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Abstracts from the 9th Visual Science of Art Conference (VSAC) Nicosia, Cyprus, August 24th–26th, 2023

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Abstract

This special issue of *Art & Perception* contains the 83 contributions presented at the 9th edition of the Visual Science of Art Conference (VSAC), which took place in Nicosia, Cyprus from 24th–26th August 2023. The papers were submitted by more than 150 authors, and showed a great diversity in many respects – e.g., attracting international scientists, visual artists and art enthusiasts from 22 different nations. This issue includes an editorial by Claus-Christian Carbon and Ben van Buren which acts as a guide to the conference proceedings. We have arranged the abstracts by submission format, following the conference programme. Further information is available on the persistent website https://vsac.eu/.

Editorial

This special issue of *Art & Perception* continues the tradition of publishing the abstracts of the talks, posters and further contributions presented at the latest Visual Science of Art Conference (VSAC). We are proudly presenting the 9th edition of VSAC, which took place in Nicosia, Cyprus from 24th–26th August 2023. This time, the conference was not organized by a local team, but rather by an international group of people from different backgrounds and different labs who met regularly on Zoom to plan the meeting. The organizing committee consisted of:

Aenne Brielmann (MPI Tübingen), Alessandro Soranzo (University of Sheffield), Anna Miscenà (University of Vienna), Anne Kleindienst (University of Bamberg), Ben van Buren (The New School), Claus-Christian Carbon (University of Bamberg), Heike Kiesewetter (University of Bamberg), Ian Verstegen (University of Pennsylvania), Itay Goetz (University of Bamberg), Kyriaki Mikellidou (University of Cyprus), Lena Kristina Pieper (University of Bamberg), Maarten Wijntjes (TU Delft), Marius H. Raab (University of Bamberg), Qasim Zaidi (SUNY College of Optometry), Rebecca Chamberlain (Goldsmiths, University London), Alexander "Sasha" Pastukhov (University of Bamberg), Uwe Fischer (University of Bamberg), and, last but not least, Vera M. Hesslinger (University of Bamberg).

In the end, we managed to attract more than 150 authors from 22 nations who submitted 83 regular contributions in total. We are pleased to present all of these abstracts, organized according to presentation format. All contributions were peer-reviewed beforehand, to guarantee high quality contributions spanning a wide range of themes. Further details about the VSAC 2023 can be found on the persistent website of the VSAC at https://www.vsac.eu/.

Figure 1. The conference venue: The "Old Campus" at the University of Cyprus, 75 Kallipoleos street, 1678 Nicosia. Image by CCC.

Overall, the conference was a great success. We received excellent help throughout the organizing process from the local organizers of the European Conference of Visual Perception, Profs. Kyriaki Mikellidou and Marios Avraamides (both at the University of Cyprus), as well as from the local conference company EasyConferences. The University of Cyprus gave us access to a beautiful, modern auditorium for talks, an airy, bright atrium for our two poster sessions, and two classrooms in which our artists set up a number of creative and thought-provoking installations. The whole conference venue was quite stunning – and this aesthetically pleasing space provided an inspiring environment for discussing vision and art (see Fig. 1).

The keynote addresses by Profs Claus-Christian Carbon and Jeroen Stumpel were bold and broad, and introduced recurring themes which helped to frame discussions throughout the meeting (see Fig. 2).

We had three exciting contributed symposia, on digital-analog borderlines in art, on the preference for curvature, and on ambiguity and incongruity in art and science. Other talk sessions featured presentations on the visual mechanisms contributing to visual preferences, on depictions of faces and bodies in art, and on art-directed behavior in real-world contexts, such as museums and galleries.

We were particularly pleased to have a number of strong contributions from visual artists, including several which were very interactive. Examples include Kalliopi Ioumpa's "You through me" (which used VR to allow pairs of

Figure 2. The two keynote speakers in action: Claus-Christian Carbon (University of Bamberg) and Jeroen Stumpel (Utrecht University). Images by BvB.

attendees to experience the world through one another's eyes during a live interaction), and Tatyana Nozdrachova's presentation of Japanese brush painting techniques and philosophy (which she offered in the midst of one of our scientific poster sessions; see Fig. 3).

The meeting could be characterized as a professional conference fueled by intellectual community, spirited curiosity, and improvisation. For example, to our knowledge, this may have been the only conference in history in which the organizers spontaneously decided to bring everybody to another country for dinner. We crossed the border to Turkish North Cyprus (see Fig. 4), an exciting moment in itself.

Figure 3. Kalliopi Ioumpa presenting her experiential artwork, "You through me", and Tatyana Nozdrachova's presentation on traditional brush painting. Images by BvB.

Figure 4. "Two strangers crossing the border" – two conference attendees crossing the border between the Republic of Cyprus and the Turkish Republic of Northern Cyprus. Image by Jurate Rimiskyte.

Then we spent a memorable evening in a beautiful old neighbourhood (Fig. 5), where people were playing music and dancing in the streets.

We would like to thank all sponsors who supported us, all volunteers who assisted us and all attendees who widened our view on the field of vision science of art.

We are delighted that the contributions to this great conference will be preserved as a special issue in *Art & Perception* and would like to thank Brill Publishing for publishing this issue.

Figure 5. The spontaneously spotted location of the gala dinner: The Büyük Han (built in the late 16th century), the largest caravanserai in the island, which is also considered to be one of the finest buildings in Cyprus. Image by Uwe Fischer.

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KEYNOTES

Experiencing Art

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Art is a constant companion through the millennia, independent of cultural embedding, zeitgeist, and civilizational development. Art is much more than the artwork itself as Art is context-, meaning- and situation-dependent, the artwork emerges by a specific mode of Experiencing Art which is fundamentally different from everyday perception modes. The keynote on "Experiencing Art" clarifies how ill-defined many approaches to understanding the experiencing of Art can be and will describe ways to improve the situation to inspire new ways of approaching these essential questions of the Psychology of Art.

Here's the Thing: On Perceiving Objects, Grounds and Backgrounds in the History of Art

Jeroen Stumpel[1,2]

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The capacity both to understand such drawings as representations, as well to produce such images, is ubiquitous in human cultures, and examples of it belong to the oldest art we have (ca. 40,000 years bce). Strange to say, the production of such images is uniquely human: there is no other species that does it. Ou near cousins, the great apes, do not draw images, even though they may be nudged by humans to do so. This by the way, also seems to be the case with pointing, very common already in young children, but apparently not fully practiced by apes. One wonders whether there might be a connection between these two very different ways to draw attention to an object. Be that as it may, I would like to turn to general history of man-made images and art, and propose a simple taxonomy, based not on various forms of projection, but on the making of as-if objects; first and foremost separate things in contour, to which later indications of 'where' and 'what' are added, by means of a ground or floor, or an indication of a background, as a backdrop for the objects. When one

looks at the development of perspective during the Renaissance, it seems that it originated as a special case of integrating object, ground and background, rather than the direct introduction of ideas of projection. In both painting and pointing we witness the singling out of objects for inspection. In pointing, the object lifted out of its full environment as it were; in the history of painting, we may almost witness the opposite: the adding of more and more articulated environment to single objects.

SYMPOSIA

Symposium 1: Digital Borderlines

The Aesthetic Borderliner

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The medium is the message (McLuhan): In the case of Nintendo's 'Gameboy', the medium was a message that defined a generation. Pixelated 8-bit greyscale pictures signified that video game entertainment has become independent from temporal and spatial restrictions. The medium was fit for the pocket, powered by batteries and affordable for the masses. Specific visual aesthetics – from Tetris to Zelda – have become part of our cultural heritage. At the same time, Game Boy cartridges have become valuable collector's items. We will reflect on the nostalgia for games as a leitmotif of artistical work. We will also reflect on the longing for making digital (and thus, reproducible) content unique via NFTs. In addition, we will present a project where the first author has materialized digitalized reproductions of his works on a Gameboy cartridge. As a limited collector's edition of digitized paintings, this cartridge is on the borderline of Kunst and Kitsch (Art & Kitsch) and questions the distinction between original aesthetic work and simulacrum.

The Aesthetics of Societal Disruption: A Psychological Comparison of Jugendstil/ Art Nouveau and Vaporwave

Marius Hans Raab

Department of General Psychology and Methodology, University of Bamberg, Germany

Societal change is mirrored by aesthetic zeitgeist on different dimensions. From a technical point of view, new modes of production allow for new modes of artistic expression. On a more psychological level, our view on the world and on or fellow humans gets radically altered by technological and societal disruptions; which, in turn, become visible in the techniques and motifs of art. I will outline the psychological revolution at the end of the 19th century – what Kandel has called the "age of insight" – with its artistic manifestations and a specific kind of nostalgia. In contrast, the Vaporwave movement

in contemporary art and pop culture draws on a pink-and mint green, often pixelated, image of the 1980ies and 1990ies. At first glance, there's little resemblance to the floral ornaments and curved forms of Art Nouveau. Yet, I will show that both styles share a psychological concern: They re-evaluate our relationship to nature and society, for the industrial and the digital revolution respectively, by blending aesthetic metaphors of both the passing and the dawning age.

Ernesto 'Che' Guevara in 4-bit: Measuring Iconicity of Famous Photographs by Pixelization

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Media images are fleeting: One day's lead photographs might be forgotten the very next day. Some images, however, become ingrained in our collective memory. Those iconic photos attain a very high recognition value. Famous examples are the "Guerrillero heroic" photo by Alberto Korda, depicting Che Guevara, or Sam Shaw's "flying skirt" photo of Marilyn Monroe. To measure (and thus, compare) the iconicity of images, we propose to employ the technique of pixelization. By using digital constraints to reduce pictorial information, we can empirically determine the threshold where pixels let a Gestalt emerge. We took 24 classical iconic portrait images and 24 portraits of contemporary media icons (like the Youtuber PewDiePie and the TikToker @khaby.lame). In preparation, the images were reduced to a 4-bit greyscale palette (16 shades of grey) and cropped to a square. Presentation started with a 2×2-pixel downsample. Participants could increase the pixel count in one-pixel- steps until they recognized the depicted person correctly. For every image, we averaged the pictorial information necessary for recognition (in bits, so width $\times$ height $\times$ 4) over participants and derived a measure of iconicity which we call Iconicity-Index (I-I). Future research will relate those measures to other, more direct assessments of iconicity, such as frequency of usage, familiarity, and reproduction and insurance costs.

An Approach to Unify the Different Appeals of Digital, Analog and Digital-Analog Hybrid Art in a Universal Theory of Aesthetics

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Aesthetics is an emerging field of research, but still, a framework to unify different approaches is missing. It is questionable if any attempt to follow the attempt to create an overarching theory is possible at all, facing all the dimensions aesthetics employs and affects. Here, I would like to develop a first facet of such a theory that solely addresses a tiny but relevant part of aesthetic phenomena related to the specific appeal of digital vs. analog and digital-analog hybrid art. It tackles the seemingly paradoxical finding that digital technology can produce perfectionized realistic images without effort, which often lack aesthetic appeal, but can also use reduced imperfectionized images that gain appeal. Meanwhile, analog depictions often gain appeal by perfectionizing their quality while losing aesthetic quality when doing too much in this direction. Any aesthetic theory that ignores Zeitgeist, elaboration effects, and idiosyncratic experience and associations will not be able to predict individual aesthetic appeal. Lessons learned from developing a theory from this narrow perspective already make clear how ill-defined any universal theory of aesthetics is that praise the artwork as a static object that is perceived in a determinate way.

Symposium 2: Curvature Effect

Explaining the Curvature Effect

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Preference for curvature, the curvature effect, seems to transcend cultures, species and stimulus kinds. However, its nature and psychological mechanisms remain obscure because studies often overlook the complexity of contour characterisation and disregard personal and contextual factors. To investigate the curvature effect, we propose a continuous and multidimensional manipulation and contrasting experimental conditions examined at the group and individual levels that unveil a complex picture, not reducible to monotonous relationships: Perceptual and hedonic evaluations relied on multiple geometric features defining contour and shape. These features were specifically weighted to characterise each construct, depending on the individual and contingent on whether evaluating perceptually or hedonically. Crucially, the curvature effect was not robust to preference with respect to the median and continuous manipulations of contour for varying shapes. As curved contours are more easily perceived and processed than polygons, we hypothesised that perceived contour might explain liking for a figure beyond the effect of geometric features, finding that this association was subordinated to shape categorisations. Finally, domain-specific, personality and cognitive-preference traits moderated how people used each geometric feature in their perceptual and hedonic evaluations. We conclude that research on perception and appreciation of contour and shape should factor in their complexity and defining features. Additionally, embracing individual sensitivities opens potential avenues to advance the understanding of psychological phenomena. In summary, our approach unpacks a complex picture of contour preference that prompts critical reflections on past research and advice for future research, and it is applicable to other psychological constructs.

What Drives Object Preference? Perceptual and Categorical Differences in Object Processing

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Visual properties affect object preferences. Such preferences are often predicted by properties such as contour, complexity, weight, familiarity, or interestingness among others. In this study, we examined to what extent the effects of these properties in preference judgments can be generalized across different object categories. Stimuli consisted of a diverse image set of pairs of chairs and tables with curvilinear and rectilinear designs. We used a gist statistics algorithm to confirm that the stimuli set shared comparable gist statistics within categories. A pre-liminary experiment indicated that the stimuli differed in perceived contour, complexity, weight, familiarity, and interestingness. In Experiment 1, participants rated their liking to each object, while their eye movements were recorded during 2,000 ms using an EyeLink 1000. In Experiment 2, another group of participants rated their liking to each object in both short (84 ms) and until-response display times. Experiment 1 results revealed different effects of perceptual properties and object categories on liking and eye movements. Specifically, higher liking ratings were found with more interesting, familiar, and heavier objects. In contrast, visual processing was mostly modulated by object categories. While participants' response time was shorter and the number of fixations was greater for chairs than tables, the effect of perceptual properties was limited to the interaction between object category and contour on mean fixation duration. Experiment 2 results revealed higher liking ratings with more curvilinear and interesting objects but only in short display times. Overall, these results suggest that perceptual properties and object category play distinct roles in subjective preference and visual processing.

Museum Visitors Prefer Paintings with Curved Shapes

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Observers prefer some paintings more than others due to a mixture of aesthetic, emotional and cultural experiences. Some of these experiences are based on the perception of specific features in the paintings. A fundamental dimension underlying deep structure in the visual perception is the presence or absence of edges or contours in the images. Over the course of the last two decades, contour has been a widely studied perceptual attribute in the field of visual preference, specifically curved vs sharp-angled contours. In this study, our main objective was to test whether the effect of preference for curvature was also present with original paintings in a museum context as we previously found using digital images of the same paintings in the lab (Ruta et al., 2021). We used a collection of 48 paintings divided into 16 sets with three versions in each set: one curved, one sharp-angled, and one mixed, with all other variables controlled. We carried out measures of liking, implicit wanting, and explicit wanting. We performed two studies in two different museums. In Study 1 data were collected from 55 participants on handheld tablets and 103 participants recorded their responses in booklets in Study 2. Both studies showed that participants liked the curved versions significantly more than the sharp-angled versions and reported wanting them more. They also looked at the curved versions from a closer position than the sharp-angled versions, which we used as an implicit measure of approachability. Our findings suggest that similar processes and mechanisms affect the aesthetic judgements of and preferences for both artistic and non-artistic stimuli. We also conclude that contour curvature is an important perceptual factor in people's aesthetic judgements about real paintings displayed in an ecological context.

Individual Differences in the Curvature Effect with Abstract Stimuli and Interior Design

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Visual preference for smooth curvature, as opposed to angularity, has been documented for a variety of stimuli, participant groups, primate species, and different tasks. However, the universality of preference for curvature has been questioned in a recent meta-analysis of 61 studies (Chuquichambi et al., 2022). Among other factors, individual differences as well as the type of stimuli moderate the effect. In this research we examined preference for curvature in three different groups of participants using abstract stimuli and pictures of interior design. Specifically, we examined visual preference for curvature in high functioning autism (ASD = 16), in matched (for age, gender and IQ) neurotypical individuals (NT = 20) and in a group of quasi-expert students of design (QE = 24). We employed abstract shapes with different contours (angular vs. curved), and a set of coloured lines (angular vs. curved) presented through a circular or square aperture. Finally, we showed interior design environments varying for Appearance (curvilinear vs. rectilinear), Ceiling (high vs. low) and Space (enclosed vs. open). Participants indicated like or dislike and whether they would enter, or exit, the presented spaces if these were real rooms (approach/avoidance). Preference for curvature was confirmed with abstract stimuli with all groups of participants. However, the magnitude of the effect diminished in the ASD group as compared to the NT group. Interestingly, quasi-experts reported a higher proportion of "likes" for rectilinear as compared to curvilinear designs. These findings are discussed in relation to the role played by individual differences, including expertise, and the impact of specific dimensions of the stimuli in determining participants' preferences.

The Enchanting Aesthetic Effect of Transformation on Curved and Angular Stimuli

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The purpose of this project is to investigate how aesthetic preferences for "transformation" and "smoothness" interact with one another to determine aesthetic preferences. There is evidence that when stimuli are dynamic, the stimuli tend to be preferred over quiescent stimuli (Soranzo et al., 2018; Wright & Bertamini, 2015) and that curved stimuli tend to be preferred over angular stimuli ("smooth curvature effect", Bertamini et al., 2015). However, it is possible that factors interact, and a smooth transformation may strengthen the advantage of smooth stimuli if static and dynamic smoothness factors tap related mechanisms. For this purpose, two computer-based experiments were conducted, in which participants were required to evaluate the aesthetic appeal of stimuli displayed on the screen. In experiment I, stimuli consisted of abstract static polygons differing in type of contour (angular vs. curved) and number of vertices (22 and 26). In Experiment II, the same stimuli as Experiment I were used, and transformation was added in terms of smooth expansion or smooth shrinkage. To make the size of the polygons comparable to those of Experiment I, the polygons expanded and shrank to the same degree. As a result, the average visible size of the polygons was the same as the size of the static polygons. Results confirmed both the transformation and the smoothness effects. These results are discussed considering Graf and Landwehr (2015)'s "Dual process fluency-based aesthetic" model which shows how "positive fluency discrepancy" adds aesthetic value.

Greater Preference for Curved 3D Shapes in Practical Experts

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Among single factors influencing aesthetic preference in the perceptual processing stage, curvature stands out as having a substantial body of robust empirical evidence across age, culture, and species (Gómez-Puerto et al., 2018). Recent studies have examined whether the preference for curvature extends to experts. Although it has been reported that experts also prefer curved shapes to angular ones, it remains unclear whether their degree of preference for curvature differs from that of non-experts. The inconsistency might be due to variabilities in expert groups and types of stimuli. Here, we investigated whether experts prefer curvature over angularity and whether the degree of curvature preference differs across expert groups (i.e., non-experts, theoretical experts, and practical experts). In addition, we examined whether the preference for curvature derives from perceptual sensitivity to curvature. We generated geometric 3D shapes that were rendered by a parametric shape model and were not limited to any specific domain of expertise. The curvature of geometric 3D shapes was manipulated into 5 levels via linear interpolation. Participants viewed video clips of each 3D shape and rated their preference and perceived complexity for the shape. Results showed that people generally prefer curved shapes regardless of the expert groups, replicating the previous findings. Of more relevance to our purpose, people with more practical expertise showed a greater preference for curved shapes. It was also demonstrated that the aesthetic preference of practical experts reflected their perceptual sensitivity. These results suggest that the degree of curvature preference varies according to the presence and type of expertise, implying that the properties of stimulus and perceiver interact from the early perceptual processing stage of aesthetic appreciation.

Symposium 3: Ambiguity and Incongruity in Art and Science

Ambiguity, Arousal, and Affect

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The notion of ambiguity encompasses a number of different and multifaceted phenomena in both perception in general and aesthetics. However, the mechanisms by which ambiguity influences aesthetic experience remain unclear and are typically considered in relative isolation from other factors known to influence aesthetic experience such as perceptual fluency, complexity, and symmetry. Here we use synthetic noise movies varying in spatiotemporal frequency characteristics so that they either match or deviate from natural scene characteristics. We also vary symmetry to create dynamic spatiotemporal patterns without (random) or with vertical symmetry. To directly assess perceptual interpretability, we first ask observers to report all nameable objects or structures that they can see in these patterns. In addition to asking observers to rate perceived complexity, coherence, and preference of these patterns we also directly probe their arousal and affective valence. Overall, the spatiotemporal patterns with intermediate complexity were associated with higher number of reported interpretations, compared to the simplest and most complex patterns. There was a higher number of interpretations generated in response to the symmetrical compared to the random patterns as well. We confirm the robust effect of both spatiotemporal frequency characteristics and symmetry on visual preference and show a strong relationship between the spatiotemporal structure of our stimuli and their arousal and affective ratings. Imperfect tools – When uncertainties of automated recognition reveal pictorial peculiarities.

The Enchanting Role of Belongingness in the Mona Lisa's Ambiguous Expression

Alessandro Soranzo
Sheffield Hallam University, UK

This presentation shows the advantages of integrating neurophysiology (the study of the nervous system) with phenomenology (the study of subjective experience) to gain a more comprehensive understanding of perceptual phenomena. In fact, by combining neurophysiology with phenomenology, we can gain a more holistic view of how we process and interpret perceptual phenomena. This is illustrated by the paradigmatic example of the Mona Lisa effect. This effect is defined as the condition under which the perceived level of contentment of the portrayed figure changes with viewing distance. In fact, from a distance, the Mona Lisa appears more content than from a close-up. Previous research on this effect focused solely on neurophysiological mechanisms, overlooking the role of subjective experience. Two experiments were conducted using the method of "percept-percept coupling", in which all variables are measured at the perceptual level. The perceptual belongingness principles (the functional relations between parts of the stimuli that determine what appears as a unitary object) were manipulated, and their impact on the perceived expression of the Mona was measured. In particular, the perceptual belongingness of the shadow contiguous to the mouth was manipulated by an artist on digital copies of the masterpiece. These copies were then printed, and observers had to rate the perceived level of contentment from different distances. The results showed that the perceived change in contentment vanishes when the good continuation between the mouth and the contiguous shadow is broken by a clearly visible line; and that the effect reverses (i.e., the Mona Lisa less, not more, content from afar) when the shadow is artistically moved from above to below the corners of the mouth. By highlighting the importance of configurational patterns, it is concluded that complementing neurophysiology with phenomenology is the key to a thorough understanding of complex perceptual phenomena such as ambiguous expressions.

Balance, Stability and Preference of Self-Arranged Compositions Inspired by Suprematist Art Works

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Balance and stability of a composition are critical factors for evaluating the aesthetics of an artwork (Arnheim, 1982; Kandinsky, 1926; Locher, Gray & Nodine, 1996). However, to what extent these factors become relevant during the creation of art has rarely been examined directly. We isolated the 'original' form elements and 'canvas' of ten art works of three suprematists, Malevich, Popowa and Khedekel and investigated with a novel interactive task how 22 art-naïve participants arranged these elements according to two criteria: stable and dynamic appearance. For each artwork participants positioned its form elements first on a paper 'canvas'. Then they transferred to-, and validated their compositions on a computer monitor using an interactive program written in Python using PsychoPy routines. In subsequent rating tasks the two arrangements of each participant as well as the original suprematist art works were randomly presented and evaluated according to the degree of balance and stability as well as the strength of personal preferences (liking). Overall, the resulting compositions revealed that for a stable appearance participants often stacked elements within the lower part of the 'canvas' and frequently created symmetric distributions while for a dynamic appearance they rotated elements with respect to the 'canvas frame' and distributed them wider and asymmetrically. On average, participants liked their self arranged dynamic compositions more than the original art works. Preference and stability ratings were positively correlated for original artworks, but not for self arranged compositions. Moreover, the relationship between perceived stability, dynamics and liking varied with the complexity of the artwork. Finally, we found striking and consistent differences in individual participants' preferences for stable and dynamic arrangements. Interactive tasks may provide fine-grained access to factors such as balance or stability and individual preferences that influence the perception and aesthetic evaluation of art.

Incongruity: Visual and Verbal

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"In 1975, at the beginning of the wars, most public monuments in Beirut were hastily disassembled and stored in unmarked crates. The crates were dispersed to various secure storage sites. Thirty years later, the crates were gathered and opened in the hope of re-assembling the monuments. However, the lack of a breakdown and re-assembly protocol resulted in the odd composition of new public works, two of which are on display here." (Walid Raad, Stedelijk Museum, 2019). Incongruity, as expectation violation, was identified as a source of humor or amusement by Aristotle, developed by Beattie, Kant, and Schopenhauer, and even implemented in neural networks. Incongruity resolution is the dominant theory of humor in philosophy and psychology, but incongruity could also lead to bewilderment, unease, or fear. I examine the roles of visual and cognitive incongruity using Raad's art, aided by his accompanying texts. By comparing different pieces in the absence of any verbal information, viewers identify the most visually incongruous pieces. Then they identify the visually incongruous elements. Visually incongruous elements that are common across viewers, provide insights about the violations of visual expectations that are used to rapidly transform sensory information into generally veridical semantic percepts. The viewers also describe what visual incongruity conveys by itself, and if the accompanying cognitive framework provided by Raad's texts changes the meaning. In general, the added verbal framework resolves incongruity and turns the more diverse feelings generated by visual incongruity into humor, but the historical context also makes the experience more poignant.

TALKS

Talk Session 1: Aesthetic Preferences

‘The Beauty and the Beast’ – on the Value of Genetic Algorithms in Empirical Aesthetics

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“What makes something beautiful?”. This question has been captivating researchers in empirical aesthetics for centuries. Many attempts have been made to solve this question, but contradictions remain. Some researchers focus on low-level features (e.g., anisotropy), whereas others focus on high-level features (e.g., art style) as predictors of aesthetic appreciation. Although both approaches have led to insightful results, mid-level features (i.e. Gestalt features) have often been neglected in this discussion. The link between order, complexity and aesthetics exemplifies the importance of the mid-level as a key towards unraveling beauty. One of the main statements of Gestalt psychology is “the whole is more/different than the sum of its parts”. In aesthetics, this results in a “Gestalt nightmare” (Makin, 2017), referring to the seemingly endless set of context features, which cannot be investigated separately. To remediate this problem, in the present study, we introduce genetic algorithms, that are based on the principles of natural selection and use crossover and mutation to find an optimal solution to a problem. We employ multi-element displays with a large set of parameters, both low-level features referring to the ‘parts’ (e.g., size, hue …), as well as pattern features describing the formation of a ‘whole’ (e.g., repetition, congruency …). Over 100 generations, the parameters of the presented stimuli evolve due to participants’ selection of beauties and beasts (i.e., the most and least liked image in a set). Even preliminary analysis already reveals that the separate, low-level parameters do not have consistent effects on liking. Therefore, we approach the data in two more ways. First, in a computational approach we use machine learning to predict parameter value combinations that lead to ‘liked’ or ‘disliked’ stimuli. Second, we investigate how different parameter combinations lead to different levels and types of order and complexity, and whether these mid-level features can predict aesthetic appreciation.

‘Attentional Transplants’ Cause Recipients to Like Images Similarly to Donors: Evidence for Inter-Observer Commonalities in How Attention Drives Preferences

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When different people view a scene, they attend to different things, and these differences in attention in turn influence how much they like the scene they are viewing. Patterns of attention may be highly individually specific. However, the effects of these different patterns of attention on preferences may not be. Here we demonstrate this, using a new method of ‘attentional transplants’. We show that, if an observer likes an image, it is possible to transplant their viewing pattern into another observer – and that this causes the recipient to like the image better, compared with transplanting the viewing pattern of a donor who disliked the image. In Experiment 1, 50 observers viewed images of landscapes by using their cursor to move a small circular viewing window around each image for three seconds. After viewing an image, they rated how much they liked it. For each image, we identified two ‘attentional donors’ – the Liked-it-Most observer who rated the image highest (normalized relative to their other image ratings) across observers, as well as the Liked-it-Least observer who rated the image lowest across observers. In Experiment 2, we recruited 100 new observers to serve as ‘attentional recipients’. These observers viewed each image, but now passively, through a moving window which reproduced the viewing pattern of either the Experiment 1 observer who Liked it Most, or the observer who Liked it Least. Recipients gave substantially higher ratings to an image when they received the viewing pattern of the observer who Liked it Most, compared to when they received the viewing pattern of the observer who Liked it Least. From this, we conclude that individual differences in preferences for scenes are partly explained by differences in how we attend – but that there are important similarities across observers in how these patterns of attention then drive preferences.

Mechanisms Underpinning the Impact of Aesthetic Appeal

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What is the role of bottom-up visual processes in artistic appreciation? We have investigated this by measuring the importance of complexity and meaningfulness (conceptual fluency) in aesthetic judgements. In our preliminary study, we presented participants with 195 images of street artworks online and asked them to rate the complexity and meaningfulness of each one. From these data, we created three image categories varying in both complexity and meaningfulness: Low, Medium, and High. In two subsequent experiments, participants were asked to gaze at 27 selected artworks (9 from each category) while their Electroencephalogram (EEG) alpha (8-12 Hz) absolute power was measured across 21 electrodes. Afterwards, we collected subjective reports of aesthetic appreciation, arousal, and pleasantness states. Analysis revealed different patterns of alpha power across image categories with the T3, T5, and T6 electrodes (Experiment 1) and the T3, O1, and O2 electrodes (Experiment 2). Across both experiments, there was also a linear increase in subjective reports of aesthetic appreciation, arousal, and pleasantness states with increasing complexity/meaningfulness. Differences in alpha power between "initial" and "reflective" viewing times were found in most EEG channels in Experiment 2. Together, these findings suggest that different levels of complexity and meaningfulness are linked with different alpha activity patterns, which, in turn, are associated with cortical locations thought to be linked with inner monologues and visual attention networks.

Gestalts Relate Aesthetic Preferences to Perceptual Analysis: An Outline of the GRAPPA Project

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"De gustibus et coloribus non disputandum est." With this slogan philosophers and lay people alike have dismissed all attempts to understand taste, color perception, or aesthetic preferences. Sense of beauty may just be too individual and too complex to qualify as target of scientific inquiry. Yet, since Fechner (1876), empirical aesthetics has studied the factors determining people's aesthetic responses to art works and objects, scenes or events encountered in everyday life. Most accounts focus either on high-level concepts such as style, meaning and personal associations, or on low-level statistical properties. While the latter are supposed to be universal and biologically determined, the former are subject to cultural influences, art expertise and individual experiences. Progress in this tradition has reached its limits, which I propose to try to overcome by investigating how Gestalts relate aesthetic preferences to perceptual analysis. The pioneering working hypothesis of my research program called "GRAPPA" is that the way perceivers organize their sensory inputs into meaningful entities (Gestalts) provides the missing link between the two traditional sets of explanations. This hypothesis will be fleshed out and tested in a coherent research program linking aesthetic preferences for images of paintings and everyday photographs to general principles of perceptual organization as well as to specific aesthetic concepts like composition, balance, and visual rightness. New data from online studies with large samples of images and participants will be analysed with state-of-the-art computational methods (machine learning) to reveal the critical mid-level factors. This will yield a model to predict aesthetic preference, which will be tested in well-controlled psychophysical and behavioral experiments (e.g., eye-movement recording) and validated also in ecologically richer settings (e.g., in galleries and art museums) and in unconventional cross-over collaborations with contemporary artists. I will sketch the different steps in broad strokes to enable further discussion of the challenges.

Can Fashion Aesthetics be Studied Empirically? The Preference Structure of Everyday Clothing Choices

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Fashion is one of the most common and accessible (aesthetic) activities in everyday life, yet still missing in the literature is a systematic study on clothing preferences. Therefore, the present study, recently published in Empirical Studies of the Arts, explored whether a preference structure of clothing style can be established and whether this clothing preference structure can be further understood through clothing colour (e.g., hue, brightness, & saturation) and individual differences (e.g., personality & demography). Based on an online survey consisting of 500 participants, exploratory and confirmatory factor analyses revealed a four-factor preference structure, the Everyday Clothing Preference Factors (ECPF). The preference structure consisted of feminine (e.g., dresses, skirts, lingerie, tights, & blouses, etc.), essential (e.g., shirts, jackets, trousers, & chinos, etc.), comfortable (e.g., hoodies, joggers, sweatpants, & sweatshirts, etc.), and trendy (e.g., dungarees & boiler suits) styles. The findings further revealed that the preference for each of these clothing styles was correlated with certain colour preferences and individual differences. The findings provide an important theoretical building block in the understanding of the intricate dynamics involved in everyday clothing behaviours. The study of fashion preference provides especially significant importance in the growing field of empirical aesthetics and preference research, where fashion was rarely examined before. Practically, the findings may inform retail marketing practices and sustainable fashion, as they may facilitate a further understanding of the mechanisms of fashion consumption.

An Empirical Study of the Beauty of Different Types of Spirals

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Spirals are common both in nature and in culture. They were created by humans as early as 11,000 BC and appeared independently in different places. Spirals are not only important for mathematics and natural sciences, but also play a popular role as motifs in art and design. Meanwhile, various types of spirals have been identified or invented, often claimed to be more or less beautiful. However, when we searched for empirical studies that examined the perceived beauty of different types of spirals, we found almost nothing. This motivated us to conduct our own study. We constructed Archimedean, general Archimedean, logarithmic, golden, and Fibonacci spirals and used them as stimuli in an online study. For each type, we had multiple versions that differed in size and number of loops. Participants had to rate how beautiful they found the different spirals on a visual analog scale. As a result, there were large differences in beauty ratings between the different spirals. To investigate possible characteristics of the spirals that could be responsible for the differences in beauty ratings, we looked at the size of the spirals, their arc length, their number of loops, and their curvature. It turned out that the variance in curvature explained most of the variance in ratings. Why the variance of curvature might be a relevant characteristic of spirals is discussed and related to other results in empirical aesthetics.

Talk Session 2: Faces, Body and Identity

Can Drawing Expertise Impact Face Perception? Neuroimaging Evidence for Differences between Artists and Non-Artists

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Drawing is essential for many artists and a core element of academic artistic education. Students of Fine Arts universities go through extensive drawing-from-life training, becoming proficient in it. Expertise in most areas leads to improved performance and, for some activities, neural differences. In fields like dance, music and shooting, experts exhibited higher alpha power in EEG experiments compared to non-experts. Academic drawing training includes figure drawing and portraiture. Students are therefore frequently engaged in tasks that involve face perception in a context of high attentional demand. When assessing neural responses to face perception tasks, EEG researchers often look into N170 amplitude – it is an event-related potential particularly responsive to faces and has been shown to be sensitive to the degree of abstraction, simplification, and incompleteness of facial depictions. We hypothesized that the visual artists' drawing expertise might be evidenced by increased alpha during drawing. Moreover, given the focus on portraiture, we also investigated whether visual artists might have enhanced face perception abilities by looking into their N170 responses. In this EEG study, we compared 15 visual artists and 15 non-artists during a drawing task (an expertise-specific activity) and a face perception task (a common process, non-expertise-specific). Alpha power and the N170 ERP were measured, respectively. The face perception task included different levels of completeness (by excluding the eyes, mouth and/or nose) to test whether the artists would be more responsive to these. Artists displayed significantly stronger alpha power than non-artists while drawing ($p = 0.004$). During the face perception task, the N170's amplitude appears to be more pronounced in artists ($p = 0.068$), but no interaction effect was found between the groups and completeness levels. These results suggest that frequent drawing practice has the potential lead to differences in neural responses during an expertise-related activity, and to modulate face perception.

Is It a Match? How Voice and Face Contribute to Overall Attractiveness in Online Settings and Real-Life Dating

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Research has found evidence for audiovisual integration in several fields related to human social interactions, including speech, identity recognition, and emotion recognition. Surprisingly, few studies have examined audiovisual integration of attractiveness judgments. Are judgements based on sound (i.e., voices) and judgements based on visual information (i.e., faces) combined when assessing overall person attractiveness? If so, what is the predictive value of each modality? We defined several possible outcomes: a) one modality is the better predictor, b) overall attractiveness results from an integrative process of both modalities, or c) overall attractiveness cannot be modelled by any of the modalities. To address this question, we conducted an online experiment (Study 1) using participant-created video material; and a field study (Study 2) using real-life interactions. In Study 1, participants first judged person attractiveness based on information from either audio recordings or muted video recordings, and second based on information from an audiovisual video (i.e., voice and face in an online-experiment. In Study 2, we included a speed-dating event where participants met a subset of the individuals they previously rated. Here they interacted with each other for 4 minutes and judged person attractiveness again, using all information available from a real-life interaction. We found that in both settings, online and real-life, voice and face were significant predictors of overall person attractiveness. However, our results suggest a different integration in online evaluations than in real-life evaluations. Together, these studies clarify the relative contributions of faces and voices to person attractiveness judgements and, furthermore, allow us to compare results from online experiences with real-life encounters. Moreover, exploratory analyses emphasize the importance of attractiveness research by showing strong correlations between attractiveness evaluations and speed-dating.

Art has no Gender, only Gender Bias

Stefanie De Winter, Nicole Ruta, Claudia Damiano and Johan Wagemans

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The current study investigated whether gender could be distinguished in a set of Abstract Expressionist paintings ($N = 160$) by an equal number of female (Krasner, Frankenthaler, Mitchell, Hartigan) and male (Pollock, Louis, Twombly, Kline) artists. The study consisted of three experiments and was performed by three separate groups of participants (total $N = 800$). In Experiment 1, participants judged whether the artwork was painted by a female or male artist and then reported whether their decision was based on colour, line, or composition of the artwork. In Experiment 2, participants assessed each work according to thirty-two characterisations drawn from art criticism, while in Experiment 3 they indicated their aesthetic appreciation for the artworks. Results showed that, overall, participants were significantly more likely to judge that the artworks were painted by males, regardless of the actual gender of the artist ($\chi2 = 266.3$, $df = 1$, $p < 0.001$). Participants relied significantly more on colour when judging artworks as painted by females, compared to line and composition ($\chi2 = 697.5$, $df = 14$, $p < 0.001$), in line with image feature analysis showing that women artists used more warm colours than men ($F(1,152) = 7.78$, $p < 0.01$). Contrary to the art critics' view of female Abstract Expressionist art in the 1960s, artworks by women were rated higher on masculine attributes and lower on feminine attributes than the ones made by their male colleagues (beta = -0.31, $t(2551) = -3.98$, $p < 0.001$). Finally, liking, complexity, pleasure and order ratings of artworks made by women were not significantly different from those by men (all post-hoc comparisons: $p > 0.05$). Across the three experiments, we provide evidence that viewers have a male gender bias towards paintings' authorship, although the artists' gender is not a significant contributor to the appreciation of Abstract Expressionist paintings.

Spectatorship of Paintings Depicting White and Black Sitters. The Effect of Implicit Racial Bias on Aesthetic Response

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Our previous research in face perception has established a possible link between eye movements, individuation experience, and implicit racial bias of other-race faces. However, it remains unclear to what extent implicit racial bias and individuation experience with other communities might influence spectatorship of paintings that depict other-race sitters. Here we examined how aesthetic experience gained during spectatorship of paintings that represent White and Black sitters might be modulated by viewer's individuation experience and implicit racial bias. Sixty-six participants viewed ten artworks at their own pace at the Walker Art Gallery Liverpool, while their eye movements were recorded. Participants completed a set of rating scales measuring their aesthetic response to the artwork, as well as the implicit association test (IAT), a questionnaire on individuation experience towards White and Blacks, and an art interest questionnaire after viewing artworks. The results showed that participants found paintings depicting Black sitters more interesting, emotionally moving, and pleasurable than those depicting White sitters. More importantly, while the aesthetic response to the artworks depicting White sitters was not predicted by implicit racial bias and individuation experience, the aesthetic response to the artworks depicting Black sitters was negatively predicted by increased positive bias towards Black people. This effect was modulated by an interaction between individuation experience and implicit bias, predominantly with observers who reported high individuation experience with Black people. Our findings reveal the complexity of perceptual and socio-cognitive influences on the spectatorship of paintings representing other communities. The results are discussed in terms of the functional role of viewer's experiences and attitudes when adopting an aesthetic mode of attention in real-world settings.

The Digital Punctum: Simulated Body Double(s) and the Sensory Shock

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Photography, as Barthes points out, made it possible for the self to experience an incompossible co-presence through the splitting of consciousness and identity when the self confronts herself as an other, a spectre. According to Barthes, this happens only through the immediate relation between the photographic viewer and the represented subject. The 'punctum' is the defining element in a photograph that triggers an affective state in the viewer. This rupture induces a 'superimposition of reality and of the past' (2000, 76). The notion of the analog photographic punctum, as developed by Roland Barthes, is now transposed to the wide-ranging applications of the digitized photographic image. The custom-made interactive media installation of my own making, called the diplorasis, produces a re-'vision' of the punctum. Within the installation the digitization of the photograph is integrated with-in a 'live' feed. By producing live and unexpected stereo- photographic images of the participant within the mediated environment of the diplorasis, a punctum is induced in the participant. In the diplorasis the viewer tries to adapt to the re-duplicated environment that produces a paradoxical splitting between one's body and the body-image in space-time. A multiplicity of incompossible presents alter the causal actual-virtual relations in this interactive experience. One enters into a more expanded connection with virtual elements, as she tries to adapt to multiple self-images that appear from an out-of-body perceptual viewpoint. Barthes's punctum is a rupture that induces a 'superimposition of reality and of the past' (2000, 76) through the photographic image. Yet as photography has become embedded in our lives, the possibility for it to trigger this affective state has become diluted. The impact of the analog photographic punctum has now faded with the assimilation of photography in everyday life. Instead, the punctum effect has now shifted to new formats of digital imaging.

Cognitive Challenge when Viewing Contemporary Art: Behavioural and Postural Reactions

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Contemporary art often challenges viewers by disrupting standard methods of representation. It has been shown that this cognitive challenge can stem from both artworks content (e.g., semantic violations), and context (e.g., consistent and inconsistent titles). In our previous studies we investigated eye movements when viewing paintings with and without semantic violations and found that semantic violations and inconsistent titles are challenging for viewers, influencing the eye movements behaviour (Ganczarek et al., 2020, 2022). The aim of the current study was to explore postural control responses to challenging processing of contemporary art. The participants ($N = 100$, without expertise in visual arts) viewed 20 contemporary paintings (10 with semantic violations and 10 without semantic violations) under one of three randomly assigned experimental conditions: image alone (untitled), images accompanied by consistent or by inconsistent titles. Participants viewed each painting for 25 seconds whilst standing on a force plate recording their postural sway at 100 Hz. Participants were asked to assess each painting and their reactions to them on the following variables: understanding, complexity, ambiguity, being moved-by, being drawn-towards, and liking. The results confirmed previous findings that images with semantic violations and inconsistent titles were related to high cognitive challenge (i.e., low understanding, high complexity and ambiguity). We also found that the cognitive challenge did not have a significant effect on the measures of postural control. However, semantic violations were related to a more variable body sway in the anterio-posterior direction, and inconsistent titles were related to less variable body sway in the medio-lateral direction. Also, recurrence quantification analysis revealed lower predictability, complexity and stability of body sway when viewing paintings with inconsistent titles compared to consistent titles. Our results suggest that viewing art involves the whole body and that artworks' content and titles have different effects on the dynamic organization of postural control.

Talk Session 3: Art in Context: Museums and Art Spaces

A Time and a Place to Perceive Art: In-Depth, but not Simple, Appraisals of Art Exhibition Are Higher for Artworks Viewed in a Museum than a Laboratory

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Most empirical aesthetics research strips away the environments and experiences that art viewers commonly enjoy. While these restrictions can be important to study the effects of certain features (e.g., symmetry, contrast, etc.) on aesthetic appraisal, the limitations placed on viewers may inhibit their ability to engage with the artworks on a deeper level. We sought to explore how a typical experimental design impacts the art viewing experience, in comparison to a museum visit. We focused on the exhibition Take Your Time, at M Museum in Leuven, which centred around a dialogue between past and present. The artworks were either viewed in person at the museum or on a computer in the laboratory. Participants either followed a free-viewing (self-selected order, unlimited time, unrestricted distances/angles) or a rigid-viewing protocol (predetermined order, 10s presentations, restricted distances/angles). 162 Participants (~40/condition) had their eye-movements tracked and were required to provide pleasure and interest ratings for each artwork. After the viewing session, participants provided their impressions of the entire exhibition. Exhibition pleasure and interest ratings did not differ between conditions, however other exhibition-wide ratings (i.e., seeing connection between artworks, typicality, expectation match, being more than sum of its parts) were higher in the museum, irrespective of viewing constraints. Linear regressions show that participants' pre-existing art style preferences is the strongest predictor of responses to individual works, while also revealing complex interactions between location, viewing constraints, viewing time, and art form (i.e., sculpture, painting, installation). These findings suggest that the context in which we study art perception matters, particularly for in-depth appraisals, though this context may matter less for simple appraisals (i.e., pleasure or interest). The strength of the context effect depends largely on the individual work in question, and (to a lesser extent) on the art style or form.

Between Mental and Material Heritage. Eye-Tracking Study on Perception of Medieval Nubian Paintings from Old Dongola Archaeological Site

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The role of archaeologists is not only to discover material heritage, but also to make it available to a wide audience. However, this task can be challenging, especially in a situation where the archaeologist belongs to a different culture than the one of the local community. One reason for this are culturally grounded cognitive differences (for example the tendency for representatives of collectivist cultures to perceive holistically vs. the tendency for representatives of individualist cultures to perceive analytically). This and other factors (like differences in knowledge or aesthetic preferences) may play a role in the understanding and value of archaeological remains (especially with varying preservation state). To address this problem an eye-tracking research was conducted in Old Dongola archaeological site (Sudan) in December 2022. The main objective of the study was to investigate if and how cultural and social factors (gender, education) affect the perception of archaeological heritage. During the study Sudanese ($n = 55$) and Western ($n = 19$) visitors equipped with eye-tracker visited two rooms containing medieval paintings. After each visit an interview on understanding of medieval paintings was conducted. During the speech, the differences and similarities in the perception, understanding and esthetic assessment of paintings by Sudanese and Western visitors will be discussed. The results show that to some extent people process paintings in similar way, regardless of their cultural background. However, they differ in the understanding and also the emotional evaluation of the paintings. Another important factor influencing the reception and aesthetic assessment of the paintings is their state of preservation. This study is the first step towards understanding how "mental heritage" (cultural grounded cognitive mechanisms and knowledge) shapes the understanding of the material remains of the. Its purpose is to make the archaeological heritage more accessible.

What Did the Art Mean? A Case Study of an Installation by Artist Anselm Kiefer

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Beauty judgments can be biased towards or away from a previous beauty judgment. Such effects are called "assimilation" and "contrast" and have been reported mostly for relatively homogeneous sets of stimuli (e.g., faces). How does stimuli similarity influence contrast and assimilation effects? 150 participants rated the beauty of 75 diverse images (everyday snapshots), semantically similar images (sunsets), or images of the same subject (fashion photoshoot). All participants rated the stimuli twice, in two randomized orders. Using linear mixed-effects models, we estimated how well the first rating, the preceding rating, and the first rating of the preceding image predicted the second rating. Huang and colleagues (2018) suggest that assimilation effects stem from anchoring of the previous response while contrast effects stem from perceptual adaptation. Based on their theory, we would expect that the preceding rating would have a positive effect on the repeated rating (indicative of an assimilation effect) and the original rating of the preceding image would have a negative effect on the repeated rating (indicative of a contrast effect). We found that as the similarity between the stimuli in the set increases, the magnitude of assimilation and contrast effects increases. Overall, our results highlight that stimulus homogeneity influences order effects.

Does Genuineness Matter? – Comparing Beauty Ratings of Original Drawings and their Digital Copies in Different Settings

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The so-called genuineness-effect describes a presumed phenomenon after which original artworks provide a qualitatively higher aesthetic experience as digital representations. To date, in most of the studies on this topic, there was no control for setting (e.g., original painting in a gallery vs. digital copy

in the lab), and texture/size (e.g., original large oil paintings vs. small digital copies of the same paintings). Therefore, results on the genuineness-effect can often be attributed to ambience in museums and/or three-dimensional texture and largeness of the original artworks. To eliminate these confounding factors, participants were asked to rate 30 drawings for "beauty" in four settings: (A) original drawing in the museum, (B) digital copy of the drawing in the museum, (C) digital copy of the drawing in our lab, and (D) digital copy of the drawing at home in an online study. All original drawings had no visible texture, and their digital copies were similar in size. There were significantly higher ratings for "beauty" in setting (A) and (D) as compared to ratings in settings (B) and (C), meaning that original drawings in museums and digital copies at home received overall higher ratings than digital copies in the museum or the lab. Since beauty ratings were similar for the original drawings in the museum (A) and the digital copies in the online setting (D), there was no sole genuineness effect. Instead, one could speculate that the setting has an influence on beauty ratings. Sitting on a chair in front of a computer - in museum (B) or lab (C) – might be uncomfortable and influence beauty ratings negatively, while walking through the museum (A) and being at home (D) could be more pleasant and might enhance beauty ratings. Possibly, future studies will address this hypothesis.

Aesthetic Appreciation in Ganzfeld Art

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As our world becomes more digital, our interactions with art increasingly occur online through reproductions. Especially now, in the wake of the Covid-19 pandemic, people often have not been able to engage with physical artworks and all kinds of cultural institutions have been forced to close their doors and were only accessible virtually. Therefore, I will focus on the genuineness effect – the difference in aesthetic experience between a physical work of art and its (digital) reproduction. Specifically, by presenting the results of 2 studies (that have been accepted as a registered report manuscript) I will ask the question if the anchoring effect could explain why the genuineness effect has

so far not been found in empirical work. In its most general form, the anchoring effect entails that people make relative judgements and decisions compared to some reference point or "anchor". It is one of the most robust findings in psychology, and therefore it seems plausible, that such a basic cognitive process would apply to art evaluation. Nonetheless, initial findings of Study 1 (data collection of Study 2 will be completed June 2022) did not find evidence for a genuineness effect. In addition, these initial results seem to underscore the need to incorporate linear mixed models to account for random effects of stimuli (in our case, artworks). I will argue that a better understanding of the genuineness effect – or lack thereof – could not only have a far-reaching impact on the role of cultural institutions and art in our society, but also our scientific understanding of how we interact and engage with art as well as our empirical approach to studying these topics. I will therefore also discuss future directions for the continued investigation of the genuineness effect and how they may be relevant for empirical aesthetics in general.

The (Brain) of the Artist is Present: Comparing Brain Synchrony and the Transformative Potential of Performance Srt in an "Srt vs. Non-Art" Context using FNirs

Theresa Rahel Demmer, Max Schuber, Corinna Kühnapfel and Matthew Pelowski

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"It's plain to me that this is something incredible. I give people a space to simply sit in silence and communicate with me deeply but non-verbally. I did almost nothing, but they take this religious experience from it." (Abramovic, 2010).

Talk Session 4: Dialogues between Science and the Humanities

Visual Science through the Artistic Translation of Scientific Hypotheses

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The visual communication of scientific content is still a debated topic. All too often, the question revolves around a choice between scientificity and clarity. In this, we often disregard that the potential viewers of the visualisation are most certainly capable of recognising the scientific nature as such and of appreciating an adequate presentation accordingly. Not least the interest in science brings with it an openness on the part of the viewer to engage with a perception that does not correspond to physical reality, not to mention visual communication within the sciences themselves. On behalf of art, or more generally on behalf of the creative disciplines, openness is a given anyway, since they specialise in creating new forms of visual artefacts that are not merely taken over from physical reality as ready mades, but are reflected upon and created and presented in innovative forms. The necessity to communicate scientific concepts, often in the form of abstract hypotheses, due above all to the uncertainty in knowledge, usually leads to falling back on the verbal form, the word. But this is precisely where the design disciplines have their expertise, namely in giving abstract thoughts, such as scientific hypotheses, a visual form of appearance. In this way, interdisciplinary consortiums emerge whose aim is to bring art and science together in such a way that art translates the scientific word into visual language. If this process is iterative, the result can remain as close as possible to the original meaning, i.e. without becoming speculative. Following the presentation of exhibited projects (Palatine, Pompeii, Jerusalem, Cologne Cathedral, etc.) on a poster at the VSAC Conference 2022, this contribution shall present and discuss the latest developments in this field (especially regarding the perception of space in motion using the roman amphitheatre of Dyrrachium) in a lecture presentation.

Art & Flourishing: A Conversation between Psychology and Philosophy

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Our perceptual system exhibits a peculiar bias: When estimating the location of a light source a priori, it is assumed to be above (which makes sense given the sun) and slightly on the left. Although this bias is subtle and can only be revealed by using ambiguous stimuli, it nonetheless affects our actions. Already during the Early Renaissance, artists started to compose the scene to place the light source on the left. We investigated whether the same pattern is observed when an image is designed by "laypersons" who are not explicitly trained in the arts and were free to position objects. 224 participants in an online study composed a painting using pre-drawn elements that could be freely selected from a pool of 30 everyday entities typically used in simple figurative scenes (e.g., a house, clouds, a car, various figures of people) plus a sun. 170 participants (76%) included the sun in their painting, placing it at the top (the average elevation was 85% of the maximum height of the picture frame). Although the participants mostly placed the sun off the vertical centerline, they did not prefer a specific side (the average horizontal position was 53% [48%…59%] of picture width (mean, and 95% bootstrapped confidence interval). We could not find an effect of the participant's age on the position as well. This implies that top-left light source placement by professional artists most likely reflects implicit perceptual preferences (this way, a painting "looks better") rather than explicit cognitive knowledge.

György Kepes's Unfinished 'Light Book', an Encyclopedic Survey on New Media Art

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My paper is focusing on an unfinished book manuscript written by György Kepes, a Hungarian-American painter, photographer, designer, university professor, curator, and theoretician, between the 1930s into the 1980s. Kepes's work consists of a palimpsest of visual and textual materials he collected, produced, and wrote over his lifetime. It meant to be published as the second book he would have been written on his own after the 1944 Language of Vision and

the many other publications he edited in the field of art and Gestalt theory, including The Visual Arts Today where Kepes used the term "visual culture" the first time in history. György Kepes was the founding figure of the Chicago New Bauhaus Light Department in 1937 and was awarded two Rockefeller Fellowships, one in 1954 for the Perceptual Form of the City that served as an urban study at MIT and subsequently in 1959 to complete his research on light as a tool in art and architecture. Kepes's unfinished and unpublished book manuscript draws from these scholarships to situate kinetic art in a broader art historical framework and presented the medium as an autonomous discipline with its own language and vocabulary, involving both technical lore and artistic sensibility. The contextualization of the results of Kepes's findings and their juxtaposition of the developments of today is inseparable from the historical inspection of the early instruments for scientific image production as well as the exploration of the human's place in the world, social environment, nature, and their mutual relationship.

Analysis of the Art of bird's-Eye Cartography

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Since the earliest days, cartography was an outlet for the meticulous creative talents of artists, who added artistic flourishes to the Cartesian rigour of the mapping geometry of the cartographic representation. A particularly challenging form of artistic cartography was the oblique bird's-eye view of a scene such as a cityscape or urban conurbation, requiring a vertically allocentric transformation from the egocentric ground-level landscape standpoint upwards towards the cartographically-accurate overhead aerial view. But whereas the direct aerial view could be paced out with a compass to determine its accurate geometry, the oblique bird's-eye view required a perspective transform of this information that could not be traced directly from the scene from the egocentric viewpoint. I review the development of the bird's-eye cartographic view from the mid-Renaissance Italian and German cartographers to the contributions of Francesco Rosselli, Leonardo da Vinci, Albrecht Altdorfer, and El Greco in this particular art form (including a Renaissance bird's-eye view of Cyprus itself).

Bridges between Art and Science – History, Methods, Questions, and Current Practices

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Science and art are often thought of as opposites: the first is frequently depicted as rational, methodic and result-driven, while the latter is more associated with skill, creativity, and passion. There is even the widely prevalent myth that each of us is either more "right-brained" or "left-brained" and, therefore, more apt for rational or creative endeavors. This misconception pushes a type of biologically deterministic thinking and leads us to believe that being artistically or scientifically inclined works in an "either-or" logic. In this exchange between an artist and a researcher, we propose taking a more in-depth look at the relationship between the two fields, focusing on what art and science have in common. The discussion will begin with a brief historical context on how art and science have overlapped – from the usage of drawing as method of scientific documentation, to how advances in science have shaped art practice, both technically (e.g., invention of printmaking and the possibility to reproduce artwork) and conceptually (e.g., the invention of photography and consequent impressionist wave in painting). We will then discuss how one goes about developing an artistic or scientific project, and how some of the stages are similar – beginning with researching the state of the art, on to fine-tuning the methods, experimenting (in the lab or the studio) and, as a result, producing a presentable and communicable outcome. We also want to debate whether the drives behind these seemingly different undertakings are akin: regardless of field and method, are we not just trying to attain a better understanding of ourselves and our surroundings? Our intervention will end with a reflection on how this dialogue can benefit both art and science, while providing contemporary examples of how these two fields intertwine today.

Subjective and Objective Pictorial Research

Maarten Wijntjes
Delft University of Technology, The Netherlands

Artistic images are generally analysed by the expert eye, and recently computational analyses have gained popularity forming the field of digital art history. A third possibility of analysing artistic images is using a group of non-expert eyes using crowdsourcing. This offers the possibility to analyse images from two different perspectives: objective and subjective. In the current project, we demonstrate these two cases. For the objective case we investigated perspective handling of the Dutch painter Hendrick Avercamp. Participants had to annotate human figures and the horizon. We found that Avercamp lowered his perspective viewpoint the older he became. For the subjective case, we let participants adjust the place of the servant in Rembrandts' "Syndics of the Drapers Guild", as imaging studies had revealed that Rembrandt himself doubted about the placement. Indeed, participants' doubts resembled the underdrawings that revealed Rembrandts' explorations. Although these two studies have their own merit, their combination revealed an interesting insight: for the objective case the difference between participants was regarded as measurement noise but for the subjective case it was meaningful noise, reflecting the subjective variability. Furthermore, the study underscores that some analyses on images can (eventually) be performed automatically, but for the subjective impressions of artistic images we will always need human participants.

Talk Session 5: Art with Other Intelligences

Visual Perception of AI Generated Materials

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Art has been used by scientists to study human perception because painters can create visual representations that are not limited by the laws of physics. Recently, a new possibility has emerged: generative AI. Although the recipes for image making are less clear than the traditional arts, they also demonstrate a wide array of convincing images that can be used to probe visual perception. In this study, we replaced the artist with generative AI models to investigate

material perception. In a previous study in 2022, we used text to image models from DALL·E and Midjourney to generate images of material spheres. We asked participants to select the similar material pair within triplets. Data were then analyzed with the ordinal embedding method to construct a multidimensional perceptual space. In the current study, 32 materials in three shapes were generated with controlNet and Stable Diffusion based on short prompts such as 'a blue acrylic object'. 20 participants judged each shape group. Same procedure and data analysis tools were used as the previous study. Previously, the perceptual space from Midjourney reached a 2D solution but with low cross validation accuracy (61.43%), while for the DALL·E space it was difficult to determine the dimensionality. Both indicated high ambiguity. In the current study, however, for all three spaces, a 2D space was sufficient to explain the observers' judgements, all with high accuracy: 71.36%, 71.75% and 68.37%. The three spaces also correlate highly, $r = 0.95$, 0.87 and 0.91, indicating consistent and robust results, and improvement of AI tools. In addition, all three spaces correlated highly with the 2D space from the computer graphics method, indicating similar performance. Yet creative prompting may lead to a broader selection of possible images. One of the dimensions of all three spaces seems to be glossiness, the other requires further study to explain.

'Am (A)I Creative?': About the Perception of AI Supported Creativity

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Image- and text-creating Artificial Intelligences (AIs) such as Dall-E 2 and ChatGPT. make creative work with AI accessible to a broad mass. Thus, the question of authorship also raises the question of perceived creative output. Who has contributed how much to the work according to self-perception and the perception of others? How creative do we perceive the works of an AI compared to a human-made work, and how does it influence our perception when we create the works in cooperation with an AI? Narratives seem to offer interesting opportunities to conduct systematic research in addition to the usage of classic creativity measurements (e.g., Rhodes 4P, Creative Self-Efficacy). We compare the effects of different cover stories in a 3×2 design, each using the same unfamiliar artistic stimuli but varying the authorship: created by a human vs. AI, trained as an artist vs. trained as a craftsperson, own AI cocreated vs foreign AI cocreated.

The Advent of Modernism through the Lens of the Early Visual System

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The history of Western art is subject to a complex interaction between cultural constructions of representational canons, social interactions, and cycles of emergence and turnover of styles. But it also rests on a more biological dimension: we humans perceive artworks through our senses, which have been shaped by millions of years of evolution in natural environments. A fundamental question in art and aesthetics is whether these cultural and natural facets interact. We processed over 100,000 paintings from the WikiArt database dating from the Renaissance to Postmodern Art using a biologically based model of the early visual cortex made to extract contour efficiently in natural scenes. We then extracted several 'low-level' statistics from the model response (distribution of orientations, local contrast) and global statistics (Fourier slope; Mather, Art & Perception, 2018) known to play a role in visual perception, which provided time series describing the evolution of these statistics throughout Western art history. We found consistent turning points between 1860 and 1890. Prior to this period statistics systematically shifted towards the typical values for natural scenes. After this period, the shift was away from nature. Together, these results show that the early onset of modernism was accompanied by a systematic emancipation of artists with respect to natural statistics. These findings agree with mimesis being one of the main driving forces in pictorial expression until it was progressively and partially abandoned from the advent of modernism. As a major technical discovery – photography – is likely to have fomented defection from mimesis, along with a general movement giving the artist's subjectivity a central place, our study raises questions on the recent rise of A.I. in art practice. Overall, the analysis of the evolution of artwork statistics over time suggests a complex interplay between cultural and biological organizing principles in the history of art.

The Face of Mischief: A Facial Expression Signaling Play Aggression

Loren Matelsky, Hong Nguyen, Colleen Macklin and Benjamin van Buren

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To navigate the social world, we must recognize and communicate about rules and norms through a variety of channels, including language, gestures, and facial expressions. This is quite a feat because social rules are often highly intricate. For example, during play, a general norm (e.g., not hitting others) may not apply within a specific context (e.g., a pillow fight) – a concept known in Game Studies as the 'magic circle'. Could the presence of such a hierarchically embedded rule system be communicated by a single facial expression? In other words, is there a 'face of mischief'? In Study 1, we used a reverse correlation approach to determine whether online participants recognize a specific facial expression as signaling mischievous intent. Subjects viewed pairs of faces with opposite noise patterns superimposed, and reported which face looked more like someone plotting to do something mischievous. The average of their selected faces had an expression which looked distinctly mischievous, and this was confirmed by an independent sample of raters. In Study 2, we ran a new reverse correlation experiment to confirm that this facial expression is specific to playful aggression. Each subject read about one of three types of social scenarios: Play (e.g., building a pillow fort), Aggression/Harm (e.g., stealing pillows), or Playful Aggression (e.g., having a pillow fight), and for several pairs of faces, judged which better matched the described behavior. An independent group of observers rated the average selected faces for the Play + Aggression scenarios as much more mischievous than the averages for the other scenarios. In Study 3, we found that the face of mischief is systematically asymmetric, with a slightly raised smile on the perceiver's right side. These results show that there is a distinct face of mischief, which communicates nuanced meaning about playful aggression.

Dialectics of Light

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In words of Leonardo, 'correctness of light cannot be measured or evaluated by technical means. Its representation is a definite manifestation of artistic talent which, unlike rules, cannot be learned.' Despite being one of the core elements for rendering space in figurative paintings, it is striking to notice how scant attention pictorial light has received throughout art history literature. Art historians have preferred to emphasize perspective as the major Renaissance achievement rather than light because perspective is more easily defined. Due to light's abstract nature, and unlike perspective, intention and accident are not easy to distinguish. Description of subtle changes in light features is a challenge not only for language but also for human perception. Visual psychologists have already shown that most of us are not particularly good at judging illumination features in a photograph (nor paintings, by extension). The present proposal is part of a more significant project which aims to explore the ways in which computational language may help to construct a renewed epistemology to further analyze and name light features in early modern painting. A machine learning model is set up to learn computer graphics-based light features (e.g., Spherical Harmonics) of automatically extracted faces from paintings. Starting from a distant viewing framework, dialectics of light proposes comparing contextualized emerging patterns and established taxonomies of light in art history (e.g., Lomazzo, Wolfgang Schöne). Furthermore, the project envisages the possibility of finding underlying relationships between the visual representation and the description of light encoded in large visual-language models (e.g., CLIP, diffusion-based models). Therefore, dialectics of light strives to highlight the synthesis and contradictions that emerge from the confrontation between machine and human perception.

What Games Reveal about the Appreciation of Visual Artworks

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What makes looking at a work of visual art enjoyable? According to one important class of theories, artworks often contain initial ambiguities, which viewers then resolve – producing a reward response akin to that associated with solving a puzzle. However, game designers typically distinguish puzzle games as just one of many kinds of games that people like to play. Whereas puzzles usually have just one solution and a limited number of ways to reach that solution, other types of games appeal to players by giving them more flexibility in their strategies and playstyles. Indeed, generally speaking, strategic multiplayer games have higher replay value than puzzle games, because on each replay, the player can pursue the same overarching goal (e.g., defeating the enemy team) in a different way each time. This helps to prevent habituation and gives players room for autonomy and individual expression. The authors of this conversation proposal are an experimental psychologist, and a game designer, who teach a course together about perception and the design of digital games. In this conversation, we will discuss some theoretical and practical issues that arise when designing games and works of visual art in which players or viewers can achieve a goal (e.g., defeating the enemy team; coming up with a sensible interpretation) using a variety of strategies or playstyles. We will discuss how games leverage ambiguity in strategic choice, using examples from contemporary videogames, and focus especially on how competitive multiplayer games depend on good 'balance' among different strategies, so that one strategy does not dominate every time. We will discuss how visual artists face an analogous challenge to game designers, in order to create more pleasurable, extended multiviewer experiences of their artworks. More generally, we will argue for the importance of considering the sociality of visual art appreciation.

POSTERS

How The Aesthete – Exploring a Personality Approach to Aesthetic Sensitivity

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Aesthetic sensitivity is still a challenging construct to define and measure. It seems to designate a skill of putting a coloured dot in the perfect place in a special context and situation at the right time and pokes fun at those who try to find the secret generalized attributes of this sensitivity behind this action. Aesthetic sensitivity is associated with skills of artists and persons with a special sense for it in everyday life and the social construction of reality labelled them as an 'Aesthete'. Therefore, in a first step, we started to explore the qualitative attributes of an Aesthete. 73 undergraduate psychology students were asked with a qualitative questionnaire on attributes, typical behaviours and concrete situations for Aesthetes they know. 89% knew one or more Aesthetes ($Md = 3$; $M = 5.03$; $SD = 7.48$). Using the MAXQDA software for qualitative content analysis, we sorted 198 codes (of 724 segments) in hierarchical categories within five different thematic dimensions: personality attributes (28.5%); object relation (23.6%); sense for aesthetics (21.1%); behaviour (17.5%) and value system/ appreciation (9.3%). Perfectionism, obsessed with detail, creativity, artistically talented, passion/obsession and sensitivity are some of the main attributes of an Aesthete. The students mentioned often and in detail the sense and awareness of aesthetics and beauty, which has a great value in the life of an Aesthete. They described them that they care for their appearance, create themselves and their environment with their style and that they prefer beautiful places. The Aesthete focuses mostly on clothing, art, interior decoration, music, and fashion. The explorative study gave first hints for additional aspects of aesthetic sensitivity from a personality view. The results will be used to develop a quantitative questionnaire to validate the qualitative data and to identify Aesthetes in combination with concrete instruments measuring aesthetic sensitivity.

Exploring Aesthetic and Mixed Emotions in a Large Data Set of Emotional Videos

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We explored the data set of Cowen and Keltner (2017; https://doi.org/gfhzd2), which includes ratings of 14 affective dimensions and 34 emotion categories for a set of 2,185 short emotion eliciting videos. Investigating the relations of aesthetic appreciation (one of the emotion categories) to the other affective dimensions and categories, we found support for a number of common assumptions about aesthetic emotions: 1) Plotting aesthetically appreciated videos in valence/arousal-space reveals that aesthetic appreciation is predominantly positive and covers the whole range of low to high arousal. 2) Aesthetic appreciation correlates highest with the affective dimensions of (positive) valence, safety, fairness, control, and approach. This is compatible with the assumptions that aesthetic appreciation is predominantly positive, usually takes place in a safe and controlled environment, and includes a motivational tendency of approach. 3) Co-occurrence analysis of the 34 emotion categories shows that aesthetic appreciation mostly appears together with the categories of awe, interest, entrancement, and calmness. 4) We constructed two indicators of mixed emotions: One from valence and arousal ratings and the other from the 10 most positive/negative emotion categories. With both indicators, the categories interest, excitement, amusement, and boredom show the highest correlations, while aesthetic appreciation has the 5th-highest correlation. This suggests that aesthetic appreciation includes a relatively high proportion of mixed emotions. 5) Using only the emotion categories of joy and sadness, we also constructed an indicator specifically targeting the emotion of being moved which often has been associated with aesthetic emotions. We found that aesthetic appreciation has the highest correlation of all emotion categories with this indicator. In sum, we re-analyzed an existing large data set of videos covering a wide range of emotions and explored the relationship of aesthetic to other emotional experiences. Our results align well with current conceptual theories of aesthetic emotions.

The Psychosocial Effects of Gender Identity and their Role in Experiencing Aesthetic States

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Previous research has identified that women have a greater propensity to feel aesthetic states (Silvia & Nusbaum 2011), however genetic research has identified no genotype differences between males and females that influence the tendency of feeling aesthetic chills (Bignardi et al 2022). The aim of the current research is to investigate why this relationship between gender identity and the tendency to feel intense aesthetic states exists. To explore this relationship, a sample size of at least 200 participants will complete a battery of surveys that will assess their self-conceptualization of gender identity (Kachel et al., 2016), empathy (Reniers et al., 2011), interoception (Mehling et al., 2018), and their tendency to feel aesthetic states (Silvia & Nusbaum 2011). It is hypothesized that our results will show that participants that self-conceptualize their gender identity as more feminine will experience more aesthetic chills, however this relationship will be mediated by psychological mechanisms, empathy and interoception. This study intends to emphasize how different psychological functions manifest within various identities of the Self, and further our understanding of individual differences in subjective experiences.

Towards a Virtualisation of an Art Experiencing Context: Comparing the Experience of Art Appreciation in a Gallery and a Shop Context using VR

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When people engage with art, they accept and even embrace feelings they tend to avoid daily. These include, among others, the experience of negative emotions, peak emotions, cognitive challenges, semantic instability, uncertainty, and even immoral behaviour. Why may that be? Philosophers since Plato argued that when people engage with objects identified as art, they adopt

a state of mind distinct from everyday processing. This specific state of mind affects the way people interact with these objects. Despite the central role of such a state of mind in experiencing art, there is a lack of direct evidence indicating its existence, with only a few studies testing it directly. In our VR (virtual reality) study, 32 participants freely interacted with the same nine, unfamiliar artistic pictures from a variety of styles, presented either in an art (gallery) or everyday (shop) context. Participants were randomly assigned to one of the context conditions. They were asked to qualify and describe their experiences following a think-aloud protocol through open questions. Then, participants completed the Art Reception Survey (ARS) verbally regarding each picture while in VR. Additionally, viewing times and the dynamics of viewing distances were measured. Lastly, participants completed open questions and questionnaires immediately after the VR experience and two weeks later. While the quantitative evaluative data did not reveal significant differences between the art and the non-art context, the qualitative data analysis is still ongoing. The lack of differences could have resulted from VR's ability to create an extraordinary atmosphere that called for meaningful interaction with the pictures, even in the shop condition. Nevertheless, we believe that the methodology employed, which allowed us to collect direct and immediate, as well as longitudinal responses to art, bears great potential to provide valuable insights into the nature of the art experience.

Comfort vs. Beauty of Fonts

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Subjective pleasure judgments about an object can come from an impression of the object (e.g., pleasure of looking at the printed page) or from an interaction with the object (e.g., pleasure of reading). Are these pleasures related? We use fonts to compare them. Each of 41 online participants completed two reading tasks for six out of twelve different fonts. Fonts ranged from very common reading fonts (e.g., Times New Roman) to unique display fonts (e.g., Extenda, which is extremely tall and narrow). The first reading task measured beauty and the second measured comfort. In the beauty task, participants looked at a short excerpt of Lorem Ipsum text in a particular font, a Latin text intended to demonstrate the visual form of a typeface. They then rated, on a 1-to-7 scale, how much beauty they felt from the font. In the second reading task, participants read a short excerpt from the children's book The Phantom

Tollbooth. Afterward, they rated, on a 1-to-7 scale, how comfortable it was to read the excerpt. They also provided written descriptions of what it was like to read that font. Results indicate that beauty and comfort are not correlated ($r = 0.02$, $p = 0.76$). On average, display fonts were less comfortable despite having similar mean beauty values. Beauty ratings also differed across age and sex. Overall, our results indicate that the pleasure obtained from the utility of a font (comfort of reading) is different than the pleasure obtained from its aesthetic evaluation (beauty of looking).

The Utility of Semantic Distance in the Development of the Remote Associates Test

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The research on creative cognition has increased in recent decades, including the studies of measurement development. The Remote Associates Test (RAT) is a measure of creative cognition, tapping into the ability of making associations between concepts. The most common version of the task is the linguistic Compound RAT (cRAT), which requires the participants to create compound words based on the given stimuli words. Due to the rationale of the task, the cRAT is dependent on linguistic abilities and provides an advantage for native speakers. Alternative for the cRAT is to ask participants to associate concepts based on sematic relationships (functional RAT; fRAT). In these tasks, the stimuli can be presented either with words or with images (visual RAT; vRAT). Some recent studies have investigated the use of visual-based stimuli in comparison to linguistic tasks (Olteteanu & Zunjani, 2019; Toivainen et al., 2018). The studies have reported moderate positive correlations between the linguistic and visual forms of the task. To develop the vRAT further, and to investigate the relationship between the linguistic and visual forms of the RAT, this study utilises the concept of semantic distance in the creation of additional items for the fRAT. Semantic distance provides a numerical reference point for the creation of stimuli words with increasing difficulty. The fRAT items, both linguistic and visual, will be then administered to the participants. The study will answer to the following research questions. First, are the test scores associated with the semantic distance scores? Second, what is the association between linguistic and visual version of the fRAT (e.g., to what extent are they measuring the same underlying ability)? The results from the study will improve the measurement of creative cognition and provide insights into the role of visual and linguistic processing in the ability to make remote associations.

Preferable Lighting conditions for deteriorated paintings – Focus on Ukiyo-e, Japanese woodblock print

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Recently, LED lighting, which doesn't contain ultraviolet radiation, has been introduced for lighting in museums. However, the colour appearance of artworks under LED light sources may be different from that under conventional light sources such as fluorescent lamps for different spectral distributions even with the same color temperature. To clarify the effects of differences in the colour and spectral distribution of LED illumination light on the appearance and desirability of the colours of ukiyo-e paintings, a subjective evaluation experiment was conducted under different deterioration levels. In the experiment, the Ukiyo-e print "Mitate hashi zukushi Nihonbashi," (private collection) produced by Toyohara Kunichika (1835-1900) was selected as the visual target. The painting was forcefully deteriorated using a solar irradiation system, and three images at different levels of deterioration were selected as the target images. We measured the 2D-spectral reflectance values of the images with 2D-spectral radiometer and created simulated images under 24 different lighting conditions with different CCT (from yellowish to blueish white light), duv (from reddish to greenish white light) and spectral distributions at an illuminance of 200 lx, and 72 digital images were created in total. Participants observed each digital image and rated colour appearance for 'vividness of red', 'vividness of purple', 'unnaturalness of the painting' and 'feeling of oldness' with a numerical scale from 0 to 10. They also evaluated the impression with SD method using nine adjective pairs, and 'preference of paintings. The results showed that under the greenish 4000K lighting, the images look older than that under the reddish 3000K lighting. Also, lighting with blue and yellow spectral distribution tended to look this artwork older than that with red-green-blue spectral distribution. Moreover, the beautiful impression was also acquired under slightly reddish 3000K to 5000K lighting conditions. *This study was supported by JSPS KAKENHI Grant Number 18KK0282.

The Influence of Semantic Context on Contemporary Art Evaluation and Valuation

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Questions about aesthetic valuation of an artwork with text-based information in a real-world context such as market value of museum qualifications, collecting properties, and socio-cultural merit have been overlooked in previous scientific inquiry. Furthermore, the use of artworks made by and contemporary artists outside the established canon as a stimulus in aesthetic evaluation have been largely excluded from scientific investigation (Chatterjee & Bromberg, 2014). We propose a study that will provide an experiment with ecological validity as it simulates the current art viewing experience in the 2023 global art market economy as well as primes for the enhancement of museum context of art evaluation (Brieber, 2015). In this investigation we will mimic an art exhibition where participants will be gallery goers will evaluate unique artworks and ascribe value, as well as have the option to collect, after choosing to reading information about them. This study will look at how semantic context about artists and artworks effects viewers aesthetic evaluations of likeness beauty interestingness as well as how engagement influence's market valuation which will be measured by questionnaire about the stimulus's the appropriateness in a museum setting, desire to be collected, and the social impact. The type of text viewers can engage with will be either no text, text about the artist, text about the technique, or text about both the artist and the technique. The investigators will work with the six participating artists to create the two types of text used, artist context and technique context. This behaviour with an EEG component study will also consider if artistic style influences engagement, as well as evaluation and valuation ratings as well as investigate if there is cognitive activity in areas associated with mind wandering, narrative engagement, and aesthetic judgements in museum context in no text and text context conditions.

Uncovering the Asymmetry between Morning and Evening Depiction and Perception in Paintings

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The appearance of the sky, and the characteristics of daylight more generally, fluctuate with the shifting seasons and changing time of day. If the sun's elevation were the only contributing factor, morning and evening light would be the same. Yet the spectral and spatial characteristics of natural illumination depend on other factors. Painters have long acknowledged and exploited these effects. For example, Willem Beurs, in his 17th century treatise on how to paint the sky "and its play on landscape and water" observed that the morning sky is cool and misty, after a cold night, while the evening sky, still carrying the warmth of the day, is warmer and drier. He also mentioned that warmer skies appear thinner, while colder skies appear thicker and more uniform. Here, we examine the differences in image statistics between paintings explicitly labelled morning vs. evening, and compare these with people's perceptions of the depicted time of day. We collected 90 outdoor paintings from Western European artists between the 17th and 20th centuries, with explicit morning or evening titles (metadata-classification). Participants rated the paintings as either morning or evening (observer-classification). We compared the relationships between image statistics based on chromaticity and luminance, and the metadata- and perceptual-classifications respectively. Our findings reveal subtle luminance differences and more pronounced chromaticity variations between the metadata-classified morning and evening depictions. Chromaticity differences are more evident in observer-classified paintings than in metadata classifications, suggesting that chromaticity plays a key role in distinguishing between the two. Observers generally perceive "bluer" paintings as depicting morning, consistent with the paintings' metadata. Morning depictions often include mists, resulting in neutral, whitish airlight chromaticity, while evening airlight chromaticity varies from bluish to reddish hues. Our study highlights the painting features influencing time-of-day perception and emphasizes chromaticity's role in differentiating between morning and evening artistic representations.

Comparing Image Datasets for Visual Aesthetics Research: Exploring the Predictability of Beauty, Liking, and Aesthetic Quality

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The field of experimental and computational aesthetics has generated numerous image datasets over the last two decades. In the present study, we have selected twelve such datasets that include traditional or abstract paintings, photographs, or AI-generated images along with corresponding aesthetically related ratings such as 'beauty', 'liking', or 'aesthetic quality'. Our objective is to evaluate the reproducibility of results across these datasets. Specifically, we investigate how consistently aesthetic ratings can be predicted using either A) a set of 20 statistical image features or B) the layers of a convolutional neural network trained for object recognition. Our findings suggest some similarities between groups of datasets, but also substantial differences in effect sizes. The explained variance of aesthetic ratings ranges from 4 to 24%. Interestingly, both the statistical image features and the top layers of the convolutional neural network can predict aesthetic ratings with similar accuracy. We find a high degree of overlap between the image information captured by the statistical image properties and the neural network, as well as some unique features. Overall, our study calls into question the generalizability of previous findings that rely on a single dataset. The discrepancies in results across the datasets examined underscore the importance of evaluating the reproducibility of results across multiple datasets to enhance the validity of research findings in the field of experimental and computational aesthetic.

To Show that the Painter Was There. Embodied Simulation and Cognitive Ambiguity in the Work of Pierre Bonnard (1910–1947)

Mario De Angelis

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The contribution aims to provide a brief demonstration of how an integrated approach of art history, phenomenology of the visible and neuroaesthetics can provide us with a novel key to the mature production of Pierre Bonnard (1920–1947). More specifically, starting from a close observation of the works and some of the artist's notes hitherto neglected by critics, the analysis will be condensed around two case studies: in the first, centred on the large oil painting Le Grand Nu Bleu (1924), an attempt will be made to account for the painter's tendency to graft the viewer in the first person onto his body (e.g., La Fenêtre, 1924). e.g., La Fenêtre, 1925, Le Jardin, 1936; Marthe au tub [photographie], 1908) and/or on that of his favourite model and life companion Marthe de Méligny (e.g., Nu dans le bain, 1925, Dans la salle de bains, 1940). To this end, in addition to a comparison with the contemporary epistemological reflections of Mach, Bergson and Merleau-Ponty, it will also be necessary to take into consideration the theoretical-empirical investigations of Freedberg and Gallese on 'embodied simulation' and the recent meditations on the subject of the affects by J.L Nancy and Didi-Huberman. In the second case, on the other hand, using the painting La Source (1917) as the pivot of the investigation and integrating some reflections on the thematisation of the spectator's gaze in figurative art (Fried, Wolheim, Stoichita) with the recent empirical literature on the fusiform face area of the brain and the so-called "neural-filling in" process (Zeki), we will try to deepen the particular research that Bonnard conducts on the human and animal gaze – or rather on its directional and emotional opacification -, with particular attention to the consequences on the reception of the work.

Say h(a)i to kawaii: Exploring a Popular Aesthetic Concept from Japan

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Kawaii (かわいい) is an increasingly popular aesthetic phenomenon from Japan that is often simply translated as "cute", sweet", or "lovely". Can all various connotations of kawaii be captured in one word exhaustively? What characteristics are connected to the kawaii aesthetic? We conducted an online study to learn more about kawaii semantics. Initially, students from Kanazawa University (Japan) were asked to take pictures of anything representing their personal notion of kawaii. Thirty of these photos with a broad variety of motifs (e.g., animals, flowers, food, makeup, mascots) were included in the survey as visual stimuli. A total of 106 undergraduate students (54 females, 49 males, 3 divers) from Kanazawa University aged between 18 and 22 years ($M = 19.14$ yrs., $SD = 1.45$) volunteered to participate. First, everyone rated three pictures and subsequently the term kawaii on a modified semantic differential with 60 (for pictures), 59 (for term) respectively, possibly related dimensions. For each dimension a unipolar 7-point Likert-scale (1 = *not at all*; 7 = *very much*) was used. Results indicated that the pictures were indeed perceived as very kawaii ($M = 5.14$, $SD = 1.70$) and cute ($M = 5.08$, SD = 1.67). Furthermore, the term kawaii was strongly associated with dimensions like cute, heartily, soothing, and liking, while being clearly not associated with strong, fast, heavy, disliking, bad, threatening, ugly, masculine, worthless, old-fashioned, hard, cold, sad, and creepy. Our findings suggest that cuteness and kawaii are indeed closely related concepts in Japan. The pictures evaluated reflect the Japanese kawaii concept well, yet show a large variety of different features and motifs – some of which may not appear "cute" by German standards (e.g., decorative arrangements, makeup). With the term "kawaii" recently entering German language, we assume that it will be a worthwhile task for future research to explore the perception and semantics of "kawaii" under a cross-cultural perspective.

ASMR: An Initial Classification System of Media Regarding Autonomous Sensory Meridian Responses

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A wide variety of sociocultural trends continuously flanks the globally expanding digitization. The ongoing enthusiasm for so-called ASMR (Autonomous Sensory Meridian Response) videos that are described as having the potential to trigger very strong thrills and chills, often termed "head orgasms", needs rigorous scientific testing which has not yet unfolded on a large scale. Moreover, the sheer huge amount of videos with an extreme variety of different types of ASMR videos calls for a transparent classification system as ASMR as such was never properly defined by science but is a term that emerged from the producing community itself. We initiated such a classification system by selecting the 100 most viewed ASMR videos and classified them by employing an extensive list of items which was dynamically expanded while inspecting all the material. The number of views ranged from 4.6 mill. to 419 mill. (M = 28.3 mill.) illustrating the immense impact these videos have. The duration of videos (short videos < 4 min. were excluded as they are not in accord with the community's goal to calm people) differed clearly but the mean of 34:47 minutes indicates decoupling from recent media trends towards ultra-short videos. Contentwise, we detected a strong focus on food topics (48%). In 21% of these videos, a distinctive camera angle is used, showing the protagonist from the mouth down to the shoulders, which inhibits a natural holistic face processing, as the face must be largely imagined. The selective processing of the mouth area potentially increases the degree of perceived artificiality. The videos showed a remarkable bias towards a strong aestheticized frame with artificially arranged environments (86%) and highly made-up protagonists (76%). Our data analysis is ongoing, including the specific usage of camera and microphone, and other perceptually relevant properties known to impact the aesthetic appreciation from movie research.

The Impact of the Dynamism of Painting Images on the Aesthetic Experience and Flow State of Art Recipients - Research Proposal

Daria Makurat and Martyna Olszewska

Nicolaus Copernicus University, Toruń, Poland

Aesthetic experience is a vast, yet new subject of scientific research. Studies consider how people react to art, what artistic preferences they have or is there a link between aesthetic perception and personality. The concept of aesthetic experience that we want to use in this study is that proposed by Csikszentmihalyi and Robinson, which states that aesthetic experience involves not only the reception of art but also the experience of flow. In this work, we want to further investigate this direction to see how the dynamism of the paintings influences the aesthetic experience and flow state appearing in the viewers. The flow state is usually abdicated in terms of creating something, and there is a lack of research concerning the state of flow during an activity such as viewing specific pictures. We would like to fill this gap in art research and explore how the flow changes when watching specific works. The study will include two sessions. During the first session participants will fill a questionnaire about the usually emerging aesthetic experience and the state of flow- Aesthetic Experience Questionnaire. After that, participants will display twelve selected paintings in random order on the laptop screen. They will then complete a shortened version of the AEQ for each painting. While viewing the images, the examined person will wear an HRV device in order to measure heart rate variability and eye-tracking device will collect data to explore patterns in static and dynamic paintings. These methods will help in the objective assessment of the flow state of the viewer. The second meeting will consist in completing questionnaires regarding personality traits, creativity, and aesthetic sensitivity. The results of the study may help to understand how we perceive works of art due to their dynamics in places such as museums.

The Aesthetics of Human-Made Components within Urban Environments: A Scoping Review

Kirren Chana, Margot Dehove, Tristan Barrière, Anna Lena Knoll, Jan Mikuni, Eva Specker, Mackenzie Trupp and Helmut Leder

University of Vienna, Austria

This poster presents the key findings from a scoping review conducted about aesthetic components in the urban environment. The urban environment has been explored from an array of fields, but with different approaches – some scientific research has placed an emphasis on greenspaces, usability, or general aspects of design. However, the importance and extent to which aesthetic aspects have been considered within this research it is not yet clear. With the notion of urban aesthetics gaining popularity as a research topic, we aim to obtain a more comprehensive overview of how and which components have been investigated in the existing literature. Moreover, given the widespread literature centring on wellbeing in our cities, a further interest is the extent to which wellbeing outcomes have been considered for such aesthetic components within the urban environment. Thus, to gain a deeper understanding as to how urban environments are explored through the lens of aesthetics, we identify what components of the urban environment are considered, how they have been aesthetically evaluated, and whether they have any wellbeing benefits.

Art as Intervention in the City: On the Effects of a Street-Level Gallery Exhibition on Neighbourhood Connectedness, Satisfaction and Psychological Wellbeing

Joerg Fingerhut[1], Corinna Kühnapfel[2], Mackenzie Trupp[2], and Matthew Pelowski[2]

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Publically visible art can stop us in our tracks. It offers us affordances to emotionally engage, to reflect or reorientate. This holds for public monuments, murals, but also for publicly available street-level gallery art. In our study we assessed whether an open, street-level exhibition in Gallery Wedding, Berlin, altered visitors' connection to, and satisfaction with their neighborhood, subjective wellbeing and empathic concern. The exhibition ("Job Center. Psychic

Places," artist: Emily Hunt, curator: Solvej H. Ovesen) aimed to re-mediate the relation to the surrounding neighborhood. We stopped by-passers to engage with the exhibition and assessed their attitudes pre-post the experience. They also had to aesthetically evaluate the exhibition. Preliminary results show that after engaging the exhibition, participants ($N = 64$) felt significantly more connected to the neighborhood and had improved subjective wellbeing. We also assessed the curator's and artist's intended emotions. Here we found that when visitors felt the artists' intended emotions more, they exhibited higher subjective wellbeing and empathic concern after the exhibition. For our presentation, we will adress also the subjective aesthetic evaluation of the art (as good, meaningful, etc.) and how it mediated the above effects. We will relate this to previous research and discuss both our method and the results with respect to the transformative potential of urban art.

Style cassification of classical European paintings with CNN

Isamu Motoyoshi and Natsuki Ueno

University of Tokyo, Japan

We previously analyzed the style of Western classical paintings based on low-level image statistics (Motoyoshi, 2019, VSAC). In the present study, we employed 'style' information of CNN (Gatys et al., 2015) to analyze painting styles with deeper features. We extracted the Gram matrices in five layers of VGG19 for 18,330 paintings by 2,545 painters in Western Europe from the 15-19th centuries, and applied MDS to visualize the relationships between paintings in a two-dimensional plane. In the resulting MDS plane, the first dimension appeared to represent the density of motifs in the pictures, and the second dimension the lightness-darkness of the background. We found several clusters according to techniques (oil, fresco, tempera) and to subject (history, mythology, portrait, landscape, etc.), but not to regional category (Italy, Dutch, etc.). The overall distribution of paintings on the MDS plane changed systematically, synchronizing decrease (e.g., religious) or the increase (e.g., landscapes) of specific subjects. Even within individual subjects, however, we found a trend toward darker and sparser styles from the 15th century to the early 16th century. This trend seemed to be consistent with the differences between Northern Netherlandish painting and the Italian Renaissance. In addition, for 69 most famous masters, we performed a cluster analysis based on average Gram matrix for each painter, and found five clusters: (A) Landscape, (B) Fresco, (C) Northern Renaissance, (D) Grand Manners, (E) Chiaroscuro/

Tenebrism, with A-B and C-D-E forming larger clusters. The earliest painters in each style cluster were Goyen (A), Masaccio (B), van Eyck (C), Bellini and da Vinci (D), and Caravaggio (E), respectively. These results are broadly consistent with interpretations in traditional studies of art history, and also suggest some unexpected observations, suggesting that CNN style information can be useful in classifying painting styles and analyzing their historical evolution.

Walk with Me through the Viennese Streets

Margot Dehove, Jan Mikuni, Elisabeth Oberzaucher and Helmut Leder

University of Vienna, Austria

This poster will present key findings from a field experiment on an art intervention constructed in urban environment. With urban populations growing rapidly and everyday life also being linked with a range of health-related issues, it is becoming more crucial to understand how our cities could be designed to be more considerate of its citizen's wellbeing. Past literature highlights a positive effect of urban green spaces (e.g., plants, trees, parks, etc) on wellbeing. In recent years, increasing evidence also points to the contribution of art towards wellbeing. Despite this, the effect of implementing art in an urban context has received little attention. Mitschke et al. (2017) is one of the few studies to investigate how people perceive art in an everyday setting in terms of how aesthetic evaluation influences viewing behaviour. The aim of the present study is thus to investigate the impact of artistic installations in public urban spaces on attention and wellbeing. We built two temporary parking-lot sized interventions on two Viennese city streets, either equipped with artworks or greenery. Participants then freely explored the street environment where the intervention was placed, while their eye movements and physiological reactions were recorded. With my contribution to the conference, I will present the paradigm we used in more detail, as well as a discussion of the first results.

Saliency and Strength of Mirror Symmetry in Images of Artworks in Relation to Appreciation and Computational Metrics

Lisa Koßmann, Gonzalo Muradás Odriozola, Christophe Bossens and Johan Wagemans

KU Leuven, Belgium

The relationship between mirror symmetry and aesthetic appreciation has intrigued vision scientists, empirical esthetics researchers and artists alike, but concrete evidence remains somewhat elusive to this day. In this multidisciplinary project, we investigate human symmetry detection for 100 images of artworks and relate these behavioral data to aesthetic appreciation and computational metrics. Participants were asked to place a rectangular bounding box around an image region they perceived as mirror-symmetric and to indicate the axis of symmetry. They could place as many boxes as they saw fit. For each of them, they also rated the perceived saliency of the region (i.e., how much it popped-out from the background) and the strength of the symmetry (i.e., from rather imperfect to almost perfect symmetry). Statistical analysis of 2,839 symmetries by 23 participants so far reveals that participants selected bigger regions of symmetry first and rated them higher on salience and strength of symmetry. Vertical axes of symmetry were most frequently indicated (around 80%). We used different metrics for image quality assessment to compute symmetry accuracy scores for the bounding boxes, revealing large discrepancies between participant ratings and objectively computed symmetry strength. These discrepancies between human and computational symmetry assessment emphasize the need to go beyond computer vision and employ deep learning models. Aesthetic liking of the images, rated by a different pool of observers, seems to be independent from both strength and saliency ratings (correlations <.1). This could be because mirror symmetry is only one aspect of good composition. Human data collection is still ongoing, including aesthetic judgements from the same participants. Additionally, we will train a deep learning model on symmetry detection and figure-ground segmentation, which we will present alongside these findings.

Open data and methods: https://osf.io/9tf4e/

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Cupid Stealing Attention – An Eye Tracking Study of Vermeer's 'Girl Reading a Letter at a Window'

Dana Gudrun Rottleb, Helene Gunhild Schaefermeyer and Gregor Uwe Hayn-Leichsenring

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"Girl reading a letter at a window" is an oil painting by Johannes Vermeer (1632–1675). A major restoration completed in 2021 revealed a painting of Cupid on the back wall that had been overpainted with homogeneous brown paint after Vermeer's death. The discovery of this painting within a painting changed not only the interpretation, but also the composition of the artwork. Here, we performed an eye tracking study on digital representations of the painting to investigate how the restoration altered the way people perceive this artwork. We defined five areas of interest (foreground, reader, window, letter, and cupid/wall). 19 naïve lay people were asked to look at the older version of the painting showing a blank wall in the background (version 1), the restored version, depicting a painting of Cupid (version 2), as well as both versions side-by-side while we monitored their eye movements. Participants then decided on which version they preferred. Overall, most fixations were on the reader and the window. As expected, we found less fixations on the overpainted wall in version 1 as compared to the Cupid in version 2. Fixations on Cupid in version 2 were more numerous when it was shown after version 1. Furthermore, the number of fixations on the foreground and the letter remained rather stable, while less fixations occurred on window and reader. When shown side-by-side, people looked more frequently at version 2. However, the majority of participants preferred version 1. Our results show that the Cupid receives more attention if participants are aware of version 1 and that attention is drawn from the reader and the window. Furthermore, we show that, without knowledge of the artwork's history, lay people favored version 1, the painting without Cupid.

This Isn't Art – Individual Views on Genuineness Are Related to what People Consider as Artworks

Helene Gunhild Schaefermeyer and Gregor Uwe Hayn-Leichsenring

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Philosophers often argue that genuineness (i.e., the qualities of an original work of art as opposed to a reproduction of an artwork) is crucial for aesthetic appreciation and aesthetic experiences. However, it is largely unknown how lay people view the genuineness of artworks. To address this question, we asked 100 participants to answer three questions on genuineness. Participants had to decide whether a perfect copy of an artwork is equal to the artwork itself, whether an artwork loses its status as an artwork after it is destroyed, and whether artworks possess an aura that is only conceivable when beholders are directly confronted with the artwork. From the answers, we created a combined genuineness-score (CGS) for each participant. A high CGS score reflects that a participant appreciates the meaningfulness of the genuineness of artworks while a low score reflects that a participant does not value the genuineness of artworks. 25 participants were consistent in their answers (12x perfect high score, 13x perfect low score). The same participants were asked to classify 50 items from different categories (paintings, sculpture, architecture, music, literature, performance art, film, design objects, antiques, nature, other) as "artwork" or "no artwork". Participants with low CGS classified more items as artworks. CGS correlated negatively with art classification of items from the categories music, literature, and film. Our results show that lay people are split on the question on whether the genuineness of artworks is relevant. Additionally, we show that people who appreciate the meaningfulness of genuineness classify less items as artworks.

Is Imagination Necessary for Emotional Engagement with Verbal Storytelling?

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Recent evidence suggesting that visualization is an 'emotional amplifier' has several potentially important implications, including improved treatment of PTSD (by decreasing the vividness of imagery of intrusive thoughts) and

better decision making (increasing the vividness of imagery of a delayed reward). To assess how essential imagination is for engagement with verbal storytelling, we are recruiting participants with various degrees of vividness of mental imagery, and measuring their degree of emotional engagement while hearing or seeing emotionally charged excerpts from a novel. Participants were rated for vividness of imagery using the Vividness of Mental Imagery Questionnaire (modified VVIQ; Marks, 1973). Aphantasia is the inability to generate mental images, which is operationally defined as a low VVIQ score (16-23 out of a maximum of 80, Zeman et al. 2020). Hyperphantasia is the ability to generate extremely vivid mental images, operationally defined as having a high score (75-80). Participants were recruited from the general population on Prolific, and from self-identified aphantasics and hyperphantasics on Reddit. Our stimuli included 6 different emotionally charged excerpts from novels (in the format of audiobook), and 6 equivalent scenes from the movie and tv adaptations. Each participant experienced an audio block and a visual block in random order. Each block consisted of 3 snippets in random order. The Narrative Engagement Questionnaire assessed the level of emotional engagement (Busselle & Bilandzic, 2009). We have results from 6 of a planned 24 participants. Finding a positive (or zero) correlation between vividness of mental imagery and narrative emotional engagement would indicate that imagination is (or is not) necessary for emotional engagement with verbal storytelling.

Creative Mind & Soul: The Link between Aesthetic Sensitivity, Creativity and Flow (Research Proposal)

Martyna Olszewska and Daria Makurat

Nicolaus Copernicus University, Toruń, Poland

Aesthetic sensitivity is often described as the ability to recognize and appreciate beauty, compositional excellence, and to judge artistic merit according to standards of aesthetic value. The new approach to aesthetic sensitivity considers the degree to which someone's aesthetic valuation is under the influence of a given feature. Recent study showed a link between aesthetic sensitivity and creativity, mainly with divergent thinking. Several studies on aesthetic sensitivity confirm its connection to the flow state. Flow state is also a popular topic among research on creative processes. The presented project aims at a deeper verification of the relations between aesthetic sensitivity, creativity, and the flow state. In our research, we would like to focus on the link between trait creativity and aesthetic sensitivity as well as its connection with flow

and divergent thinking in terms of fluency, originality, and flexibility. Those relations will be analyzed and further investigated with respect to individual levels of creative skills. During one experimental session, participants will be asked to fill in questionnaires in order to assess trait creativity (K-DOCS), flow (AEQ) and a revised version of Visual Aesthetic Sensitivity Test (VAST-R) to assess aesthetic sensitivity. Later subjects will be asked to perform two creative tasks: The Test for Creative Thinking – Drawing Production and Guilford's Alternative Uses Task. Heart rate variability (HRV) measurements will be conducted during those tasks in order to assess the occurrence of flow state. We believe in the importance of the proposed project due to its improved methodology, the consideration of individual differences and objective measures of physiological functioning (HRV). The project is funded by the Grants4NCUStudents, co-authored by Daria Makurat and it is supervised by Joanna Dreszer PhD. We will be able to provide the results of a pilot study at the official event.

Effects of Wearing Special Glasses that Attenuate Light with Approximately 585 nm Wavelengths on Impressions of Paintings

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Ritsumeikan University, Japan

Museum lighting is rather dark compared to everyday lighting, and this is not optimal for accentuating the beauty in artworks (Loe et al., 1982; Nakajima & Fuchida, 2015; Nishikawa & Kitaoka, 2021). However, it is practically difficult to increase brightness because artworks are damaged by intense light. Therefore, we investigated the effects of wearing special glasses (NeoContrast, Mitsui Chemicals) that attenuate light with wavelengths of approximately 585 nm as a method to appreciate the beauty of paintings, instead of changing the illumination. Our previous study found that these glasses made a variety of chromatic colors more vivid and beautiful, whereas the vividness of colorimetric values is almost unchanged (Nishikawa & Kitaoka, 2022). In Experiment 1, twenty participants (twelve females, eight males; M age = 21.6 years) evaluated impressions of various paintings with these special glasses and transparent glasses in a laboratory that replicated an exhibition room. In Experiment 2, the experiment was conducted in an art museum in Japan, with two participants (two females aged 27 years). Furthermore, we conducted interviews with the participants from Experiment 2 on how they felt when

using special glasses. The results showed that in Experiment 1, paintings tended to be evaluated as more vivid with special glasses, but the ratings of beauty did not change significantly. In contrast, in Experiment 2, all paintings were evaluated as more beautiful and vivid by using special glasses. Thus, in the laboratory, there was little or no effect of wearing special glasses on the beauty of paintings, but, in a real museum, the paintings looked more beautiful. The results are still under investigation, including differences in environment and methods.

The Bamberg Repository of Contemporary Kitsch (BaRoCK): Standardized Visual Stimuli for Research on Everyday Aesthetics

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Researchers in the field of empirical aesthetics who focus on art perception usually have at their disposal a wealth of digital art reproductions with extensive normative data. Up to now, nothing comparable exists for the equally important study of everyday aesthetic phenomena such as kitsch. To close this gap, we created the Bamberg Repository for Contemporary Kitsch (BaRoCK), a freely accessible database of 208 high-quality images of everyday objects and normative data. Two basic principles of popular taste have shaped the process of stimulus selection and validation: (A) primacy of content over form and (B) processing ease. Initially, a variety of mundane objects with practical (e.g., piggy bank) and/or symbolic functions (e.g., miniature Eiffel tower) were procured from gift shops, flea markets, office cubicles, and private homes. For the sake of immediate identifiability and consistency of representation, these objects were photographed from a canonical perspective under standardized lighting conditions. In a first validation study, participants ($N = 100$; 50 male, 50 female) rated the resulting images on six 7-point Likert scales relevant to the aesthetic concept of kitsch (i.e., liking, familiarity, arousal, determinacy, perceived threat, and kitschiness). Cluster analysis revealed that the BaRoCK images represent six different types of kitsch ($k = 200$) and eight non-kitschy control stimuli. Three images from each cluster served as stimuli for the second validation study ($k = 21$). This time, participants ($N = 61$; 21 male; 39 female, 1 other) were instructed to jot down spontaneous associations with

each image prior to rating it on the six variables from Study 1. Qualitative content analysis was used to identify standard associations both at the level of individual images and the cluster level. Since BaRoCK stimuli have already been successfully applied to cross-cultural research, further comparative data from Slovenia, Serbia, and Japan is available in addition to the results from the two validation studies.

Using Instruction to Alter Fixation Patterns in Abstract Art

Anna Chinni and Benjamin Motz

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Previous research has indicated that when art experts look at art pieces, their viewing patterns differ from novices in systematic ways. Specifically, when performing aesthetic evaluation tasks, experts take a more bottom-up viewing approach, while novices take a more top-down approach, even while there are no differences in these groups' visual attention patterns during free viewing (Koide et al., 2016; Vogt et al., 2007). Additionally, previous studies have indicated the importance of controlled cognitive processing in art viewing (Iosifyan, 2020; Kopatich et al., 2021). Our current study aims to investigate the ways that art theory instruction may inform or alter the viewing patterns of art experts and novices, and to explore individual differences in visual art viewing based on aesthetic preference, non-academic art exposure, and application of theory of mind during visual art viewing. Our study consists of three main experimental groups consisting of art novices and art experts. Novices will be split further into two groups, one of which receives art theory instructions, while the other receives the control lesson consisting of a history lecture. Participants view a set of 12 abstract paintings in three different tasks: free viewing, memory focused viewing, and evaluative viewing while gaze and eye movements are measured by an eye-tracker. Our analysis will compare the participant fixations between groups and tasks to investigate whether novice viewing patterns are altered through instruction, and whether that alteration results in viewing patterns more reflective of those of the expert group.

Quantifying Accuracy of Low Countries Map Rendering in Vermeer's 'Art of Painting'

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The Art of Painting, sometimes referred to as The Allegory of Painting, is an oil on canvas painting by the Dutch artist Johannes Vermeer, completed in 1666–1668. It is the largest and most complex work by the artist and is one of the most renowned works of art in the world. The painting is set in a room in Vermeer's hometown of Delft, Netherlands, and depicts a painter in a stereotypical process of painting on a large canvas. The figure in the painting is likely a self-portrait of Vermeer in a typical Rückenfigur fashion, and the various items shown in the painting are probably representing references to the belief system and Zeitgeist of Vermeer. The painting has been praised for its masterful use of light and shadow, and its precise use of perspective, but most of the items shown have not survived, so we cannot unambiguously recalculate the accuracy of details in content and perspective. However, the large landscape map in the background of the painting is still available: It shows a map of the Low Countries, published by Visscher in 1636. We obtained a high-resolution scan of one of the rare copies of this map that differs only in minor decorative details but shows the original geographical information. When combining projective perspective with Bayesian analysis using a Gaussian process to account for local foldings that were clearly depicted in the painting, we could demonstrate an extreme high concurrence between the map from the archive and the one depicted in Vermeer's painting. This once again illustrates the accurate work Vermeer executed, probably because he was in the favorite position to have recourse to brand new optical instruments developed in the same era in the same town, just some streets away by contemporary Antoni van Leeuwenhoek, the inventor of the microscope.

The Role of Interoception in Art Experience

Corinna Kühnapfel[1], Giulia Cabbai[2], Jesse Prinz[3], Joerg Fingerhut[4] and Matthew Pelowski[1]

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Interoception has been shown to play a role in the processing of emotional stimuli. However, the role of individual differences in interoception has yet to be studied with art, a domain where emotions are vital to its experience. To fill this gap, in two studies, we investigated the role of individual differences in interoceptive accuracy (measured via heartbeat detection task) in participants' ($N = 39$) cognitive-affective ratings (Liking and Being Moved) to 30 representational and 30 abstract artworks (Study 1). Interoceptive accuracy did not predict the ratings. However, we did find that the relationship between the ratings and interoceptive accuracy was stronger for representational than abstract paintings. In addition, we assessed participants' bodily responses while viewing the paintings and found that sympathetic arousal (SA), but not heart rate change predicted Liking and Being Moved. The relationship between Liking and SA was stronger for individuals with lower interoceptive accuracy. In Study 2, we assessed the role of a different dimension of interoception, namely interoceptive sensitivity (measured via MAIA-2), in participants' ($N = 222$) cognitive-affective responses to the same 60 artworks. As in Study 1, interoceptive sensitivity did not predict the ratings. However, exploratory analyses of the interoceptive sensitivity subscales revealed that the tendency to listen to one's body to learn about one's emotional state (Body Listening), and to be aware of the connection between body sensations and emotional states (Emotional Awareness), predicted emotional (Being Moved), but not cognitive (Liking) responses, with a trend indicating that the relationship between the two subscales and Being Moved was stronger for representational than abstract paintings. Our results suggest a need for future studies to assess finer-graded dimensions of individual differences in interoception and differentiate between abstract and representational artworks to show whether and how emotional access mediated by the body might contribute to art experience.

The Automaticity of 'Seeing-In': Pictorial Depth Cues Influence Judgments of Surrounding Spatial Relationships even when Task-Irrelevant

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Many representational paintings give a strong impression of depth, despite being flat surfaces which lack any depth – a phenomenon often referred to as 'seeing-in'. It has been claimed that, by attending appropriately to pictorial artworks, we can sometimes perceive them as flat. In contrast, here we report two experiments which show that observers cannot fully "turn off" their perception of depth in a picture. Rather, when viewing a pictorial artwork, impressions of depth arise automatically, and irresistibly interfere with judgments of surrounding spatial relationships, even when the painting is entirely task-irrelevant. In Experiment 1, observers viewed a virtual gallery with two freestanding walls, and reported as quickly as possible which wall was closer to them. Each wall displayed a painting – an abstract artwork featuring a luminance gradient, which, depending on its orientation, looked either convex or concave. On Congruent trials, the near wall displayed a convex-looking painting, and the far wall displayed a concave-looking painting. On Incongruent trials, this was flipped. Although observers were told to ignore the paintings, and to focus only on the wall placements, they were unable to ignore the paintings' pictorial depth cues, and responded slower in the Incongruent condition. Thus, seeing-into a picture occurs automatically, and interferes with an orthogonal task even when we are trying to ignore the painting. Does this also occur for more complex paintings? In Experiment 2, one of the walls displayed a Renaissance or traditional East-Asian painting, and the other a phase-scrambled version of the painting (abolishing depth cues). Observers responded faster when the original painting (with pictorial depth) hung on the far wall, compared to when it hung on the near wall. We conclude that seeing-in is automatic: even when trying our best to resist seeing depth in a picture, it is not possible to perceive a pictorial artwork as flat.

Small Gesture, Large Trigger

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Creating works under very limited resources is a constant topic of contemporary art, and also of many forms of artistic expression throughout the 20th century. At the same time, shortages in energy, scarceness of raw materials, and concerns about pollution demand a critical reflection of one's environmental footprint – artists are no exception. However, restraints in the use of material, be they self-imposed or externally driven, will influence the artist's creative process as well as the resulting work. The guiding principle of the first author's artistic work is one of minimal intervention. Manipulations in the outdoor space to convey a message are done with as few changes to the environment as possible. The employed material is often retrieved from found pieces, and resources used are primarily ones that are deemed absolutely necessary. This leads to the question: How much reduction of material is still viable when evoking an artistic expression? Will the work of art still be tangible? Driven by this idea of rich minimalism, several artworks were created by simple acts, e.g., "Linden 2022" was created by raking leaves, imposing a geometric form on the foliage, or "Bounce 2022" was crafted by clamping a textile tape between two soccer goals. Reactions from a number of passersby to those minimalist interventions ranged from genuine interest to blatant and emotional rejection. The responses can be considered as part of the installation and help to explore why and under which conditions subtle acts and minimal gestures yield large psychological triggers in the public space.

Anti-Utopian Realism and Integrity of Modern Individuality: An Inter-Media Approach of Cyberpunk Culture Research

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The modern visual arts and visual-based industries have fertilized and in turn, been nourished by diverse sub-cultures. Cyberpunk culture is one of the significant ones. The original concept of Cyberpunk is understood as the result of a critical reflection by literary scholars and artists on the progress of human technological civilization, inspired by modernist artistic trends. Since the birth of cyberpunk in literature and art in the middle of the last century, academic interest in the genre has been growing, with numerous journal researchers currently focusing on different kinds of research on it, of which a large number of texts focus on the visual expression of the cyberpunk art style based on specific works of visual art or design, followed by the application and development of the cyberpunk art style in urban architecture and its significance for the transformation of urban. The last, to a lesser extent, is a direct exploration of the spiritual core of cyberpunk modernism and social reflection. These research directions formed the main part of current cyberpunk research. If scholars trace it back to the origin of Cyberculture, it is not just a style of science fiction in the literary realm. It is of great importance for research to cast light upon the trend that modern artists are more likely to use visual culture to express themselves, and so the study of the cyber style is naturally focused on the visual elements of modernism. In response to all these related development, the cyberpunk movement, and modern social realities, this research adopts a decentered textual methodology to explore how non-textual forms of expression can express the spiritual core of Cyberpunk.

DEMONSTRATIONS

The Digital Punctum

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Responding to Nicosia's 'borderland', the operating table uses a 'live' photographic apparatus to re-construct imagery along Nicosia's Buffer Zone. The device digitally records, processes and projects three-dimensional simulated imagery of its participants. These 'live' images are composited with other contextual background of the border, producing unexpected hybrid relations between viewer and context. The three-dimensional reconstruction of the surrounding territory is re-produced in a way that synthesizes body-image and actual context in a strangely simulated way as the visitor's body becomes an object in a shifting field of vegetation, dilapidated buildings, cats, clouds and so on. The operating table offers a simulated experience whereby the participant's sensory body is displaced from their self-image and the contextual background. For a few seconds, one loses their orientation, as the image uproots oneself from their surroundings. One becomes alien to oneself. The table as surface "where texts had been written by men or inspired by God – never inspired or written by nonhumans" (Latour 1993, 23), is here subverted. Nonhuman technologies undercut the traditional role of the table. Through this live 'imaging' device, the operating table reveals how bodies are malleable to an othering. Taking its cue from a postcolonial aspiration of becoming Linobambakoi – a lost ‚minor' Cypriot race –, the operating table seeks to problematize the bi-ethnic imposed border identities that have been constructed by colonial and postcolonial regimes of power. The device thus aims at re-activating a 'minor' race that remains alien to imposed social identity constructs.

You Through Me

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"You Through Me" is an interactive project that employs Virtual Reality technology to facilitate a body swap experience, enabling participants to see the world from each other's perspectives. The creation of the work was driven as

an invitation to consider our personal perspective and biases, re-relate with ourselves, each other, and the world. The project brings forward different aspects of empathy, embodied knowledge, and experiential understanding. Instructions for reproducing a version of the project using software that is freely available will be handed out. In this way the work becomes accessible to the wider community, inviting individuals to reconsider their relationship with technology and explore alternative creative applications.

Mortal Toys

Paul Wiersbinski and Mariana Nobre Vieira (Performance)

Freelance

In the workshop Mortal Toys participants were invited to join a performative game, in which they tried out prototypes of video glasses connected to wireless surveillance cameras. Strangers met in a semi-public situation and were willing to play, while they were watched by the other participants. They experimented with transmitted body movements, improvised choreographies, were "controlled" and took "control" of others. A hybrid space is created, in which the ideas behind science fiction films are combined with a playful approach. The resulting discussion reflected on notions of immaterialness and intimacy, surveillance as a perverted form of care-taking, technology pointing inwards and the crucial role it plays in the here and now and its future role in social interaction. The workshop confronted these stories of self-dissolvement, our submerging, drowning and diving into the illusions we create, as we explore the origins of illusions. The word itself deriving from "in-lusio", meaning to enter a game.

Internal and External Form

George Tzortzidis and Tatyana Nozdrachova

Independent Artists

This collection of artworks will explore mark making through two different artistic processes. Tatyana's work uses a practice of mindful observation to translate the external realm into the internal realm. George's work relies on motor creativity to translate the internal realm into the external realm. When considering how artworks translate between these two reams, we must first take into account the scale shift that occurs. Form in the external realm, particularly

apprehended through mediated observation, as when we look through a microscope, has infinite geometric complexity. In contrast, form observed through the human eye is blind to the intricacies of the micro world, and involves only the useful macrostructure that our mind has evolved to deal with. When we engage in the act of transcribing external forms onto a surface, through a given medium and vehicle of expression, we further depart from form in its natural state, to a representation of that form mediated through the mind of the maker/artist. This new, resultant form is ostensibly a representation of the natural form, but just as much, it represents the mind of the artist who produced it. Tatyana's work can be described as representational forms which simplify and rationalize the complex, infinite nature of forms found in the external realm. Starting with a process of mindful observation, she embarks on a mark making journey that distills complex, organic forms into recognizable symbols that are easily understood and digested by the observer. George's work begins through the process of motor creativity, a blind approach to mark making, and results in complex compositions which draw a parallel between the mind of the artist (internal realm), and the infinite, universal forms of nature (external realm).

Grid

Julia Ongchoco

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Look at a regular grid of squares – like on a piece of graph paper, or your bathroom tiles. What do you see? This documentary short film features a female cognitive scientist at Yale and a female artist at the University of Pennsylvania who have been independently exploring the gap between hallucination and reality, in a series of experiments that use the rudimentary form of a grid. To one, the grid is "a 'scaffold' for people to experience everyday hallucinations". To another, the grid "is art, it's a framework for art, it's order but also chaos". In the course of their work, both women somehow encountered Agnes Martin, who herself suffered from paranoid schizophrenia, and whose canvases of grids are featured in leading museums around the world, from the Guggenheim to the Museum of Modern Art. Altogether, the work of these women show how a simple grid can challenge our conceptions of who experiences hallucinations (when they are otherwise too often considered 'atypical', or occurring only in clinical populations), what counts as an object (when these are otherwise often the everyday objects around us), and what is art (and the ways art must be an interaction between artist and viewer).

Dialectics of Light

Pepe Ballesteros
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Dialectics of light proposes computational models as another layer in the multidimensional space of meaning to further understand depicted light. Description of subtle changes in light features is a challenge not only for language but also for human perception. In the words of Leonardo: "Light cannot be measured or evaluated […] it is a definite manifestation of artistic talent which, unlike rules, cannot be learned". Dialectics of light strives to highlight the synthesis and contradictions that emerge from the confrontation between machine and human perception through the quantitative encoding of light features.