed that researchers should not write any more reviews (which are unpaid in any case) for closed-access journals and to provide reviews instead for freely accessible content. Pampel put forward a strong case for eliminating the infrastructural hurdles to achieving Open Access on a practical level: general criteria for Open Access publications need to be drawn up collaboratively, and these criteria must take into account the multitude of journals and disciplines, and also be suitable for international use.

When the discussion was then opened up to the audience, the strong focus on publications in the natural sciences during the panel discussion was criticised. The audience

asked whether the natural sciences and the humanities are not operating in different time frames in certain respects. While the natural sciences are now discussing *how* and *when* they should switch to Open Access publications, the humanities are still far too often talking about *whether* to switch. Christina Riesenweber (who herself is a humanities scholar) responded to the query and emphasised that Open Access publications offer immense opportunities for the humanities, too, such as making primary sources from library and archive collections available, which would greatly facilitate research. She then expressed the hope that these opportunities would lead researchers in the humanities to reconsider the issue in the medium term and be more receptive to Open Access.

Hanna Dede
Editorial Coordination



Maja Stark
Editorial Coordination



Alexander Struck
Head of IT

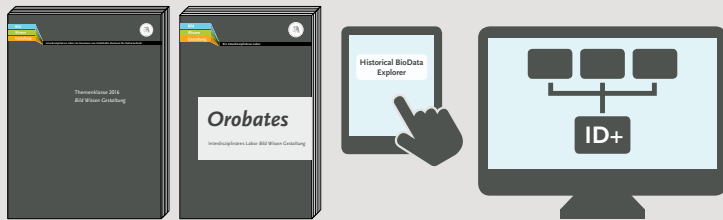
Interdisziplinär, vielfältig und kreativ

Open Access als Perspektive für Publikationen des Interdisziplinären Labors *Bild Wissen Gestaltung*

Komplexe Probleme lassen sich nicht in den Grenzen eines einzelnen wissenschaftlichen Fachs lösen. Deshalb erforschen seit 2012 mehr als 40 Disziplinen im Interdisziplinären Labor *Bild Wissen Gestaltung*, Exzellenzcluster der Humboldt-Universität zu Berlin, grundlegende Gestaltungsprozesse der Wissenschaften. Das Interdisziplinäre Labor ist ein Zusammenschluss aus Geistes-, Natur- und Technikwissenschaften, der Medizin und – erstmalig für Grundlagenforschung – auch der Gestaltungsdisziplinen Design und Architektur.

Forschungsergebnisse werden teilweise Open Access publiziert oder als Volltexte per Self-Archiving auf der eigenen Webseite zur Verfügung gestellt. Damit künftig noch mehr Zweitveröffentlichungen via Open Access erfolgen können, werden aktuell geeignete Repositorien geprüft. Für die Zukunft setzt das Labor zudem auf eine interdisziplinäre Plattform (die *ID+ Stage*) und eine App zur Durchforstung von Datenbanken zu historischer biologischer Literatur – beide frei zugänglich und kostenlos. Nicht zuletzt entsteht am Cluster Software, auf die Mitglieder der Humboldt-Universität im universitätseigenen Repository zugreifen können. Damit der Code weltweit zur Verfügung gestellt werden kann, bemühen sich Labormitglieder momentan um eine rechtliche Klärung.

2017



Die interdisziplinäre Plattform *ID+ Stage*

Als eines der innovativsten Open-Access-Projekte von *Bild Wissen Gestaltung* entsteht momentan die *ID+ Stage*, eine Publikationsplattform für experimentelle interdisziplinäre Veröffentlichungen. Beiträge sollen vor allem in kollektiver Autorenschaft verfasst werden, wobei die gesamte Bandbreite digitaler Medien denkbar ist: Videos, 3D-Bilder, zoomfähige Aufnahmen bis hin zu Live-Cams, interaktiven Lernspielen, Datenbanken und Software. Die Gestaltung wird sich deutlich von Printmedien abheben und intuitiv nach Inhalt und Thematik gegliedert sein. Alle Publikationen werden mit Metadaten zu den Prozessen ihrer Entstehung angereichert, so dass nicht nur die Ergebnisse, sondern auch die interdisziplinäre Projektarbeit selbst sichtbar gemacht wird.

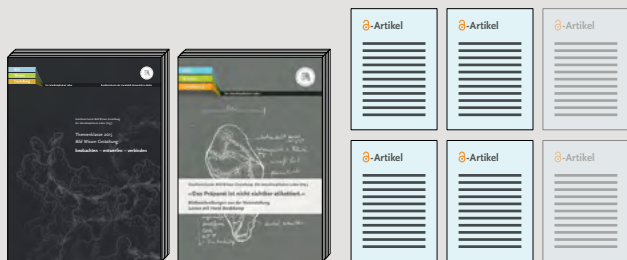
2016



Der *Historical BioData Explorer*

Mit dem *Historical BioData Explorer* sollen künftig historische biologische Literatur sowie Objektsammlungen der Humboldt-Universität nach aktuellen materialwissenschaftlichen Fragestellungen durchsucht werden können. Die darin enthaltenen Bilder, Texte und Objekte stellen eine wertvolle Quelle für die bioinspirierte Forschung dar, sind aber aus dem Zugriffsbereich der heutigen Labore verschwunden. Die Informationen werden aus dem ursprünglichen Kontext extrahiert, annotiert und als Ontologie modelliert. Dadurch kann z. B. nach Strukturen oder Bewegungen, nach relevanten Textstellen, Abbildungen und Sammlungsobjekten gesucht werden. Das heterogen verteilte Wissen wird somit disziplinübergreifend zugänglich gemacht.

2015



Projektübergreifende Publikationen im Self-Archiving

Der Sammelband zur Jahrestagung 2014 in der Akademie der Wissenschaften, die jährlich erscheinende Publikation der studentischen Themenklasse *Bild Wissen Gestaltung* oder der geplante Katalog zur Ausstellung *Orobates*. *Nach 300 Jahren reanimiert* im Tieranatomischen Theater der Humboldt-Universität zu Berlin sind nur einige Beispiele für projektübergreifende Publikationen, die im Self-Archiving über die Website des Interdisziplinären Labors zugänglich sind. Durch ein einheitliches Corporate Design wird dabei angestrebt, eine organisch wachsende, interne Reihe zu entwickeln, die in naher Zukunft auch über ein Open-Access-Repository verfügbar gemacht werden soll.

2014



Interdisziplinäres Publizieren

Geht es um die Publikation seiner Forschungsergebnisse, wird das Interdisziplinäre Labor angesichts der vornehmlich fachspezifisch ausgerichteten Verlags- und Repositorienlandschaft vor neue Herausforderungen gestellt. Stark disziplinär ausgerichtete Publikationsangebote führen dazu, dass interdisziplinäre Veröffentlichungen mitunter nur schwer in das althergebrachte Raster eingeordnet werden können. Auf Verlagswebsites verankerte Rubriken zu einer breitgefächerten interdisziplinären Wissenschaft fehlen bisher. Dies legt nahe, künftig verstärkt auf Open-Access-Repositorien zurückzugreifen, die der Vielfalt an Publikationsformaten und -inhalten am Interdisziplinären Labor gerecht werden. Geeignete Repositorien werden momentan geprüft.

2013



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Review:

The annual conference of the Interdisciplinary Laboratory Image dimensions | Ephemeral structures | Virtual realities

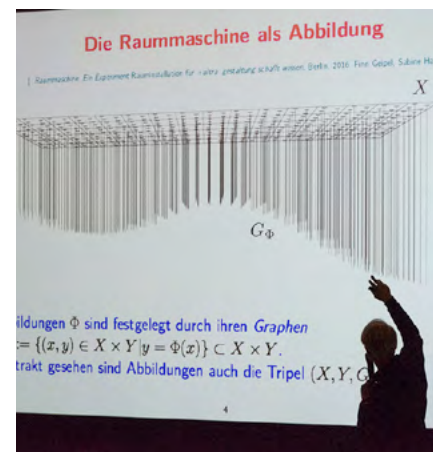


The future was the theme for the Interdisciplinary Laboratory's third annual conference. Having established an interdisciplinary research laboratory that brings together the humanities, the natural sciences and design disciplines in an intense collaboration, it was time to ask new questions: where are the current challenges in relation to the image? What consequences does the ephemeral character of structures have for their description? And what opportunities are emerging from the linking and merging of the physical and virtual worlds? »I'm with you.« – The President of the Humboldt-Universität zu Berlin, Sabine Kunst, promised her support for this important research project.

Image dimensions



Image research is now established as an interdisciplinary field. The *image dimensions* section, moderated by John Nyakatura (left), therefore asked what new challenges can be addressed to images from the perspective of the sciences today, but also examined how new image forms themselves are changing the sciences. Johann Habakuk Israel (centre) spoke about the spectrum that can be used to send data from the computer to the user and about the quantity of representable multimedia content. He argued that this opens up new opportunities for users to employ interactive systems as design and modelling tools. Claudia Blümle (right) discussed vividness in visual form. This is often conceptualised as a three-dimensional space within which viewers are able to move about and that they can feel their way about inside. Drawing on abstract art, the operability of the graphic process in the interface became the subject matter of the computer image. With n -dimensionality, if not in other areas too, this opens up the possibility of visualising non-visual constructions. Matthias Staudacher (bottom right) explained that a general concept of dimensions is an important research tool for physics, too, in both theoretical and experimental work. He noted that particular difficulties arise when studying fundamental physical theories. The mystery of how many dimensions our world has is, in his view, an exciting area for research and an open experimental question.



Ephemeral structures



The *ephemeral structures* section, moderated by Angelika Seppi (left), examined a development in current research which suggests that the potential for a new structuralism that conceives structures as dynamic and material could be emerging. Here the key question is the deviations, dissymmetries and ephemeral elements from which dynamic developments emerge. Forms should therefore not be conceived as rigid structures and instead must be seen as transformations that are constantly changing and »growing« into other forms. John Dunlop and Karin Krauthausen (right) spoke in their talk about the concept of growth. The examples they discussed ranged from our adolescent children and the growth of cityscapes all the way through to the explosive growth in our knowledge of the world. The natural sciences study the growth of cells, tissues and organisms in great depth. Here, biological growth can be viewed as a simple change in size or quantity, or as a complex change of form involving changes in the internal structure. Going beyond this, growth can be understood as a process that is not exclusively genetically determined, or alternatively, as the realisation of potential, or as the logical consequence of simple mathematical rules that can be derived from physical and chemical analyses. Drawing on examples from biophysical research and reflections from cultural history and the history of knowledge, their talk presented an interdisciplinary overview of historical and current knowledge on growth.



Thomas Picht (far left) shed light on the concept of live imaging. Studies in this area investigate the opportunities that promise to increasingly merge the physical and virtual worlds through the use of digital image data. The action-guiding role played by the image in surgical contexts is a case in point here, yet the limits of the imaging techniques currently in use are also evident. Cross-sectional imaging makes it possible to see inside the patient's body (the virtual incision) and to plan surgical interventions precisely (the real incision). However, superimposing images in the surgeon's field of vision during the operation (augmented reality) has limited potential because the images are not completely up to date given that the body is not an unchanging, fixed object. Instead, its form, structure and function change spontaneously and as a result of manipulations. Live imaging in medical contexts is designed to enable real-time manipulation of the virtual body in a dynamic 3D space.



Horst Bredekamp discussed how all of the Cluster's priority areas – *Active Matter*, *Active Image* and *Active Space* – have an equivalent in Leibniz's philosophy. Leibniz not only considered the very essence of these spheres separately in his work; he also brought them together in a comprehensive theory, which he constructed around the concepts of *conatus* and *appetition*. In his reflections on a universally effective activity, he circumvented the problem of whether to define objects as dead or living, inorganic or organic, by presenting the *visus* as an all-embracing organ of perception.

Physical virtuality



The section *physical virtuality*, moderated by Claudia Müller-Birn, examined the relationship between the physical and the virtual, which stands before fundamental changes. She noted that materials as the embodiment of the analogue world have to date only played the role of a passive carrier in digital contexts, but are now being credited with an active and operative function. Against the backdrop of the materialisation of the digital, a merging of the physical and virtual worlds is on the horizon, one set to transform all spheres of our lives. The vision of a physical virtuality calls for an agentification of the real and the material, which in turn can be developed into a virtual reality. Instead of simulating the real, the central focus is on the operationalisation of the physical, which can be observed in the active materials of the biological world. These coded materials represent an opposing and complementary approach to the informational simulation and doubling of the physical world.



Konrad Polthier took selected examples from biology, computer graphics and industrial CAD (computer-aided design) to examine unanswered questions on the new diversity of forms: new 3D scanners enable insights on an immense range of scales and are revealing an ever-increasing diversity of geometric forms in nature. New 3D printing technologies can fabricate a huge diversity of different physical characteristics and production processes.



Peter Fratzl is interested in the development of materials that react to stimuli and interact with their environment or adapt to it. These kinds of lifelike materials owe their adaptive, self-healing, self-moving or self-correcting characteristics to a complex internal architecture that encodes these behaviours and lends them an integrated intelligence that would otherwise require an external source. He presented examples to illustrate how this integrated intelligence brings together the classic concepts of (passive) »hardware« and (active) »software« in a single material.



Kora Kimpel: »Our approach to virtuality will develop and evolve, as can already be observed in language. Detached from the real world, new linguistic forms have emerged, such as text message and Twitter abbreviations and pictorial emoticons. What »artificial« laws will evolve in virtual worlds? And what repercussions will virtuality have in turn on our culture and our physical world? Design is an important indicator here: it mediates and translates social and cultural developments into the virtual and back again – as the design of the interface.«



An intense discussion at the third annual conference of the *Interdisciplinary Laboratory Image Knowledge Gestaltung*.

Photos: Jan Konitzki 2016 | Image Knowledge Gestaltung 2016

Newsletter #11 | December 2016

**Nach 300 Millionen
Jahren reanimiert**

**9. September 2016 –
5. Februar 2017**

**Do, 20.10.2016
16.30 Uhr**

**Podiumsdiskussion: Animation.
Bewegung gestalten**

in Kooperation mit +ultra. gestaltung schafft wissen, u.a. mit John Nyakatura (Biologe), Amir Andikfar und Jonas Lauströer (Illustratoren), Active Space im Martin-Gropius-Bau

**Fr, 21.10.2016
19.00 Uhr**

**Ausstellungsgespräch I: Wissensträger
Bild. Über die Entstehungskontexte
von wissenschaftlichen Bildern**

mit Mareike Vennen (Kulturwissenschaftlerin), Patrick Arnold (Biologe), Kathrin Mira Amelung (Medien- und Kulturwissenschaftlerin), Jonas Lauströer und Amir Andikfar (Illustratoren), Tieranatomisches Theater

**Fr, 28.10.2016
19.00 Uhr**

**Ausstellungsgespräch II: Objekt-
wissen. Von Wissensspeichern und
Demonstrationsmitteln**

mit Oliver Zauzig (Wissenschaftshistoriker), Matthias Krüger und Peter Mildner (Präparatoren), Tieranatomisches Theater

**Do, 10.11.2016
19.00 Uhr**

**Ausstellungsgespräch III: Disziplinen-
wissen. Paläontologie aus wissen-
schaftsgeschichtlicher Perspektive**

mit Kerrin Klinger (Wissenschaftshistorikerin), Oliver Wings (Paläontologe) und Lotte Thaa (Wissenschaftshistorikerin und Kuratorin der Ausstellung), Tieranatomisches Theater

**Do, 1.12.2016
19.00 Uhr**

**Ausstellungsgespräch IV: Wissen
zeigen. Berichte aus der Ausstel-
lungsproduktion**

mit den Kuratorinnen der Ausstellung, Tieranatomisches Theater

**Do, 26.1.2017
19.30 Uhr**

Festvortrag zum Ausstellungsende

Tieranatomisches Theater

Vor jedem Ausstellungsgespräch findet um 18.30 Uhr eine Führung mit den Kuratorinnen statt.

Eintritt frei. Die Teilnehmer_innenanzahl für die Ausstellungsgespräche ist auf 30 Personen begrenzt. Anmeldungen sind erwünscht an: tat.hzk@hu-berlin.de

Gefördert durch:



Partner:

Helmholtz-Zentrum für Kulturtechnik & Exzellenzcluster Bild Wissen Gestaltung, Humboldt-Universität zu Berlin. Bauhaus-Universität Weimar. Phyletisches Museum, Friedrich-Schiller-Universität Jena. Stiftung Schloss Friedenstein Gotha.

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Cover photo: The project »Mobile Structures« has put the second prototype for a kinetic spatial installation into operation. The installation forms part of the exhibition *+ultra. gestaltung creates knowledge* in the Martin-Gropius-Bau. The image shows the electromechanical system.

Text: Sabine Hansmann

Photo: Benjamin Meurer | Image Knowledge Gestaltung 2016

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