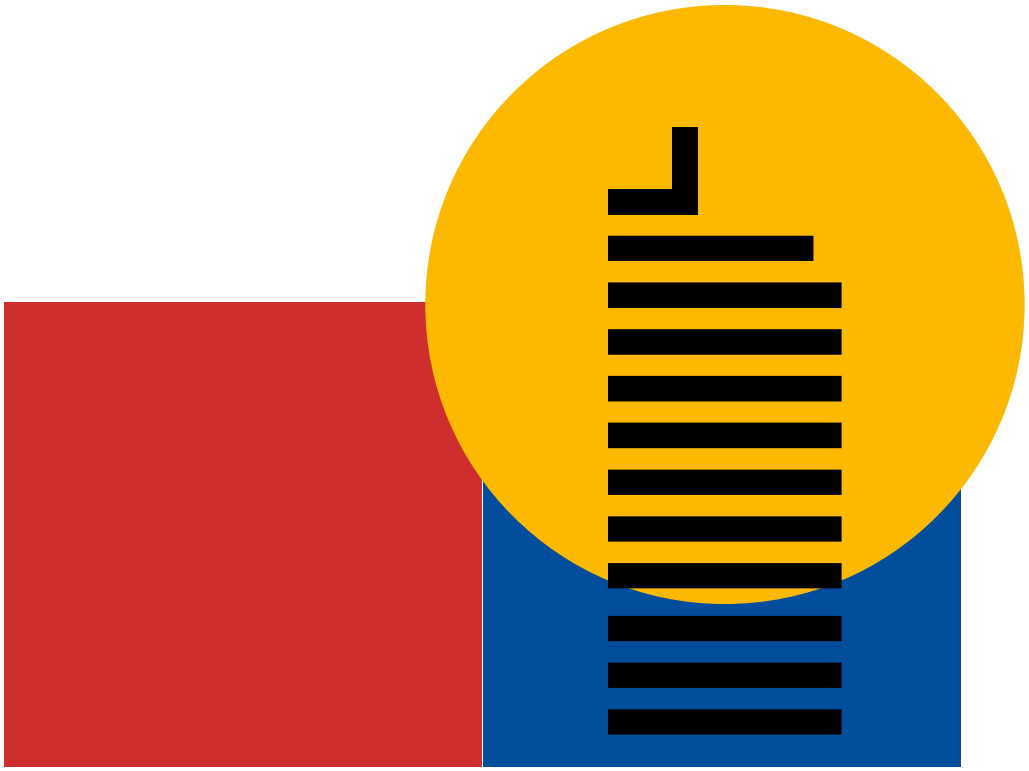

iaea Jena 2026

Poster Abstracts

UNIVERSITÄTSKLINIKUM jena

DFG Deutsche Forschungsgemeinschaft

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16:00 – 17:00

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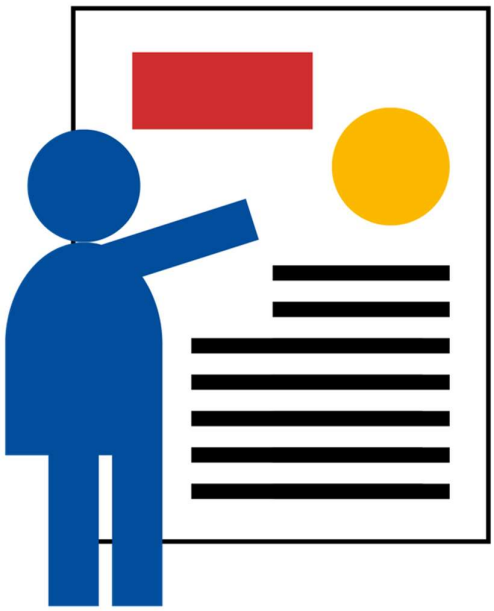


iaea 2026

1. **Quantum Arcade: evaluating arcade games (and their design) as a science communication tool**
Anna Lena Knoll and Eva Specker*
** University of Vienna & Leibniz-Institut für Wissensmedien (IWM)*

   Video games play a big role in many people's lives. As a teaching tool, in the form of 'serious games', they can be easily integrated into people's everyday life but can also be offered in contexts in which learning is already likely to take place (e.g. schools, museums). Here, we present a project (Quantum Arcade) presents core concepts of quantum computing in the form of two different arcade games. Our aim is to investigate how effective such games are in communicating knowledge and further piquing interest in the topic at hand. If this can be done effectively for one topic (i.e. quantum computing), it can likely easily be applied to other topics as well. However, for it to be general enough with this respect, it is important to look at not only how well knowledge is communicated regarding a specific topic, but also which other factors play into this (e.g. aesthetic, motivational, etc.). Here we can connect back to aesthetics: the aesthetic design of video games likely plays a role in what people decide to play and how they engage with it. We evaluate the two arcade games in the context of several science museums (e.g., Futurium Berlin, Phaeno Wolfsburg). In the museums, museum visitors are approached by one the researchers, they then get to freely pick one of the two games and complete a pre- (knowledge and interest about the topic) and post-questionnaire (repeat knowledge and interest questions and further evaluate their experience playing the game and the game's design).

2. **Dramaturgical Human-AI Interaction: Affective, Aesthetic, and Physiological Responses to an Embodied Adversarial Agent**
Andrea Orlandi, Manuel Flurin Hendry & Emily S. Cross*
**Social Brain Sciences Laboratory, ETH Zürich, Switzerland*

   Artificial agents are rapidly becoming our daily companions, providing assistance with writing, information retrieval, decision-making, and emotional support. As these agents improve their ability to display human-like emotional expressions and engage in affective communication, they influence human behavior and social decisions. Notably, although many AI systems are designed to be supportive, individuals may be less accustomed to agents exhibiting negative, antagonistic behaviors. Exploring how humans respond to a broad range of emotional expressions from artificial agents is important to build a more complete understanding of how social these agents truly are perceived to be.
   This study focuses on people's subjective and objective responses to an embodied AI agent, Stanley, designed for real-time interaction and able to show adversarial behavior. Stanley integrates a large 3D-printed face with a human-like avatar projected onto its surface, with lip movements synchronized with speech generated by a conversational architecture. Stanley can simulate a range of positive and negative emotional expressions by modulating facial and vocal features. The interaction with Stanley follows a dramaturgically scripted sequence, designed to modulate engagement and appraisal over time.
   Across 15 cohorts of four participants, one interacts directly with Stanley while three observe. Participants provide evaluations of affective and aesthetic experiences (e.g., valence, arousal, enjoyment) across four interaction sections. Concurrently, we record gaze behavior using wearable eye-tracking glasses and cardiac activity, to link subjective evaluations and physiological indices at individual and inter-individual levels (e.g., heart rate synchrony). Stanley also presents participants with a deepfake video of themselves, manipulating self-relevance and social meaning. Pre- and post-interaction questionnaires assess whether these encounters modulate beliefs and attitudes toward artificial agents. Our approach offers an ecologically grounded framework for studying how adversarial embodied AI shapes affective, aesthetic, and physiological responses during live social interaction, with implications for AI design, ethics, and social cognition research.

3. **Asymmetrical Effects of Sound Onset and Offset on Visual Time Perception**
Go Furusawa and Hideaki Kawabata*
**Keio University*

In cinema, silence is often used as an expressive device before important moments— "the calm before the storm." However, the effect of the appearance or disappearance of sound during an ongoing sequence on our perception of subsequent visual stimuli remains unknown. Previous studies have demonstrated that music and sound influence eye movements and visual attention. However, the impact of brief silence within continuous stimulation has received little attention. As a first step toward understanding the perceptual effects of silence, we investigated how inserting silence into a sequence affects the perceived duration of a subsequent visual stimulus. We initially hypothesized that silence would enhance attention and lengthen subjective duration. However, our results instead revealed a shortening of perceived duration following silence. Building on this finding, the present study directly compares the effects of sound disappearance and sound appearance on visual time perception. Using a two-alternative forced-choice (2AFC) reminder method, participants viewed two successive presentations of a white square. The first stimulus served as a standard (1.1 seconds), followed by a 1.5-second interstimulus interval (ISI), and the second served as a comparison stimulus with a variable duration (0.8–1.4 seconds). During the ISI, the background white noise either disappeared, appeared from silence, remained present, or remained absent. In addition, visual stimulation during the ISI was manipulated by the presence of video. We examined how these auditory and visual changes affected the likelihood of judging the comparison stimulus as longer. By directly contrasting sound onset and offset, this study aims to clarify whether these forms of auditory change produce symmetrical or asymmetrical effects on visual time perception. These findings will contribute to a deeper understanding of the perceptual role of silence and provide new insights into the integration of sound and vision in a unified aesthetic experience within multimodal artworks, such as films.

4. **What does it mean to feel inspired? Mapping the Phenomenological Structure of Inspiration**
Kaile Smith, Aaron Kozbelt and Jennifer Drake*
** The Graduate Center, The City University of New York*

Inspiration is often discussed as a central aesthetic emotion, yet its phenomenological structure remains underspecified. This study uses qualitative coding and network analysis to systematically characterize state inspiration experiences across aesthetic domains.
We analyzed 440 open-response descriptions from participants across over 26 countries (50% creative professionals, 50% comparison sample) who recalled recent powerful inspiration experiences and tracked daily inspiration over two weeks.
Using inductive/deductive hybrid thematic analysis, themes emerged inductively from the data with deductive analysis of prior literature guiding identification of cognitive, affective, and motivational elements. Two additional independent raters applied this established codebook, finding no new codes or conceptual refinements, and achieved substantial-to-excellent inter-rater reliability (Gwet's AC1 = .70–.98) across 22 content themes. Consensus codes were used for all subsequent analyses.
To identify the underlying network structure of inspiration, Exploratory Graph Analysis was performed on the coded themes, revealing four communities: (1) cognitive confidence, (2) identity transformation, (3) energized meaning-making, and (4) engaged exploration. The most prevalent themes were characterized by a surge of motivation (96%), experiencing a sense of clarity (95%), and feelings of joy and excitement (90%) suggesting these represent core features of inspired states. These findings reveal inspiration as a distinctive integration of cognitive, affective, motivational, and phenomenological components. Future research will develop psychometric tools to assess state inspiration based on these empirical findings.

5. **Aesthetic preferences for 3D shape predictability are modulated by type of art expertise**
Jiwon Song, Minsun Park and Chai-Youn Kim*
** Korea University*

People consistently show a preference for curved over angular shapes. This curvature preference has been attributed to both biologically grounded innate factors and acquired factors shaped through experience and learning (Gómez-Puerto et al., 2018). However, previous comparisons between art experts and non-experts have yielded inconsistent findings regarding the relative contributions of these two factors. The present study examined how curvature preference varies between art experts and non-experts as a function of presentation time (short vs. long) and stimulus type (everyday objects, abstract patterns, geometric shapes). In addition, we investigated whether individual differences in exteroception and interoception modulate the relationship between curvature preference and art expertise. Participants were divided into expert and non-expert groups and completed three tasks. First, in the preference judgment task, participants viewed curved or angular images and indicated whether they liked or disliked each image. Second, exteroceptive ability was assessed with a psychophysical 2AFC task in which participants selected the more angular of two shapes. Finally, interoceptive ability was measured using a heartbeat detection task, in which participants estimated their own heartbeat count over a fixed interval. Results demonstrated that individuals with lower art expertise exhibited a stronger intuitive preference for curvature under short presentation times, particularly for everyday object stimuli. Moreover, the relationship between art expertise and intuitive curvature preference was moderated by participants' metacognitive accuracy regarding their own heartbeats. These findings suggest that the influence of art expertise on curvature preference is shaped by presentation time and stimulus type, and that individual differences in interoception play a key role in the underlying mechanisms of intuitive aesthetic responding.

6. **Aesthetic Beginnings and Beyond: The Role of Complexity in the Development of Visual Art Preferences**
Kardelen Koç, Hannah M. Merseal, Gregor Hayn-Leichsenring, Anjan Chatterjee and Tilbe Göksun*
** Koç University*

Stimulus complexity may be a perceptual primitive that shapes visual art preferences. In two studies, we tested the hypothesis that complexity influences visual art preferences in infancy and adulthood.
In Study 1, infants (N=9, Mage=8.28 months, SD=0.77, 3 females) were presented with paired abstract paintings that varied in complexity under three conditions: high-low, high-high, and low-low. Stimuli were selected from the WikiArts database (Pirrone et al., 2009) using the Aesthetics Toolbox (Redies et al., 2024) to calculate objective complexities. Paintings with complexity values at least 1 SD above or below the mean were classified as high or low complexity, respectively. Using the preferential looking paradigm, infants' proportion of looking times to each painting in the pairs was calculated as an index of visual preference. In Study 2, adults (N=40, Mage=21.10 years, SD=1.31, 33 females) were presented with the same stimulus pairs used with infants. They were asked to state their preference and rate each painting on a scale of 1 to 7 for their liking and perceived beauty.
For both studies, data collection is ongoing. Preliminary findings showed a significant trend for preference toward high-complexity paintings in the high-low condition above chance level in both infants ($t(8)=5.79$, $p<.001$, $d=1.93$) and adults ($t(39)=1.91$, $p=.03$, $d=.30$). Preferences in the same-complexity conditions were not above chance level, supporting the role of relative complexity in driving these effects. Adults reported greater liking and perceived beauty for high-complexity paintings (M=3.80, SD=.84) than low-complexity ones (M=3.08, SD=.74).

Our results indicate a trend for preference toward high complexity in abstract art across ages. This emerging pattern suggests that complexity preferences in visual art may emerge early in development and continue into adulthood.

7. **Embodied Agents in Contemporary Visual Arts: The role of intentionality on aesthetic appreciation of robotic systems**
Rebecca Chamberlain, George Evangelou, Daniel Berio and Frederic Fol Leymarie*
** Goldsmiths, University of London*

The use of AI as a tool for contemporary art has burgeoned in recent years. However, relatively little attention has been paid to the use of robotics as companions in the art making process. We know that there is a relationship between intentionality, anthropomorphism and the evaluation of AI art (Chamberlain et al. 2019; Chamberlain et al. 2022; Moruzzi, 2024). We also know that the language describing AI can impact the degree to which it is anthropomorphised (Epstein et al., 2020). The current studies systematically investigated the influence of embodiment and intentionality on aesthetic evaluation in drawings made using robotics. In our first study we systematically modulated the human-like features of robotic systems to investigate whether human resemblance plays a role in aesthetic responses to robotic drawings. We manipulated two core aspects of human resemblance: 1. Movement (the degree of humanness of the movement), and 2. Anthropomorphism (the degree of human resemblance of the machine to a human arm) in a between-subjects design with four conditions. Participants were asked to rate a series of drawings made by the robotic systems. We found that anthropomorphism predicted aesthetic responses to the drawings, but there was no difference in response to the varying degrees of human resemblance. In follow up studies we further manipulate intentionality in the robotic systems with contextual cues, framing them as an agent or a tool, and measure its impact on the artistic evaluation. Data collection is currently ongoing. Our hypothesis is that cues to intentionality will augment anthropomorphism of these robotic systems, thereby increasing the appreciation of their creative process and aesthetic value of the outputs.

8. **Shared gaze drives aesthetic agreement**
Mustafa Alperen Ekinci and Daniel Kaiser*
** Neural Computation Group, Justus Liebig University Giessen*

People often form different aesthetic judgments despite seeing the same visual input. However, the reasons behind these differences remain largely unclear. Here, in two experiments, we investigated whether individual variation in aesthetic experience is associated with differences in visual exploration. In Experiment 1, participants watched the feature-length documentary "Home" as we recorded their eye movements and continuous aesthetic appeal ratings. For temporal segments throughout the movie, we computed fixation heatmaps and assessed the similarity of gaze patterns across participants. We found that greater inter-individual similarity in fixation heatmaps across segments was associated with stronger agreement in aesthetic ratings between individuals. In Experiment 2, we used the same stimuli and rating paradigm, but this time participants viewed the first half of the movie without any task, and they only performed the rating task on the second half. Replicating the findings from Experiment 1, we again observed that gaze similarity tracked aesthetic agreement in the second half of the movie. Critically, gaze similarity during the first half of the movie (without an explicit rating task) also predicted aesthetic ratings in the other half, suggesting that the incidental gaze dynamics are predictive of aesthetic experiences. Overall, these results indicate that shared gaze patterns are closely tied to shared aesthetic experiences, underscoring the role of gaze dynamics in shaping aesthetic appeal under naturalistic, dynamic viewing conditions.

9. **It looks like a garden door! The accuracy of meaning interpretation influences the aesthetic assessment of Old Chinese characters**
*Yuguang Lin, Barbara F. Muehlbauer and Bettina Rolke**
** Department of Psychology, University of Tuebingen Germany*

The aesthetic appreciation of an object depends not only on its perceptual attributes, but also on the emotional context in which it is perceived and the cognitive processes associated with it. This study investigated whether guessing the meaning of Old Chinese characters correctly influenced aesthetic appreciation. In the first stage of the experiment, participants with no knowledge of Chinese were shown Old Chinese characters. They selected one meaning from two possible options for sixteen characters, then received feedback on the accuracy of their responses, and were shown the correct meaning (quiz condition). In a separate condition, participants were directly provided with the correct meanings of another sixteen characters (no quiz condition). In a second phase of the experiment, we measured how well participants had memorized the characters' meanings and collected ratings of how much they liked them. Participants recalled the meanings of characters they had correctly guessed better than those they had guessed incorrectly or those without a quiz. Importantly, success in guessing in the first quiz phase influenced liking ratings in the second phase. Characters for which the meaning was correctly guessed were preferred to those for which it was incorrectly guessed, with characters for which no quiz was required occupying a median position between these two conditions. These findings strengthen the idea that aesthetic appreciation of pictures or objects is influenced not only by their features, but also by cognitive interaction with them.

10. **How much traditional art is there in modern art? An exploratory study of quantitative image properties in eleven Western artists**
Hannah Alexa Geller and Christoph Redies*
** Friedrich-Schiller Universität Jena*

During the advent of modern art in the late 19th century, many artists abandoned traditional painting styles to adopt innovative approaches in their works. This transformation led to various modern art movements and novel painting styles (for example, Impressionism, Cubism, Constructivism, and Color Field Painting). Results from computational analyses suggest that art styles can be characterized by quantitative image properties (QIPs) that reflect low- and mid-level perceptual qualities of artworks, such as complexity, self-similarity, fractality, symmetry, and entropy. It has been shown previously that traditional Western paintings exhibit a relatively restricted pattern of QIPs. By contrast, the QIP patterns of some modern art styles, in particular of abstract art, are more diverse (Redies & Brachmann, 2017; Mather, 2018). In the present exploratory study, we asked how individual modern artists changed their QIP style during their modernist periods. To answer this question, we measured 47 QIPs for 1043 images of paintings from eleven Western artists who shifted from traditional art to modern art. During the early phases of their careers, all eleven artists created figurative paintings and followed the QIP style of traditional Western art (here called “protostyle”). Later in their career, some artists, for example Rothko, Mondrian, and Jawlensky, conceived modern QIP styles that deviated from the traditional protostyle. Other artists, such as Pissarro, van Gogh and Kahlo, continued to create artworks in the traditional protostyle during their later artistic career. Notably, Picasso who mastered several distinct art styles during his professional life, stuck to the protostyle in most of them. Some artists showed mixed patterns (de Kooning, Kandinsky, Klee, and Malevich). In summary, some modern artists abandoned the traditional protostyle, others retained the protostyle despite creating iconic and distinct modern artworks, and some combined a traditional approach with novel elements.

11. Colours and the stages of life. An inquiry on young Italian students

*Francesca Arzani**
** Liceo Artistico Statale "Nani - Boccioni" di Verona*

The issue of colour has been debated for centuries from many different perspectives, from the physical to the aesthetic, from the logical-philosophical to the psychological; what emerges from the various scientific and philosophical fields is that the chromatic experience can never be fully rationalized and that it brings together the phenomenal, aesthetic, and linguistic aspects that are inseparable from the relational and subjective dimension in which the chromatic, mental, and bodily experience takes place.
In the research conducted, colour was taken as a mediator between physiological perception, memory, and symbolic processes in the formation of mental images in relation to the combination of 76 chromatic hues with temporal phases of existence - i.e., childhood (past), the two-year pandemic (recent past), adolescence (present), and youth (near future) - by a sample of 178 young people aged between 11 and 14. The study aimed to highlight the gap between homologation, induced by the verbal sphere in which terms such as "Red," "Blue," etc. conventionally refer to an abstract concept and only under specific conditions to a concrete object, and the subjective gap inherent in the relationship that the individual has with the colour-object.
The results show a significant discrepancy between the expected meaning, highlighted by the quantitative data, and the psychological reality of colour for the individual. While the quantitative data allows us to identify the most commonly shared colours, the individual interviews highlight the multiplicity and complexity of meanings that the same colour conveys, opening a crack in the univocality of verbal interpretation and highlighting liminal areas of ambiguity and ambivalence.

12. Aesthetically Experiencing and Learning about the Semi-Detached Houses of Le Corbusier in VR

Maximilian Kenzo Molitor, Laura Peiffer-Siebert, Olga Özbek, Gregor Hochstetter, Jens Maiero, Eva Specker and Peter Gerjets*
** Leibniz-Institut für Wissensmedien (IWM)*

A central goal of school excursions to architectural sites—such as the Semi-Detached Houses by Le Corbusier in Stuttgart, today renovated into a museum—is to enable students to experience architecture firsthand. This is based on the idea that architectural knowledge encompasses not only factual information but also more intangible forms of knowledge, such as the aesthetic experience. Nevertheless, excursions to architectural sites cannot always be realized in schools, e.g., for practical or economic reasons, therefore, schools often use (tablet-based) PowerPoint presentations instead. Against this backdrop, virtual reality (VR) offers potential for students to experience and learn about architecture remotely in a more embodied way. In our study, we examine whether VR can improve students' learning about, and the aesthetic experience of, an architectural site compared to a tablet-based PowerPoint presentation (RQ1). Furthermore, we investigate whether the degree of interactivity across both learning media (VR and PowerPoint) can enhance learning about, and the aesthetic experience of, an architectural site (RQ2). The experiment is currently ongoing (anticipated data collection end: February 2026) and will have a predetermined sample of 128 school students. The Semi-Detached Houses by Le Corbusier in Stuttgart, which constitute the current A-level topic in architecture classes in Germany, is used as stimulus material. The VR environment of the site has been developed specifically for this study. Dependent variables include VR-learning measures (from the CAMIL), aesthetic experience- (AESTHEMOS), and knowledge measures (factual, transfer, spatial) as well as episodic memory. These will be assessed immediately after the learning phase, with knowledge and episodic memory also being tested one week later to assess long-term learning. By using authentic learning material and testing with school students, this study adopts an applied and ecologically-valid approach to examining whether VR can improve

how students learn about, and aesthetically experience, an architectural site and museum remotely.

13. **Holistic Versus Object-Focused Viewing: An Eye-Tracking Study Testing Wollheim's Twofoldness in Art Portraits**
Rania Salma Lau, Lilli Westphal and Gregor U. Hayn-Leichsenring*
** University Hospital Jena*

Various research projects have examined how viewers perceive paintings with many drawing on Wollheim's concept of twofoldness. According to Wollheim's view, two things are perceived simultaneously in paintings, namely the artistic style and the depicted object. Following Wollheim's concept, we hypothesized systematic differences in the perceptual processing of faces across photorealistic and artistic depictions. To test this hypothesis, we conducted a pilot eye-tracking study with 18 participants (2 of which excluded due to data loss) investigating differences in perception between digital versions of 30 paintings in different art styles (Baroque, Impressionism, Expressionism) and photorealistic versions of those paintings (created with ChatGPT Pro). Participants were asked to rate the attractiveness of the depicted person.
Eye tracking analysis revealed that, relative to photorealistic versions, participants devoted proportionally more visual attention to the background than to the depicted person in the original paintings. This effect was primarily driven by impressionistic and expressionistic art portraits. Furthermore, attractiveness ratings correlated positively with total fixation durations on the face of the depicted person in the photorealistic versions, but not in the original paintings. This pattern suggests that photorealistic depictions (here: AI-created versions of original paintings) encourage object-focused processing, whereas original art portraits promote a more holistic viewing strategy encompassing overall composition.
Taken together, our results are consistent with the interpretation that artistic style and composition direct attention away from the mere object towards a dual awareness of object and medium, thus supporting Wollheim's concept of twofoldness. The forthcoming main study will further investigate the perception of objects through various degrees of abstraction in more depth. Overall, the findings illustrate how fundamentally artistic style and composition influence visual perception and the processing of image content.

14. **Embodied signature of dance observation: the interplay between sensorimotor and self-related cognitive processes**
Andrea Zardi, Andrea Orlandi, Maria-Chiara Villa, Alessandro Pontremoli and Edoardo Giovanni Carlotti*
** University of Turin - Department of Humanities*

Over the past two decades, research has shown consistent engagement of the Action Observation Network (AON) during the observation and evaluation of complex movement and dance, with visuomotor expertise modulating activation within this network. However, dance spectatorship is not only a sensorimotor event: it is also shaped by cultural knowledge, stylistic codes, and the lived, cognitive-affective experience of moving and watching. In line with this interdisciplinary perspective, the present study combines neuroimaging with stimulus characterization and behavioral evaluation to capture how expertise and familiarity jointly modulate dance perception.
We compared expert dancers and non-expert controls while observing modern dance relative to ballet and simple daily movement. An inverse relationship between precuneus and inferior parietal lobule (IPL) activity emerged: non-expert controls showed greater precuneus deactivation and IPL activation for modern dance, whereas expert dancers showed this pattern for ballet. This expertise-dependent shift suggests that stylistic unfamiliarity reorganizes the balance between action-related mapping and internally oriented, self-referential processing during aesthetic engagement.

When controlling for kinematic variability between dance styles, increased insular activity was found in expert dancers (but not in non-expert controls) in response to modern dance, indicating that stylistic familiarity can recruit embodied and interoceptive mechanisms beyond low-level perceptual features. Complementing the neuroimaging findings, two independent groups of raters evaluated the stimuli: non-expert controls were less accurate in classifying modern dance compared to ballet and underestimated the technical demands required to reproduce both modern dance and ballet relative to expert dancers. Altogether, these results suggest that dance observation engages complementary neural pathways, with expertise-dependent modulation of action-related, interoceptive, and self-referential processes. By integrating neuroscientific measures, behavioral judgments and attention to the cultural–stylistic construction of the stimuli, this work supports the idea that embodied simulation and meaning-making are differentially engaged as a function of prior experience and the structural properties of movement.

15. **The grammar of the gallery: Do walls and corners influence the perception of artwork?**
Bärbel Garsoffky and Florian Friedrich*
** Leibniz-Institut für Wissensmedien*

Thinking about our last museum visit most often we will not only remember specific single exhibits, but also a more or less impressive building, and galleries with exhibits arranged on the walls and often dispersed throughout the room. The research question is, if the arrangement of artworks on the walls influences the beauty rating of the single exhibits and if the logic of hanging affects the perception of similarity between the exhibits. A laboratory experiment with 90 participants using VR examined if the perception of artworks was influenced by the spatial arrangement of artworks in the room. The AI-generated artworks belonged to four different styles (painting, photorealistic, Animé, LowPoly) and showed four different motifs (portrait, still life, landscape, genre). Each participant explored one VR room presenting six pictures on each wall. Each wall either showed pictures of the same motif (“motif room”) or pictures of the same style (“style room”). After exploring the room, participants rated the beauty of each picture, and additionally, made similarity ratings of pictures presenting the same motif or the same style. After data collection the following analyses will be calculated: Concerning beauty ratings, it will be analyzed if pictures hanging in the middle of the walls are rated more beautiful than pictures near the corners. Further it will be looked, if pictures belonging to the same motif or the same style have more similar beauty ratings compared to pictures belonging to different motifs and styles. Additionally, it will be examined if participants after exploring the motif room rate pictures showing the same motif more similar than pictures showing the same style and vice versa for participants after exploring a style room. Results are of interest for designers of formal and informal learning environments using a spatial arrangement of learning content to clarify underlying structures of matter.

16. **How Prior Mood and Affective Priming Shapes Art Experience and Evaluation: A Systematic Review**
Corinna Kühnapfel, Julian Kutsche and Joerg Fingerhut*
** Humboldt-Universität zu Berlin, Berlin School of Mind and Brain, Department of Philosophy, Berlin, Germany*

Affective states shape perception and judgment, yet their influence on aesthetic evaluation has not been systematically synthesized. This review examines how preceding mood states and experimentally induced affective priming modulate the experience and evaluation of visual art. Following PRISMA guidelines, we conducted a systematic search across PsycINFO, Scopus, and PubMed (1970–2025), complemented by backward citation tracking resulting in a final sample of 15 studies (N = 1,632 participants). These studies employed affective priming, induced mood, or baseline mood designs and assessed evaluative outcomes such as liking or beauty.

Across studies, affective states systematically influenced art evaluation, but effects were heterogeneous. We identified five recurring patterns: evaluation-enhancing, affect-contradictory, contextual/dispositional modulatory effects, affect readiness, and mood-regulatory effects. Positive mood or affective primes often increased evaluative responses, while negative or high-arousal states selectively enhanced appreciation of qualities such as sublimity. However, many findings departed from simple mood-congruency accounts, revealing contrast effects and strong moderation by individual differences (e.g., empathy, expertise), stimulus characteristics, and contextual framing.
To integrate these findings, we map the evidence onto Forgas's Affect Infusion Model (AIM). Results suggest that mood most strongly shapes art evaluation under heuristic or substantive processing conditions, whereas effects are attenuated when judgments rely on direct access or motivated processing. Substantial methodological diversity in priming techniques, timing parameters, and outcome measures limits direct comparability across studies.
Overall, the review suggests that mood and affective priming are systematic, context-sensitive modulators of art evaluation rather than peripheral influences. We conclude by outlining methodological recommendations and implications for empirical aesthetics and future research on the cognitive and embodied mechanisms through which affect shapes aesthetic experience.

17. **Ego Development and the Aesthetics of Objects and Structures: Developmental Changes in Aesthetic Production and Visual Attention**
Cordelia Mühlenbeck, Thomas Jacobsen*
** Helmut Schmidt University/University of the Federal Armed Forces*

Stage models of personality development describe development as a progressive transformation in how the self relates to broader frames of reference in the surrounding world. Both Jane Loevinger's model of ego development and Michael Parsons' stage model of aesthetic development describe this process as a gradual expansion of reference, in which initially narrower perspectives become increasingly embedded in broader contextual relations. The present research examines how such developmental changes are reflected in aesthetic evaluation, visual attention, and aesthetic production.
Across two empirical studies, ego development was assessed using the Washington University Sentence Completion Test (WUSCT). The first study investigated how ego development relates to aesthetic judgments of objects and patterns of visual attention. Participants generated five terms they would attribute to aesthetically pleasing objects and performed a visual memory task with images containing central and peripheral elements. Results show that more advanced stages of ego development are associated with stronger contextualization in the aesthetic description of objects, greater integration of central and peripheral image elements and heightened sensitivity to contextual relationships within visual scenes. The second study examined how ego development relates to the aesthetic production of abstract structures. Participants created aesthetically pleasing arrangements of simple two-dimensional building blocks on a computer interface. Higher stages of ego development were associated with a preference for larger and more ordered structures, suggesting that developmental progression is reflected in aesthetic engagement with structural organization.
Taken together, the findings indicate that developmental changes in the relationship between self and environment are mirrored in aesthetic perception and production. With advancing ego development, individuals increasingly integrate multiple contextual references—both in the perception and evaluation of objects and in the creation of more complex structures. The findings highlight how aesthetic cognition reflects developmental transformations in how individuals perceive, organize, and relate to their environments.

18. Emotional Experience of the Actor: The Boundary Between Identity and Role

Adéla Jedlitschkova and Jaroslava Dosedlová*
** Masaryk University*

Acting is a unique psychological phenomenon where the boundary between the artist's personal identity and the constructed character is constantly negotiated. While technical aspects of acting are well-known, empirical research on the subjective experience remains limited. This exploratory study addresses this gap by investigating the bidirectional influence between the actor's personality and the character.
This research explores how actors experience and work with emotions in the process of creating and performing a role. Using a qualitative approach, the research focuses on how actors draw on their personal experiences, how they relate to characters perceived as close or distant from themselves, and how they regulate emotional involvement.
Data were collected through semi-structured interviews with professional actors and analyzed using thematic analysis. The findings indicate that actors actively incorporate personal experiences into role construction, with their approach evolving alongside their personal and professional development. When engaging with characters they perceive as distant or conflicting with their own values, actors employ various cognitive and emotional strategies, such as working through physical expression or gradually building a connection to the role.
The results further show that acting can lead to the discovery of hidden or suppressed aspects of the self. While emotional experiences from personal life are often used in performance and may have a cathartic effect, emotional transfer can also occur in the opposite direction, with role-related emotions influencing the actor's personal well-being. In some cases, this may pose psychological risks, particularly when portraying emotionally intense or violent situations.
At the same time, the rehearsal process can function as a "safe space" for exploring and regulating emotions. Social support within the collective and attention to psychological self-care emerge as important factors in managing the emotional demands of acting.
The study highlights the complex relationship between personal experience, emotional processes, and professional practice, with implications for understanding emotional labor in acting and beyond.

19. Beyond Mere Pleasure? Beauty Does Not Exceed the Effects of Pleasure on Pain and Stress

Anna Fekete, Eva Specker, Rosa M. Maidhof, Morris J. Krainz, Andreas Gartus, Urs Nater and Helmut Leder*
** University of Vienna*

How does enjoying a meal differ from appreciating art? Pleasure can be part of beautiful experiences, and both experiencing pleasure and beauty increase pain tolerance. But, experiencing beauty requires thought, therefore, we hypothesized that it would distract people from pain, and reduce stress more than pleasure, which we tested in 3 within-subject studies.
In Study 1 (N=53) and 2 (N=45), people self-selected beautiful visual artworks and non-beautiful artworks, with the difference that in Study 2 we added a grey screen control condition and assessed physiological and endocrine markers. In both studies, pain tolerance, pain intensity, and subjective stress were measured repeatedly. Participants viewed both artworks during a cold pressor test (to induce pain and stress). This led to contrasting results, Study 1 supported our hypothesis (beautiful artworks reduced pain and stress more effectively than non-beautiful artworks), whereas Study 2 found no difference in their effects on pain and stress.
Therefore, in Study 3, we used an adapted design with a pre-selected stimuli set. In a pre-study (N=105), participants rated food photos and artworks for pleasantness and beauty, yielding content-matched pairs where artworks were rated more beautiful than photos and emotional valence was similar. In Study 3 (N=42), participants chose a beautiful artwork (or

food photograph) and viewed both their selected image as well as the content-matched pair. We compared beautiful, non-beautiful, pleasant, non-pleasant and control conditions. We found no differences in pain outcomes, yet beautiful images led to lower stress intensity than non-pleasant images. Overall, these results do not support the premise that beauty and pleasure differ in their ability to influence pain and stress.
To summarize these three studies, we have conducted a mini meta-analysis (N=140) with the overlapping manipulations of beautiful and non-beautiful conditions, and we found negligible effect sizes for beauty and non-beauty for pain and stress.

20. What is Haptic Beauty?: Differences in Visuo-Haptic Aesthetic Preferences

Meiyi Du, Jimpei Hitsuwari and Michio Nomura*
** Graduate School of Education, Kyoto University*

Art is generally associated with visual and auditory senses, but other sensory modalities must also be considered. We investigated the role of the sense of touch as it enables people to directly "touch" objects and thereby develop a more detailed and realistic understanding of art. This study focused on the exploration of overall shapes by touch, aiming to clarify the features of haptic sense to inform future research of haptic beauty. To achieve these objectives, we investigated the visuo-haptic aesthetic appraisal of 3D object exploration. We first created 12 objects via a 3D printer and asked 34 participants to rate each object's aesthetic emotions via visual and haptic senses. We used an aesthetic value scale to examine the influence of participants' characteristics and compared the evaluation scores between visual and haptic conditions. The results partially supported our hypotheses that 1) emotions are influenced by haptic appreciation and 2) that haptic appreciation is related to "aha" experience. Overall, participants rated items related to "aha" experiences higher during haptic appreciation, while rating "feeling of sacredness" lower. Furthermore, individuals with high aesthetic value scores were more likely to experience realistic appreciation and "aha" moments, which were characteristics of haptic appreciation. This indicated that haptic appreciation reduced sense of sacredness and sublimity of the objects; however, it enabled a more realistic appreciation and had characteristics that accompanied "aha" experiences. Although our study does not clarify all aspects of haptic beauty, its results provide insight and future ideas to examine haptic aesthetics.

21. In pursuit of movement: A case study on the relation between choreography, viewing behavior, and aesthetic appreciation

Elisabeth Van der Hulst, Jonas Rutgeerts and Johan Wagemans*
** University of Leuven*

Over the last decades, dance has claimed its place as a topic of empirical aesthetics. This is reflected in the amount of research and the variety of research topics. Nevertheless, the role of choreography has long been neglected. When choreography is acknowledged, it is restricted to short, controlled phrases of movements performed by one dancer. This approach ignores important choreographic elements (e.g., lighting), as well as the visual effects a group of dancers can invoke. This study investigates how choreography affects the observer's experience, focusing on the role of viewing behavior. To this aim, eye-movement data from 120 participants were collected during recorded performances by choreographer Anne Teresa De Keersmaeker (Fase and Rain). In addition, participants provided a continuous assessment of their appreciation using a Continuous Evaluation Procedure. To analyze the eye-tracking data, we developed and validated a new taxonomy for the classification of viewing behavior in dance. In contrast to traditional research, this taxonomy was aimed at anchoring raw gaze behaviors to dancers and objects on the scene, to provide meaningful categorization, embedded in the choreography. In a first analysis, the proportional distribution of behaviors was compared to the structure of the choreography. Based on descriptions by De Keersmaeker, the fragment was segmented, and choreographic complexity was analyzed in previous work by the authors. Preliminary results suggest that

viewing behavior is linked to choreographic complexity, with more complexity resulting in more switching, whereas lower complexity is linked to prolonged viewing of one object. Second, viewing behavior will be compared directly to evaluations of aesthetics. We will cluster participants based on their viewing behavior and how this affects appreciation. In addition, we hypothesize that each choreography contains certain "moments of interest" (e.g., overlapping shadows in Fase) which function as pivotal points of attention that spark a change in aesthetic appreciation.

22. **Neurochoreography: a method for integrating dance and neuroscience**
Spenser Stroud Meek and Vasiliki Meletaki**
** University College London*

Interdisciplinary collaborations between neuroscience and dance have grown rapidly providing scientific evidence into perception, action, and aesthetics. Yet there is limited collaborative work that describes clearly articulated choreographic methods and compositional practices for future artists and scientists. We propose Neurochoreography: the art and practice of designing choreographic sequences that either emulate neural research designs or use neuroscientific knowledge in their construction as a potential method for this use case. Neurochoreography treats live performance as a site of knowledge transfer and embodied translation between disciplines, so that choreographic decisions function as explicit experimental factors while preserving artistic aims. Through engaging ecologically valid investigations into formative neuroscientific questions, Neurochoreography may provide novel source material for dance artists to approach the human mind. Neurochoreographic rehearsal and performance processes may also provide deeper neuro-ontological considerations of initial research enquiries, expanding philosophical considerations that neuroscience as a field has historically relied on when approaching future research directions. We suggest Neurochoreography as an example of inter-field dialogue between scientific outreach and artistic output that balances between neuroscience's emphasis on objective, quantifiable measures and performance's commitment to subjective, embodied experience. Developmental case studies discussed in this article put forth hallmarks of Neurochoreography such as: the treatment of experimental design as materially rich, but not prescriptive or validating; the systematic dismantling of perceptual assumptions within compositional practices; the nonhierarchical dissemination of acquired knowledge; and the right to not be strictly defined within neurochoreographic approaches.

23. **Music-induced modulation of neural entropy and perceptual learning across aesthetic appreciation and anxiety states: a preliminary investigation**
Paolo Barbieri, Greta Varesio, Jacopo Frascaroli and Irene Ronga*
** University of Turin*

A growing body of research suggests that affective states are closely related to how successfully individuals cope with environmental unpredictability. Increased uncertainty in sensory input has been associated with anxiety and frustration, whereas decreasing uncertainty is thought to foster curiosity and sustained engagement. Within this framework, recent theories in empirical aesthetics propose that aesthetic experiences constitute privileged contexts in which individuals effectively cope with environmental unpredictability, potentially shifting affective states from anxiety toward curiosity. This idea, the so-called "aesthetic valve" hypothesis, has recently received behavioral support, showing that musical aesthetic appreciation is inversely correlated with anxiety and positively associated with curiosity-driven information seeking. Here we aim to provide the first electrophysiological investigation of the neural mechanisms underlying this modulation. Participants are presented with six atonal musical excerpts, stimuli known to reliably elicit both anxiety and aesthetic appreciation, while neural activity is recorded using electroencephalography (EEG). Following each excerpt, participants rated their aesthetic appreciation, completed a state

anxiety questionnaire, and subsequently engaged in an auditory roving paradigm designed to assess perceptual learning processes.
EEG data are analyzed using complementary approaches. First, an entropy-based analysis assesses the temporal complexity and stochastic irregularity of neural signals during music listening and immediately afterward, providing an index of information integration within neural dynamics. Second, mismatch negativity (MMN) responses during the roving paradigm are examined to index implicit learning. Preliminary data indicate a modulation of signal entropy and perceptual learning as a function of aesthetic appreciation. Musical pieces rated as more pleasant and less anxiety-inducing are associated with higher entropy values and larger MMN, suggesting enhanced neural complexity and perceptual elaboration.
These preliminary findings, if confirmed by further analyses, may provide neural evidence that aesthetic experiences modulate brain dynamics in a way that reduces anxiety and promotes openness to environmental uncertainty.

24. The Aesthetic Appreciation of Art

Priya Rajpurohit, Tanvi Raghuram and Kohinoor Darda*
** ARISA Foundation, Pune*

In recent years, the emergence of AI-generated art has significantly disrupted the field of visual arts. The striking similarity between the technical and stylistic competencies of AI generative models and those of human artists has prompted widespread debate and empirical investigation. Since its introduction, research in empirical aesthetics has increasingly examined AI-generated art in relation to human emotional responses, affect recognition, and comparative aesthetic competence. However, the relevance of the Uncanny Valley Hypothesis (Mori, 1970) to AI-generated visual art remains relatively underexplored.
In this study, we aim to address this gap by testing two related questions. First, we examine whether implicit and explicit biases exist toward AI-generated artwork in comparison to human-created art. Second, we investigate how such bias is influenced by perceived human-likeness, whether it is moderated by pre-existing attitudes toward AI, and whether an Uncanny Valley–like effect can be observed in responses to AI-generated art.
We explore bias against AI-generated artwork and its impact on aesthetic evaluations across a range of variables that have been shown to influence viewers' judgments. These include liking, interest, creativity, perceived effort, human-likeness, eeriness, freakiness, and supernaturalness. The study follows an between-groups design with two sample groups to assess both implicit and explicit bias against AI-generated art.
Overall, the study aims to determine whether aesthetic judgments of AI-generated art are driven primarily by visual features or whether they are significantly shaped by knowledge of non-human authorship. By testing the presence of bias and its interaction with human-likeness, this research seeks to clarify whether the Uncanny Valley framework extends meaningfully to AI-generated visual art, offering insight into how artificial creativity is cognitively and affectively processed.

25. Meta-Museum: making cultural heritage a transformative encounter

Mariapia Lucia, Marco Iosa, Claudia Salera, Valeria Minucciani, Michela Benente, Gianluca D'Agostino, Michela Franzò and Daniel John Mangano*
** Sapienza University of Rome*

Meta-Museum is a Horizon Europe project investigating how Cultural Heritage (CH) can be a transformative experience leading to social confidence among visitors. In 2025 Sapienza University and Polytechinc of Turin collaborated in the design and data collection of three experiments in three archaeological museums in Europe, each of which offered a distinct historical narrative: everyday life in ancient Egypt at the Egyptian Museum of Turin, Roman lifestyle at the Archaeology Museum of Catalonia in Barcelona, and the Roman–Gallic conflict at the Muséoparc Alésia in France.

The experiments followed the same experimental protocol, consisting of a semi-free exploration of the museum spaces. Each participant wore two wearable neurophysiological sensors: a Shimmer 3+ device to record physiological arousal via electrodermal activity, and a Mindtooth EEG headset to index cognitive workload and approach–withdrawal motivational tendencies. These three indices were chosen as: arousal signals moment-to-moment emotional salience; cognitive workload reflects the allocation of cognitive resources for elaborating complex narratives; and approach–withdrawal helps indicate the implicit orientation towards/away from cultural stimuli, leading to implicit motivational processes not accessible through self-report.
Results revealed distinct engagement profiles across the three sites. At the Egyptian Museum, cognitive indices were not significant, although arousal followed a U-shaped temporal pattern with increased activation at entry in and exit from a room, possibly as an anticipatory and reflective engagement. At MAC Barcelona, visitors watched videos and cognitive workload peaked in the first minute before stabilising, while arousal increased across videos but declined within them, indicating habituation. At Muséoparc Alésia, arousal and workload differed in front of different museum artefacts, though both decreased with prolonged exposure.
Post-experiment questionnaires further captured self-reported confidence changes, emotional responses, and cultural knowledge gains. These data are the Status Quo baseline for a 2026 intervention phase aiming at proposing better strategies for the visitors' engagement.

26. Emotions Through Medialities: How Aura Shifts from Gallery to Screen to VR in the Belvedere Museum

Alexandra Victoria Alvarez, Hanna Brinkmann, Matthias Husinsky, Julian Salhofer, Ramon Brullo, Johanna Aufreiter, Matthew Pelowski and Eva Specker*
** University of Vienna*

Walter Benjamin (1935) described aura as “a peculiar web of space and time: the unique manifestation of a distance,” and suggested that reproduction alters a viewer’s relationship to art. While contemporary debates around digital and immersive media propose that digital and AI art may carry their own kind of aura, empirical research has struggled to capture how these shifts are felt. Existing studies often rely on on shallow assessments of emotion (e.g. valence and arousal), hedonic variables (e.g. liking and beauty), or evaluation methods (e.g. interestingness) that may fail to capture the effect of the aura on genuineness, as well as decontextualized laboratory settings. These approaches limit insight into experiential qualities such as emotional resonance, presence, and genuineness.
The FWF-funded OrDiV (Original–Digital–Virtual) project addresses these gaps through an ecologically valid, mixed-methods study conducted at the Upper Belvedere Museum. Visitors (N=215) engaged with seven artworks in the exhibition “Provocation and Psyche" from the Belvedere collection across three tightly matched conditions: original artworks in the gallery, high-qualitydigital reproductions on a computer, and an immersive VR “identical twin” of the exhibition space. While viewing the exhibition participants were equipped with mobile eye tracking, and then after viewing completed a structured qualitative interview and reported their felt emotional experiences for each artwork using a 16-item ExTM scale of phenomenal states.
Rather than asking whether aura is “lost” through mediation, this presentation will discuss the ExTM experience profiles (disengaged, negative, harmonious, transformative, novel) across original, digital, and VR medialities to examine how experience is reconfigured across gallery, screen, and immersive VR contexts. The findings indicate that museum “twin” VR environments give rise to experiential patterns that differ from those observed in gallery and screen-based contexts, contributing empirical evidence to debates on aura and informing considerations for digital and immersive museum experiences.

27. **Temporal Integration in Music and Aesthetic Judgments: Assessing Shared Taste Through a Transformer-Based Approach**

Sophia Senderak, August Miller and Ed Vessel*
** City University of New York - ViSNA Lab*

Music unfolds over time, requiring listeners to integrate information across successive moments in order to form coherent percepts and stable aesthetic judgments. However, musical styles differ widely in how temporally extended their sequential structures are, ranging from rapidly evolving, locally defined patterns to extended melodic, thematic, and phrase-level development that unfolds over many seconds. Prior work suggests that listeners require more time to form stable liking judgments for music with longer-range structure, raising the possibility that the temporal scale of sequential integration plays a key role in aesthetic experience.

We investigate how the duration and organization of sequential musical features relates to moment-to-moment enjoyment and overall liking. In an ongoing study, participants listen to extended (60s) excerpts of music from 2 genres (classical, electronic) while continuously rating their enjoyment using a dial, followed by an overall liking judgment. To quantify the degree to which each excerpt depends on long-range temporal structure, we develop a computational measure of temporal integration derived from the "attention" mechanism of Audio Spectrogram Transformer (AST), a generative, transformer-based machine-learning architecture. This integration score captures the extent to which representations at a given moment depend on information from other timepoints, providing a proxy for the length and coherence of sequential musical structure. In parallel, excerpts are analyzed using music information retrieval (MIR) tools to extract complementary temporal features (e.g., pacing, event density), which are examined for convergent patterns.

We hypothesize that longer temporal integration will be associated with decreased alignment in moment-to-moment ratings and increased variability in overall liking, consistent with slower, more individualized processes of musical sense-making. By isolating sequential structure and its temporal scale, this work links computational measures of integration with subjective musical experience, offering a principled framework for studying how temporally extended structure shapes aesthetic evaluation.

28. **The "Untitled Effect": How Explicitly Labelling Absence of a Title Shapes Poetry Appreciation**

Shodai Maruyama and Tomohiro Ishizu*
** Graduate School of Psychology, Kansai University*

This study examined the effect of "Untitled" on the aesthetic appreciation of Japanese poetry, and also examined its relationship with the vividness of multisensory imagery. We compered three title conditions: the poem without a title (No-title), with the "Untitled" as its title (Untitled), or original title (Original title). A within-subject design online experiment was conducted, in which 152 Japanese silently read poems written in Japanese and rated the emotions they experienced during appreciation on 5-point scales. After completing all trials, participants reported the vividness of their multisensory imagery. LMMs revealed the effect of title on epistemic emotions and ambiguity; the Untitled was lower than Original title for epistemic emotions and higher than for ambiguity. Significant interactions between title and the vividness of multisensory imagery were observed for aesthetic appeal and understanding of the author's intention. Specifically, when body imagery was high, the No-title and Original title yielded higher aesthetic appeal than the Untitled. In addition, when body imagery was at the mean or high level, understanding of the author's intention was lower in the Untitled than in the Original title. No significant effects of title were observed for reading time (ms) or meaningfulness for the participants. These findings support previous research showing that titles shape aesthetic experience and further indicate that the label "Untitled" evokes a distinct aesthetic experience, differing from both conventional titles and purely the absence of a title. Explicitly stating the absence of a title may reduce engagement by signaling that "there is no clear answer" in interpreting the work. Furthermore, the effects

of titles were found to be interacted with the vividness of multisensory imagery, suggesting that the aesthetic experience of poetry appreciation is shaped through a deep interplay among the work, its title, and the characteristics of the individual viewer.

29. Measuring Beauty - Are the results of ratings and pairwise comparisons consistent?

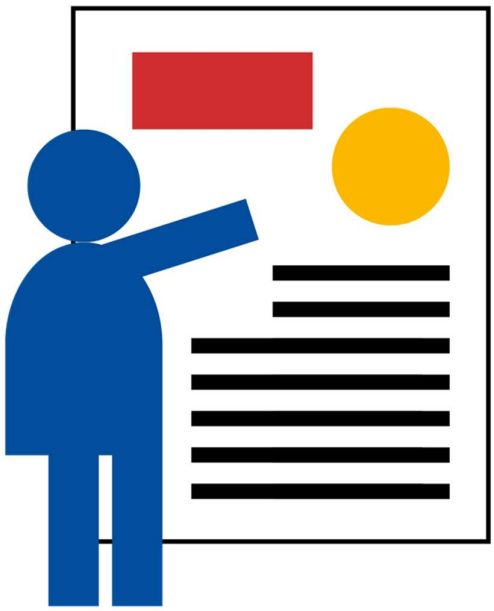
Barbara F. Muehlbauer and Bettina Rolke*
** University of Tübingen*

In most empirical aesthetic research, data on the aesthetic appeal of stimuli is obtained by asking participants to rate them on a Likert scale, requiring them to indicate, for example, their perceived beauty on a scale from 1 (not at all beautiful) to 7 (very beautiful). This rating method has many advantages, as it is easy to implement and allows multiple dimensions of an aesthetic impression to be evaluated simultaneously. Pairwise comparison on the other hand can be useful when small effect sizes are at play or individual differences are investigated. However, it is uncertain whether both methods are psychologically equivalent. Furthermore, it is unclear how stable individual aesthetic judgments are. Estimating the variance of aesthetic judgments is particularly important because rating studies typically only ask for one judgement.
We investigated these questions in two studies. In the first study, we compared judgments of the beauty of chair images, which were collected using either ratings or pairwise comparisons. To check the judgements' stability over time, each measurement was repeated ten times. The beauty assessments obtained using the two methods were very similar. These results demonstrate that both methods effectively capture aesthetic judgements. Furthermore, strong positive correlations were obtained between measurement repetitions within participants, suggesting that their opinion of beauty is stable and does not change substantially over time. On the other hand, correlations between participants were only moderately positive on average, indicating a wide range of opinions between participants. In the second study, we used abstract artworks to test whether these results could be generalized to other stimuli. In general, we obtained similar results, except for even higher variance in ratings between participants. In summary, this systematic comparison of the two evaluation methods provides insights into their respective advantages and disadvantages, which will be discussed in the poster.

Thursday 7th

15:30 – 16:30

Rosenthal (#1-8) & Carl-Zeiss (#9+)



IAEA 2026

1. **Image Complexity vs Aesthetic Appreciation in Abstract Art**
Maartje Raijmakers and Eftychia Stamkou*
** University of Amsterdam*

In aesthetics research on visual art, a central question concerns how artwork complexity influences viewer aesthetic appreciation. This study empirically tests the Goldilocks principle (Berlyne, 1971; Cutting, 2020), which posits that optimal complexity leads to peak aesthetic appreciation. Three important questions were raised in this study: "What is complexity of the artwork?", "What is aesthetic appreciation?", and "Which viewer's individual differences moderate this relationship?". Participants (N = 51) engaged in self-paced viewing of 50 abstract artworks, with a minimum viewing time of 7 seconds per artwork, while their eye movements were recorded. Subsequently, participants provided judgements of each individual artwork. We operationalized complexity using traditional self-reports but contrasted it with two algorithmic measures: JPEG- and fractal-complexity of the painting (Forsythe et al., 2011), showing strong correlations (r between .77 and .81), supporting their validity and replicating our previous pilot studies. We operationalized aesthetic appreciation of an artwork as a multifaceted construct (Gartus et al., 2015), evaluated through self-report beauty, self-report interestingness, and viewing duration for each artwork (beauty vs interestingness, r=.55; beauty vs viewing duration, .31; interestingness vs viewing duration, r=.36). In most mixed-effect models with random intercepts predicting aesthetic appreciation, the quadratic terms of complexity are significant, affirming the hypothesis that an optimal level of complexity predicts aesthetic appreciation. Predicting self-report interest from JPEG complexity shows the best evidence for the Goldilocks principle.
In addition, we apply a novel statistical model, WALD-EM (Kucharsky et al., 2021) to the scan paths, that is, the combined spatial and temporal aspects of the eye-tracking data. By fitting this model (having a joint likelihood function of fixation durations and locations) to the data scan paths are explained not only by local image characteristics (such as salience, complexity, etc.) but also person characteristics and general tendencies (such as a horizontal and central bias).

2. **From Artist to Viewer: Emotion Transmission and Art Experiences Across Original and Digital Presentations**
Kristoffer Sturm, Alexandra Alvarez, Theresa Demmer, Adrian Beil and Matthew Pelowski*
**University of Vienna*

As a medium of expression and aesthetics, art has the power to transmit emotion, convey meaning, and leave an often intangible affective and cognitive impression on the viewer. Encounters with art are increasingly prevalent in our digitized, technologically ever-developing world. What once required an in-person museum visit is now accessible on digital platforms. This raises important questions of how the viewer's emotional and cognitive experience is modified by the medium of artwork presentation – either as a digital reproduction or the original.
In this study, we cooperated with four contemporary artists to aim at investigating the role of an artwork's genuineness on phenomenal states. Each artist provided two artworks and reported their felt emotions and mental states while producing the artwork, and the emotions and mental states they intended viewers to feel. Subsequently, in a gallery setting, a sample of 106 participants observed each artwork either in its original form or as a true to scale digital reproduction (four of each per hanging order) and were asked to self-report felt emotions and other evaluative measures for each of the artworks. Additionally, participants were asked to identify emotions and mental states they thought artist experienced during production and that the artist intended them as a viewer to experience. Data collection was completed in Summer 2025.
In our analysis, we identified experience types for each art encounter based on Miller et al. (2026), who used a procedure of network modelling and latent profile analysis to categorize five different experience types: Harmonious, Novel, Transformative, Disengaged, and

Negative. We compared them between digital and original condition in our sample and found experience types to remain relatively stable, with two experience types differing in their frequency across modalities. We relate experience types and shifts in experiences to individual differences, such as empathy and prosociality.

3. **Generative AI and Effort in Visual Art: Perceived but Not Valued**
Cecilia Theirs, Sergio Villar*, María Luisa Martínez and Guido Corradi*
** Faculty of Health Sciences - HM Hospitals, Camilo Jose Cela University*

The effort heuristic posits that greater perceived effort leads to higher evaluations of creative outcomes. Although this effect is robust for human creators, it is unclear whether similar mechanisms apply to Artificial Intelligence (AI). The present research examines whether increased generation time functions as an effort cue for AI systems and whether such cues enhance aesthetic judgments of AI-generated visual artworks (images). Across two pre-registered studies, generation time was systematically manipulated. In Study 1 (N = 207), participants were informed that images were generated either quickly (30 seconds), moderately (4–8 minutes), or slowly (over 30 minutes), using a between-subjects design. Study 2 (N = 204) adopted a within-subjects design in which participants directly experienced short versus longer waiting times (4 vs. 20 seconds) before image generation. Across both studies, longer generation times reliably increased perceived effort attributed to the AI. However, this increased effort attribution did not result in higher aesthetic evaluations, including measures of liking, beauty, depth, quality, complexity, or monetary value. Instead, participants' positive attitudes toward AI and the extent to which they attributed consciousness-like qualities to the system were the strongest predictors of aesthetic appreciation.
These findings indicate a dissociation between effort attribution and reward in the context of artificial agents. While observers readily infer effort from temporal cues, such inferences do not function as quality signals when human agency is absent. The results suggest that the effort heuristic is constrained by creator identity and that aesthetic evaluations of AI-generated artworks are shaped more by beliefs about AI than by temporal effort cues.

4. **Psychological Mechanisms of Dark Spaces in Aesthetic Experience**
Linwei Wang and Kenji Katahira*
** Graduate School of Letters, Arts and Sciences, Waseda University*

Preliminary research in curated exhibition projects, including the FUTU art exhibition, showed that dark spaces elicited strong responses. Survey data from 68 visitors indicated high aesthetic and emotional impact, while qualitative feedback described "entering another world" and feeling "physical goosebumps," in sharp contrast to conventional gallery spaces. These findings motivate a systematic investigation into why intentionally designed dark spaces enhance aesthetic experience.
Building on these preliminary findings, this research examines dark spaces designed for visual art presentation and immersive experience—enclosed environments with controlled minimal lighting—distinguishing them from natural darkness or complete absence of illumination. Despite their expanding use in immersive exhibitions and social experiences such as Dialogue in the Dark, art-focused research on darkness still faces definitional ambiguity and experimental gaps.
A comprehensive literature review builds an integrated framework across: (1) conceptual distinctions between designed dark spaces, broader dark environments, and absence of illumination; (2) perceptual and cognitive processes under reduced illumination and enclosure; and (3) systematic accounts of aesthetic experience in dark spaces, including qualitative work such as Radywyl's (2010) theory research of aesthetic experience and experimental studies such as Miyamoto's (2007) use of subjective ratings, physiological indicators, and behavioral measures. This literature review suggests that dark spaces enhance aesthetic experience through mechanisms including heightened sensory

sensitivity, altered temporal perception, and increased psychological immersion, though experimental validation remains limited.
This proposed experiment will ask why and how dark spaces enhance aesthetic experience. To address this question, Study 1 will compare Black Box and White Cube spaces, measuring physiological response, visual attention, and self-reported aesthetic emotions. Study 2 will orthogonally manipulate darkness and enclosure to isolate their respective contributions to aesthetic and transformative experiences. Expected contributions include grounded dark space typologies, evidence-based guidelines for immersive museum design, and implications for developing portable systems and VR-based personalized dark environments.

5. **Everyday Aesthetic Context Modulates Sensorimotor Responses**
Tatiana Ledneva, Andriy Myachykov and Yury Shtyrov*
** HSE University*

Aesthetic properties of everyday objects are often treated as secondary to functional characteristics. Yet ecological perspectives suggest aesthetic signals serve pragmatic functions, guiding approach and avoidance decisions during interactions. We ask: How do aesthetic descriptors embedded in linguistic contexts modulate sensorimotor responses to everyday objects? Can aesthetic valence compensate for spatial or pragmatic constraints when preparing actions?
We tested 38 adults (ages 18–35) using stimulus response compatibility methods. Objects automatically activate corresponding grip types (precision for small items, power for large), producing faster responses when grip matches object affordances. Prior work showed linguistic spatial markers modulate this: demonstrative pronouns signaling reachability (proximal "this") facilitate motor activation, while distance cues (distal "that") inhibit it, mirroring visual peripersonal space effects. Here we added aesthetic adjectives manipulating valence through surface neatness: "clean" (positive), "dirty" (negative), and "ordinary" (neutral control). Participants heard phrases combining verbs ("take"/"look at"), demonstratives, and these adjectives before object names (e.g., "look at that dirty hammer"), then categorized objects via grip responses. Neatness systematically affects attractiveness independently of functional properties, isolating aesthetic valence effects.
Results confirmed faster congruent responses overall. Critically, aesthetic adjectives reshaped spatial modulation patterns. With action verbs and proximal space (optimal action context), positive valence eliminated congruency differences via uniform facilitation. With distal space (typically inhibitory), positive valence restored significant congruency effects absent for negative or neutral adjectives, demonstrating aesthetic compensation for spatial distance. Negative valence preserved standard spatial patterns without general facilitation. These findings reveal everyday aesthetics as functional: positive aesthetic valence exhibits compensatory facilitation, overcoming spatial constraints to guide motor preparation. Language integrates aesthetic, spatial, and pragmatic codes to actively reshape action possibilities, exemplifying cross domain synthesis in cognitive aesthetics research.

6. **Cultural Aesthetics of Fear: A Cross-Cultural Study of Marathi and Malayalam Horror Film Audiences**
Siyona Varghese and Kohinoor Darda*
** ARISA Foundation*

Horror cinema activates universal biological fear mechanisms, yet the aesthetic experience of threat is strongly shaped by cultural and linguistic contexts. While core neurobiological processes such as automatic threat detection and arousal may be shared across individuals, the intensity and quality of fear are modulated by culturally learned visual, auditory and narrative aesthetics. Regional horror films draw on folk symbolism, soundscapes and belief systems, transforming fear into a culturally meaningful aesthetic experience. Yet, little research explores how language and cultural familiarity interact to shape aesthetic threat perception.

Supernatural fear arises through the interaction of bottom-up sensory processes and top-down meaning making mechanisms involving cultural schemas and linguistic comprehension. Viewing horror in one's native language preserves working memory resources and supports narrative fluency, allowing deeper engagement with culturally embedded aesthetic cues. In contrast, non-native language viewing increases cognitive load, potentially disrupting immersion and weakening aesthetic coherence.
In this study, Marathi and Malayalam speaking participants viewed excerpts from regional horror films presented in either Marathi or Malayalam. Clips were shown in two conditions: aesthetic, in which original cultural and auditory cues were preserved, and neutralized, in which these cues were systematically removed. We examined film language and aesthetic preference, working memory performance, threat sensitivity, arousal and valence ratings, as well as emotional impact and subsequent memory recognition.
We predict that viewers will show stronger emotional, cognitive and aesthetic responses to horror films from their own cultural region, that intact folk aesthetics will elicit higher threat perception and aesthetic engagement than neutralized versions and that native-language audio will enhance immersion while reducing cognitive interferences. This study advances research in empirical aesthetics and social psychology by demonstrating that fear in horror cinema is not merely biologically triggered, but aesthetically and culturally constructed.

7. **The Illusion of Simplicity: Gestalt Effects on Copying Behavior**
Alexander Pastukhov, Marie Fischer, Annika Luschtinetz, Ines Scheibel and Claus-Christian Carbon*
** University of Bamberg*

Gestalt principles describe how our visual system processes patterns, emphasizing them in our perception. But how do these principles shape or even motivate our actions? In a 2-alternative-forced-choice task, participants chose between patterns with combination of 1 to 3 forms and 1 to 3 colors, arranged as repeating structures across rows, columns, left or right diagonals, as element repetition, or in random order. We instructed them to choose the pattern that was easier to copy, with no incentives to select more complex patterns. After a series of decision trials, one of the chosen patterns was randomly selected and the participant was asked to reproduced it to let the electoral decisions not appear meaningless. Eleven participants each chose between 101 pairs of patterns and copied fifteen patterns. The analysis shows that participants primarily relied on the total number of shape and color combinations —used here as a proxy for the overall length of the copying path— as the main heuristic for deciding on ease of copying. Consistent with this strategy, in 67% of trials, participants chose a pattern with fewer combinations. However, this heuristic was systematically overridden in specific cases. Qualitative analysis of trials in which participants chose a more complex pattern identified four strategies. First, visually orderly patterns were preferred over simpler but random ones. Second, within orderly patterns, cardinal layouts were favored over diagonal layouts. Third, patterns with fewer colors were preferred over those with more colors. Finally, some participants avoided the simplest single-form single-color patterns, favoring more complex but less monotonous alternatives. To summarize, participants used Gestalt-based perceptual organization as a heuristic to choose the pattern. Probably this strategy aimed at identifying the simpler-to-copy pattern which could be seen as the better candidate of a Good Gestalt, even if this procedure did not always led to boptimal choices.

8. **Empirical aesthetics of bridges**
Dirk B. Walther, Mei Yang, Claudia Damiano and Paul Gauvreau*
**University of Toronto*

Bridges are works of public infrastructure designed to perform a practical function. They are unique among works of engineering in that they also have a significant aesthetic dimension. At their best, they inspire awe and wonder. At their worst, they are eyesores. Little is known

about what shapes the aesthetic appeal of bridges. Here we explore how visible features originating primarily from practical considerations relate to aesthetic judgements of bridges. Our dataset comprises of images of 318 bridges from around the world, rated by 254 participants for aesthetic pleasure, interest, complexity, and safety. Civil engineers annotated each bridge's type, depth, visible material, age, and aesthetic premium. Using Factorial Analysis of Mixed Data, we found two significant dimensions. The first dimension, "aesthetics", shows strong correlations among aesthetic, complexity, and interest ratings and is related to bridge type. The second dimension, "perceived safety", relates subjective ratings of safety to bridge age and material. Analyses of visual features, using the Mid-Level Vision Toolbox, shows that contour length and angularity are predictors of the "aesthetics" dimension. For example, cable-stayed bridges are represented by many short and angular contours and are generally rated as more complex, interesting, and aesthetically pleasing. Conversely, slab bridges are often represented by a few long contours and are rated as uninteresting and not aesthetically pleasing. Our study offers the first systematic attempt to collect and analyze subjective ratings of bridge aesthetics, paving the way for empirically supported decisions for the design of bridges and, potentially, other works of public infrastructure.

9. **Emotional and Aesthetic Experience of Renaissance Art: Viewer Responses to Chiaroscuro Paintings**

Samantha Barbolan, Veronika Knedlíková Wanková, Ryan Joseph Slaby, Margherita Calderan and Marco Bertamini*
** University of Padua*

Traditionally, art historians have viewed late sixteenth-century Venetian painting as a transitional phenomenon between Mannerism and Baroque. This style is characterised by heightened dramatic intensity and a theatrical use of light and shadow. Notably, chiaroscuro was deliberately employed to convey expression, enhancing the emotional urgency of scenes and actively engaging the viewer (Correa-Herran et al., 2020, Muraoka, 2024). This approach contrasted with contemporary Central European painting, which tended towards classicism or retained late Gothic narrative principles, reflecting different contextual conditions.

The present research examines whether contemporary viewers perceive the original dramatic intentions of late sixteenth-century Venetian artists. This is assessed by comparing viewer responses to Venetian and Central European paintings. Using an aesthetic evaluation framework focused on experiential responses, the study compares viewer reactions to artworks with and without chiaroscuro.

Forty religious paintings dated between 1550 and 1661 were selected for the study, half were drawn from the Venetian Renaissance, and half from the Northern Renaissance. All paintings exhibiting chiaroscuro effects came from Italian artists. The participants rated the paintings on emotional, cognitive, and technical dimensions. They also were assessed on their art education and their art interest and art knowledge (VAIAK scale; Specker, et al. 2020). Data were analysed using generalized linear mixed-effects models with an ordered beta distribution.

Results revealed significant effects across most dimensions. Specifically, paintings featuring pronounced chiaroscuro were associated with: stronger feelings of being moved, pleasure and sadness; higher ratings of engagement, novelty and familiarity, higher perceived meaningfulness, beauty, positive emotional content, realism and physical depth.

These findings suggest that the perceptual strategies employed by late sixteenth-century Venetian painters, particularly the dramatic manipulation of light and shadow, continue to resonate with modern audiences. This supports the idea that certain visual mechanisms of emotional and aesthetic experience retain their efficacy across historical and cultural contexts (Redies, 2015).

10. **The Effect of Visual Complexity and Ingroup Bias on Aesthetic Appreciation: No Evidence based on a Cross-cultural Study with Japanese-and German-speakers**
Jan Mikuni, Anna Fekete, Takuni Tanaka, Andreas Gartus and Helmut Leder*
** Vienna Cognitive Science Hub*

Cultural background has been suggested as a factor influencing aesthetic appreciation. For instance, when evaluating artworks, past studies have shown that people show ingroup bias (or cultural-match effect, i.e., prefer the artworks from their own culture). Further, East Asian people (e.g., China, Japan) find simpler artworks more beautiful, while Western people (e.g., USA, UK, Germany, Austria) find more complex artworks more beautiful in general. This study tests the impact of both ingroup bias and visual complexity (in terms of image statistics and empty space) on aesthetic appreciation with Japanese-speaking people from Japan (n = 105) and German-speaking people from Western/Central Europe (n = 105), including artworks of East Asian and European origin. Through a series of Linear Mixed Models, we found no evidence supporting ingroup bias, nor the impact of visual complexity on aesthetic appreciation (liking, calming, aesthetically moving, interesting, meaningfulness) for both cultures, regardless of the origin of the artworks. The only exception was the scale of stimulating, which showed that Japanese-speaking people evaluated the artworks as more stimulating regardless of the origin of the artwork and visual complexity. Differences in specific aesthetic scales and directions of future research are discussed.

11. **Evil Unframed: An Interdisciplinary Inquiry into the Impact of Viewing Art of Atrocities**
Alexandra Apesland and Katherine Robinson*
** University of Regina*

Art has long served as a focal point for societies to use to confront moral and emotional questions. This interdisciplinary research investigates how viewers respond to depictions of atrocity—what is here termed 'evil art'—including representations of genocide, rape, torture, and systemic violence. Conducted in a semi-controlled, gallery-style setting, this two-study design explores how mood, affect, empathy, and aesthetic judgment are shaped by both the viewing experience and the contextual information that frames each work. In Study One, 40 participants completed pre- and post-viewing assessments measuring demographics, mood, affect, empathy, and aesthetic preference. In Study Two, a subset of 11 participants received contextual information about each artwork and engaged in further reflection and discussion through focus groups. This mixed-methods approach combines psychological surveys (LEC-5, PANAS, SES-A), ethnographic participant observation, and reflexive thematic analysis to capture both measurable change and lived experience. The studies engage frameworks from psychology, anthropology, and the visual arts, and ask how representations of suffering prompt empathy, moral reasoning, and aesthetic reflection—sometimes simultaneously. A Model of Cognitive and Aesthetic Acclimatization is introduced that builds from and challenges previous theories of desensitization. By analyzing how context shapes viewers' perceptions of evil art, this research contributes to debates on art's role in moral understanding, the ethics of spectatorship, and the potential of cognitive and aesthetic mediation.

12. **Seeing the Mona Lisa Differently: An Eye-Tracking Case Study of Louvre and Prado Versions**
Lea Tschakarov, Lilli Westphal and Gregor Uwe Hayn-Leichsenring*
** Jena University Hospital*

There are several known versions of La Gioconda (or Mona Lisa). Although these paintings differ only in details, they nevertheless create a different impression on the viewer. The present case study examines how viewers visually explore pairs of closely related paintings using eye tracking.
18 participants (2 excluded due to data loss) viewed digital copies of two versions of the Mona Lisa (Louvre version and Prado version) while their eye movements were recorded

using a Tobii eye-tracking system. Predefined areas of interest included eyes, mouth and nose, head, and background. Condition 1 involved free viewing. In Condition 2, participants were asked: (A) "Which painting do you prefer?" and (B) "In which painting does the Mona Lisa look more mysterious?"
Preliminary results indicate systematic differences in viewing behavior (Condition 1). The Prado version elicited relatively more visual attention (indexed by total fixation duration) to the background (strong but non-significant trend), whereas the Louvre version attracted significantly more fixations to facial regions, particularly the mouth and nose. This pattern may reflect the iconic ambiguity of the smile as well as familiarity with the globally well-known Louvre version. In contrast, the Prado version features a more detailed and colorful background (partly due to the absence of varnish), which may draw greater attention.
Behaviorally (Condition 2), participants (A) preferred the Prado version (Prado: 13 / Louvre: 3), while (B) ratings of mysteriousness were more evenly split (Prado: 7 /Louvre: 9). For question (B), differences in viewing behavior were observed particularly in the eye region, depending on which version was rated as more mysterious.
The present study represents a preliminary step toward a larger-scale investigation. Despite the limited sample size, the findings suggest that subtle pictorial differences can systematically influence visual attention.

13. The Role of Absorption in Music Listening for Pain Management

Anna Fekete, Claire Howlin, Jan Mikuni and Urs Nater*
** University of Vienna*

Music listening increases pain tolerance and reduces unpleasantness. However, effects are small and inconsistent, which might be due to an unclear understanding of the underlying mechanisms of the effects of music listening on pain. We therefore focus on how people engage with music, specifically absorption, which is a deep, sustained, and typically inwardly focused engagement with the present moment or experience. Qualitative descriptions of music-based analgesia, where people report that they 'zone out' or 'feel transported' align with the above-mentioned definition of music absorption, highlighting its potential as a key pain-reducing mechanism. In this present study, we investigate the role of absorption as an underlying mechanism of music listening during pain experience and whether it is a distinct mechanism from distraction and mind wandering. Because musical preferences vary and absorption is expected to be highest with liked music, participants will submit self-selected music pieces they like and dislike. To enhance generalizability, we will collect data in Dublin (Ireland) and Vienna (Austria).
We will recruit 56 healthy adults of all genders, excluding those with chronic conditions (e.g., chronic pain, or regular pain-medication use). Using a within-subjects design, participants will complete four sessions: cold-pressor pain with (1) self-selected liked music, (2) self-selected disliked music, (3) no music, and (4) a no-pain music-listening control.
We will measure pain tolerance via hand-submersion time in the cold pressor test and assess pain and stress experience with self-report scales. Distraction, mind-wandering, and state absorption will be measured with self-report. Absorption will also be captured by eye movements (i.e., microsaccades, blink rate), previously found as indicators of musical absorption (Lange et al., 2017; 2022).
We will present preliminary data from our preregistered study (OSF, Jan 2026), analyzed with linear mixed models, and discuss implications for pain management.

14. From Euclidean space to spectral art: The hidden beauty of spirals

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** Universität Konstanz*

Spirals are universal structures, not only manifesting in nature but also holding significant importance in mathematics and the natural sciences. For millennia, they have simultaneously played a prominent role as motifs in art and design. Spirals are generally

considered timelessly aesthetically appealing, which explains their crucial role in ornamentation and artistic expression. However, there is more to it than that. As we will demonstrate, their beauty extends beyond the mere consideration of its visual surface. When spirals are transformed from Euclidean space into the spatial frequency domain (via the two-dimensional Fourier Transform), the resulting amplitude and phase spectra reveal characteristic spiral-shaped patterns. This phenomenon of quasi-self-similarity, the replication of the figure's primary geometry within its spectral representation, is an extremely rare characteristic among geometric forms. Furthermore, these spectral spiral-like patterns themselves possess varying degrees of aesthetic quality and can thus be considered as generative art. Interestingly, their creation is also related to a method of constructing spirals first proposed by Albrecht Dürer in 1525. In an empirical study, we investigated how the beauty of these spectral patterns varies depending on the type of spiral (specifically the Archimedean spiral, logarithmic spiral, and Golden spiral) and parameters of its algorithmic construction (point density along their line). Our findings indicate that logarithmic spirals of medium point density were the most liked. In contrast, in the case of spectra, those patterns generated by spirals with a high point density were rated as the most aesthetically pleasing, with those from logarithmic spirals also dominating here. Overall, our work introduces a novel form of generative art that emerges from the synergy between mathematical spectral analysis and a specific algorithm for spiral construction. Similar to fractal art, this new spectral art is situated at the intersection where the nature of art converges with the art of nature.

15. 3D Cultural Heritage Models for Education and Exploration

*Sander Münster**

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3D models of cultural heritage are a key example for bridging future and past. A current challenge of using 3D models in museum, education or tourism are the high levels of customization needed and the limited available of cultural heritage 3D models (Münster, 2023). The main idea of this contribution involving two EU projects is (1) to show the creation of a large-scale pool of 3D assets and (2) its application for learning and exploration purposes. So far ca. 220.000 images and 85.000 3D models has been retrieved for the dataset from various open sources. The use of XR applications has a significant effect on museum learning (Xu et al., 2023), enjoyment (Dong et al., 2024) and engagement. To validate affective effects museum cooperations took part with the Egypt museum in Turin, the Alesia Museum and the MAC in Barcelona. The datapool is used to creating a set of prototypes. Specific scenarios include (1) to validate affective and learning effects of remote and physical representations, (2) pro-vide content in a remote environment vs. on site, (3) test different ways of storytelling, e.g. with regards to multi-coding (Paivio, 2006), varying narratives and customization (Shen et al., 2024). School courses were offered to primary and secondary school pupil in Jena in the context of school and extracurricular working groups. These courses did produce content for the 4D world viewers – e.g. 3D scans of city sculpture, textual descriptions of landmarks and virtual city tours for children. In total 160 pupils participated in these educational courses since 2022 (Münster and Münster, 2024). Virtual Travelguides has been created by the University of Vigo within the rurAllure project as content along pilgrimage routes, including collections of thousands of Points of Interest along various routes (Vranić et al., 2023).

16. **Using Deep Neural Networks to Model the Relationship Between Internal Visual Representations and Aesthetic Appeal**
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** City College of New York*

Aesthetic judgments of images are thought to emerge from interactions between perceptual processing and internal models of the world. While it is not possible to directly access these internal models, recent advances in machine learning provide powerful tools that can serve as proxies for modeling internal visual representations and offer new ways to study human aesthetic evaluations. We sought to test whether reduced representational sparsity in deep neural networks, which could emerge when an image is not well-matched to training images, can predict human judgments of visual uniqueness. We applied computational image analysis techniques to photographs submitted to Big Picture, a conservation photography competition. Using a pretrained convolutional neural network (VGG16 trained on ImageNet), we extracted latent feature representations for each competition photograph and quantified multiple representational metrics, including latent distinctiveness, mean activation, and sparsity. Latent distinctiveness was computed at the level of individual images, reflecting the dissimilarity between each image's internal representation and those of other images in the dataset. These computational measures were then compared with judges' ratings and competition outcomes. Sparsity emerged as a significant predictor of judges' evaluations, indicating that images with less sparse internal representations were rated more favorably. By examining whether images rated highly by judges exhibit distinctive representational properties in a deep network, this project investigates whether computational measures of internal visual representations align with human aesthetic judgments. The findings contribute to a growing body of work bridging computational vision, neuroaesthetics, and environmental communication, offering insights into how representational sparsity and visual uniqueness may support the aesthetic impact and persuasive power of conservation imagery.

17. **Using Artistic Psycholudic Game Design to investigate cooperation in a three-person EEG hyperscanning study**
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This unique joint research project merges artistic game design with cognitive neuroscience to study social interaction during play and it's impacts on players. Building on traditional role-switching trick-taking games (e.g., Schafkopf), the psycholudic project team (Experimental Game Cultures Research Lab, University of Applied Arts Vienna) created 501, which has experimental game mechanics, allowing cooperation or solo play. From this, a multiplayer computerized version was designed and subsequently employed in a three-people EEG-hyperscanning paradigm to investigate if brain activity and shared resonance of participants (neural inter-subject coupling) can be systematically linked to game events. Further, (how) does shared brain resonance vary depending on game mode cooperating vs. playing solo? Finally, (how) might other variables such as e.g. game preference: team vs. solo player, trait empathy prosocialness, felt connectedness be linked to brain activity in the single brain and shared brain resonance during play. To investigate these questions, participants brain activity was recorded (32-channel EEG LiveAmp) while playing two rounds (each ≈20-minute) of 501. Event markers and EEG streams were synchronized, enabling complete reconstruction of card order, choices, and role shifts for context-dependent analyses of event-related potentials and activity. Additionally, behavioral data was collected using pre-/post-session questionnaires, assessing variables such as e.g. prosocialness, positive/negative mood, perceived connectedness/collaboration, trait-empathy (QCAE) and participants emotional–aesthetic experience during gameplay. Preliminary EEG data analysis suggests consistent event-related potentials for game relevant actions (e.g. played cards), thereby presenting

unprecedented possibilities to investigate collaboration, risk taking, and other game related concepts on a behavioral and brain level in a comparibaly natural social setting. With this study we hope not only to help better understand neural correlates in different social roles but also more broadly help to discover mechanisms and strategies that when, culturally transferred, could facilitate societal concepts of coexistence. Acknowledgements: Funded by Austrian Science Fund FWF-PEEK AR787.

18. **The Japanese Aesthetic Experience of "Yoin": A Quantitative Study of Post-Music Listening**
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After listening to an outstanding musical performance, on the way home from an enjoyable party, or during the closing moments of a film, people sometimes experience a lingering sense of beauty, emotion, or sentimental reflection that persists for a while after the stimulus has ended. In Japanese culture, this integrative experience is called "Yoin (余韻)", an aesthetic concept describing the prolonged sensory, emotional, and perceptual resonance following an aesthetic stimulus, valued as essential to Japanese artistic appreciation. It has long been regarded as an important aesthetic concept embedded in Japanese cultural practices and everyday life. Despite this importance, however, quantitative approaches to Yoin have been lacking, leaving research on its psychological nature and properties limited (e.g., Schubert, 2013). To address this gap, we systematically examined the subjective characteristics of Yoin—specifically its strength, duration, and emotional qualities—following music listening.
We conducted an online experiment with 340 participants (139 musicians, 201 non-musicians) who listened to the final 10 seconds of 30 musical excerpts and rated the perceived strength and duration of Yoin, as well as their liking and familiarity with each piece. A two-way ANOVA using musical experience and performance style (orchestra vs. piano solo) as factors revealed significant main effects for both without interaction. Musicians experienced significantly stronger and more prolonged Yoin than non-musicians, and orchestral performances elicited stronger Yoin than piano solos across both groups. These findings suggest that musical expertise enhances Yoin sensitivity, while the attributes that evoke Yoin are universally perceived regardless of listener background.
This study provides the first systematic quantification of Yoin, transforming a concept previously discussed solely in qualitative terms into a measurable psychological phenomenon. These findings establish a framework for empirically investigating diverse culturally rooted aesthetic experiences, contributing to a more comprehensive understanding of human aesthetic sensibility.

19. **Spirituality and Religiosity and Aesthetic Appreciation of Architecture**
Vasiliki Meletaki, Isabelle Lee and Anjan Chatterjee*
**Penn Center for Neuroaesthetics*

Architecture, religiosity, and spirituality are interwoven in ways that shape cultures, histories, and societies around the world. Architectural ideas influence how we design and inhabit spaces and how we ascribe meaning to our built environment. The design and visual elements of religious architecture can evoke unique emotional responses in each individual. We hypothesize that a person's degree of religiosity and spirituality influences their emotional responses and aesthetic appreciation of architecture. We measured emotional and aesthetic responses using the taxonomy of aesthetic impacts (positive affect, negative affect, transformation, profound and immersive) and psychological dimensions of architecture (coherence, fascination, hominess). Participants aged 18 and above from different religious and socioeconomic backgrounds, located in the U.S., were enrolled in this online study, which consisted of one of two survey versions. Each version displayed 30 interior images (15 religious and 15 public non-religious interiors) for a total of 60 images from five continents. Participants rated each image on a five-point Likert scale for its aesthetic impacts,

architectural dimensions, liking, beauty, and familiarity. We also collected information about participants' religious identity, religiosity, spirituality, openness to experience, architectural knowledge, aesthetic participation, and demographics. We used linear mixed-effect models and found that religiosity positively predicted ratings of hominess, positive affect, beauty, fascination, profound and immersive, liking, and transformation. Spirituality positively predicted these seven aesthetic ratings, along with coherence. Contrary to our predictions, building type (religious or public) was not a significant predictor in our models, but participants' openness to experience and aesthetic participation were. Openness to experience was negatively associated with religiosity but positively with spirituality. More research is needed to unravel the complex interplay between religiosity, spirituality and openness. Our study shows that religiosity, spirituality, aesthetic experience and openness to experience shape how we perceive and appreciate the built environment around us.

20. Artists' Morality Colors Aesthetic Judgments of Their Paintings

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Is viewing a painting ever just about the paint on the canvas? We tested the hypothesis that an artist's moral reputation influences viewers' experience of a painting's beauty. In a preregistered online study, 415 U.S. adults viewed eight moderately attractive paintings sampled from public databases. Before each painting, participants read a short vignette describing the past actions of one of eight well-known historical figures – four portrayed as morally "good" (e.g., Joseph Lister, Oskar Schindler) and four as morally "bad" (e.g., Joseph Stalin, Ted Bundy) – and were told that this person had created the painting as a hobby. After focusing on the person's vignette for 5 seconds, they rated the painting's beauty and 11 aesthetic impacts, capturing positive affect, epistemic transformation, immersion, and negative affect.
Linear mixed-effects models with random intercepts for participants and paintings showed a robust "bad-is-ugly" effect: the same paintings were judged less beautiful when attributed to morally bad versus morally good artists, and moral reputation shifted the profile of aesthetic impacts. Attributions to morally bad figures reduced positive affect, epistemic transformation, and immersion, and increased negative affect. These findings suggest that moral condemnation can overshadow formal properties of artworks. Greater prior aesthetic participation did not attenuate the influence of moral context on beauty or any of the aesthetic impacts. Instead, participants with more aesthetic participation showed larger morality-related differences in epistemic transformation: they felt especially more enlightened and inspired by paintings attributed to moral, compared to immoral, figures. We will discuss how these results refine the aesthetic triad framework and clarify why observers often struggle to "separate the art from the artist" in everyday aesthetic experience.

21. From Representational to Abstract Art: Testing Learning-Based Accounts of Aesthetic Appeal

Luis Morales, Aubrey Valdez, Ashley Gurung, Andrew Frankel and Edward Vessel*
** City College of New York*

How is the aesthetic appeal of representational and abstract art shaped by past knowledge? Contemporary accounts propose that aesthetic responses are not solely a feature of stimuli, but depend on how visual input relates to an observer's internal model, shaped by learning and experience. We test how learning reshapes representations and modulates aesthetic responses by creating structured stimulus spaces of artworks using a machine-learning model aligned to human perceptual similarity judgments and manipulating observers' experience using a category learning task. In two experiments, observers were first trained to distinguish artworks of two similar artists, then tested on categorization performance, familiarity, uniqueness, and aesthetic appeal. In Experiment 1 (n = 48), using two similar Impressionist artists, we observed clear evidence of learning. Categorization performance declined near the category boundary and in untrained regions of the space. Familiarity

systematically decreased with distance from the training region, while uniqueness was highest near the train–generalization boundary, forming a localized "zone of learning." Models predicting aesthetic appeal showed that perceived uniqueness was the strongest predictor of aesthetic appeal (β = .342), with familiarity contributing a smaller effect (β = .075). These relationships were moderated by individual differences, including state anxiety and positive affect. In the second experiment (ongoing), we repeat this experimental design using two similar abstract artists to test how the results from Experiment 1 generalize to stimulus spaces with less representational content. We seek to test (1) how changes in content affect the relationship between rated uniqueness and the train—generalization boundary, and (2) whether the relationships between uniqueness, familiarity, and aesthetic appeal change when representational cues are reduced. Initial findings suggest that aesthetic appeal may be highest when stimuli are neither fully predictable nor wholly novel, but instead occupy regions of uncertainty that can be resolved through learning.

22. **Embodied Encounters with Cultural Heritage: A Neuro-Physiological Study**
Kalliopi Ioumpa, John Stins and Nadia Dominici*
** Vrije Universiteit Amsterdam*

Recent years have seen growing evidence of the positive impact of art experiences on human wellbeing. This project explores the transformative potential of cultural heritage, using an integrative approach that combines behavioral, neural, and physiological measures. Healthy adult participants completed a laboratory-based study consisting of two tasks. The first examined how different caption styles influence responses to cultural museum artifacts. Four caption types were tested: factual information, open thematic keywords, reflective questions, and confidence-enhancing phrases. The second task focused on artifacts from the Enzio Museum in Turin, linked to the first documented protest in ancient Egypt, to explore whether engagement with societal themes differs when presented through historical depictions versus contemporary documentation. Given the rapid rise of AI-generated imagery, AI-produced versions of both historical and contemporary protest materials were also included to assess whether participants perceived them differently. Self-reported valence, arousal, awe, informativeness, and confidence were collected. Throughout the task, participants stand on a force platform to record their Center of Pressure (COP), a marker of subtle postural shifts. In parallel, EEG recordings capture brain activity, and a wearable wristband device records physiological responses. The COP data analyses offer insight into bodily responses: emotionally engaging stimuli are expected to reduce sway variability due to attentional capture, elicit backward leaning in response to negative stimuli, and forward leaning in response to positive stimuli. EEG analyses focus on estimating an approach–withdrawal index, based on frontal alpha asymmetry, and a cognitive effort index, based on theta-band activity. Finally, skin conductance level serves as an indicator of arousal. By combining different measures, this study seeks to deepen our understanding of how cultural heritage experiences shape cognitive and emotional states. Ultimately, it aims to provide evidence-based insights for cultural professionals on designing emotionally resonant and mentally enriching encounters with heritage.

23. **Sequential Viewing and Description of Artworks Does Not Enhance Analytical Skills in Laypeople**
Frank Papenmeier, Gerald Dagit, Christoph Wagner and Stephan Schwan*
** Department of Psychology, University of Tübingen*

Differences in art perception, interpretation, and aesthetic evaluation between experts and laypeople are well documented, with educational approaches like visual thinking strategies and slow looking suggesting that mindful, detailed viewing fosters expertise. This study examined whether unguided engagement with a short sequence of abstract-figurative artworks enhances laypeople's analytical descriptions to move closer to the standard set by experts. Ninety-seven laypeople and sixty-seven experts described five artworks, with the

target artwork presented either first or fifth. Two independent expert raters evaluated the written descriptions based on seven predefined dimensions of art historical analysis (e.g., composition, artistic work process), which served as our primary dependent variables. As expected, the experts' descriptions were rated significantly higher and were quantitatively more extensive than those of the laypeople. However, prior viewing of four artworks did not improve the analytical quality of the laypeople's descriptions. In some dimensions, descriptions worsened when the target was fifth. The interaction between expertise and position was not significant, suggesting that the qualitative gap between the descriptions of laypeople and experts remained after sequential viewing. These findings suggest that, in the present study, unguided sequential exposure to a small set of artworks was insufficient to initiate art development, implying that explicit, structured instruction is likely necessary to develop analytical viewing skills.

24. **Neural Correlates of Negative Aesthetic Evaluations in Visual Art: A Neuroimaging Meta-analysis**
Ryan Joseph Slaby, Maria Arioli, Marco Tettamanti and Zaira Cattaneo*
** University of Padua; University of Vienna*

Neuroaesthetics has focused on investigating positive aesthetic evaluations while neglecting negative aesthetic evaluations. The employment of domain-general neural systems may engender hedonic valuation across an affective space of (dis)pleasure towards artistic and non-artistic stimuli. Hence, we conducted a meta-analysis assessing neural correlates associated with negative aesthetic evaluations towards visual artwork (NAE) and with viewing or evaluating negative non-artistic images from the International Affective Picture System (N-IAPS). Literature search screenings found 16 studies and 16 experiments for the NAE and 46 studies and 47 experiments for the N-IAPS. GingerALE software employed activation likelihood estimation analyses to specify neural correlates within and between NAE and N-IAPS. Meta-analytic results from the NAE solely revealed the right fusiform gyrus encroaching the anterior cerebellum, while activations across frontal, occipital, temporal and subcortical areas were revealed for the N-IAPS. A commonality between the NAE and N-IAPS was revealed within the right fusiform gyrus. These results suggest that the domain-general neural systems are at play across negative visual affective experiences, yet the context of stimulus engagement, such as aesthetic, may modulate how these neural systems are employed. Given the scarcity of results, future research in neuroaesthetics must expand from positive aesthetic evaluations to ascertain neural correlates within negative aesthetic evaluations.

25. **Beauty, Biceps, and Body Image: Gendered Pathways to Muscle Dysmorphia**
Selina Maria Weiler, Tobias Thelen and Thomas Jacobsen*
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Muscle dysmorphia (MD), a subtype of body dysmorphic disorder, is characterized by the persistent belief of being insufficiently muscular despite visible physical strength. While traditionally studied among men, recent evidence suggests gender-specific expressions of MD. This study explores how the desire for aesthetics, muscle-oriented body ideals, and body appreciation interact as predictors of MD symptoms and whether these relationships differ by gender. Grounded in Self-Discrepancy Theory and the Tripartite Influence Model, we conducted a cross-sectional study of 100 physically active adults (52 men, 48 women) using validated instruments: the Desire for Aesthetics Scale – German (DFAS-G), Drive for Muscularity Scale (DMS), Female Muscularity Scale (FMS), Muscle Dysmorphic Disorder Inventory (MDDI), and Body Appreciation Scale-2 (BAS-2). Data were analyzed using bivariate correlations, linear regressions, and moderation analyses. The DFAS-G was significantly associated with higher MD symptoms ($r = .49$, $p < .001$), and regression models confirmed that both aesthetic desire and muscularity drive were significant predictors of muscle

dysmorphia. Muscle idealization correlated strongly with dysmorphic symptoms in both men (r = .64) and women (r = .56). Body appreciation showed a robust negative relationship with MD (r = –.55, p < .001), supporting its role as a protective factor. Moderation analyses further revealed that body appreciation buffered the impact of muscle ideals (DMS/FMS) on MD symptom severity. Gender differences emerged at the subscale level of the MDDI: men scored significantly higher on Drive for Size (d = 0.80, p < .001), whereas women reported greater Appearance Intolerance (d = 0.52, p = .011). These findings emphasize the complex interplay between aesthetic motivation, internalized ideals, and self-evaluation in the development of muscle dysmorphia, with notable gender-specific patterns. The study contributes to a nuanced understanding of how aesthetic motivation can act as both a risk and resilience factor.

26. Context affects aesthetic evaluation, being moved, and other emotions

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It is almost a truism that context is an important factor both for emotion research and empirical aesthetics. It potentially can influence how emotions are experienced as well as how aesthetic objects are evaluated. Here we studied relations of being moved, an aesthetic (and social) emotion having sad and joyful variants, with other emotions and aesthetic evaluations in an art and a non-art context. In a prestudy, we selected 350 images from the Social-Moral Image Database and asked 120 participants to rate them on the 20 emotion dimensions of the Geneva Emotion Wheel (GEW), plus valence, arousal, being moved, and liking. We found being moved to be positively correlated with a measure of emotion complexity (r = .85) derived from the GEW. Furthermore, being moved was strongly correlated with the emotion of compassion (r = .82), while liking mostly correlated with valence (r = .92). In addition, a clear positive relation between being moved and liking was found for joyful (r = .71), but not for sad images. In a follow-up study, we presented 40 joyful and 40 sad images from the prestudy to 86 participants, either in an art or in a news context. Similar to the prestudy, joyful images were more liked and rated more beautiful and more positive than sad images, whereas sad images led to more complex emotional evaluations and were rated more moving than joyful images. Importantly, we also found context effects: Images presented in an art context were more liked and found more beautiful than in a news context. Furthermore, joyful (but not sad) Images were evaluated more positive and more emotionally moving in an art context. In sum, we could demonstrate complex relations between being moved, other emotions, as well as aesthetic evaluation, and found context effects in line with previous findings.

27. Aesthetic Appreciation, Perceived Memorability, and Curvature in Visual Scenes

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** Department of Psychology, University of Turin*

In the literature investigating aesthetic appreciation, aesthetic responses are often associated with specific properties of the visual stimuli themselves. In particular, certain low- and mid-level features, such as spatial characteristics, complexity, and curvature, are considered predictors of aesthetic appreciation (Van Geert & Wagemans, 2020; Farzanfar & Bernhardt-Walther, 2023). Moreover, it is well established that highly appreciated visual stimuli may benefit from privileged processing, showing greater efficiency in stimulus processing (Tang, Cunningham & Bernhardt-Walther, 2025) as well as enhanced perceptual learning (Sarasso, Ronga, Kobau et al., 2020).
However, the relationship between aesthetic appreciation and memory, a crucial cognitive ability in everyday life, remains relatively underexplored. To address this gap, an online study was conducted using visual scenes from built and naturalistic environments. The stimuli

received independent ratings of aesthetic appreciation, processing fluency, perceived curvature, and perceived memorability.
The preliminary results showed that, while the objective memorability of the presented stimuli did not consistently correlate with perceived memorability across all categories, aesthetic appreciation was significantly correlated with both perceived memorability and perceived curvature of the images. These findings suggest that aesthetically appreciated stimuli are perceived as being more efficiently processed and better retained, even when this perception is not supported by objective memory performance. The results are also consistent with the hypothesis that stimuli perceived as more curved are more highly appreciated, as curvature is considered in the literature one of the strongest predictors of visual preference.

28. **Openness to Experience and Preferences for Complex Genres of Music and Movies: Is Need for Cognition the Missing Link?**
Maria Manolika and Thomas Jacobsen*
** Helmut Schmidt Universität*

Previous research in psychological aesthetics has already highlighted the influence of personality on the experience and appreciation of art. And yet, the question of whether personality can manifest itself in arts attendance behavior remains far from settled. In this study, we examined the hypothesis that personality –measured with the Mini International Personality Item Pool– is linked to arts attendance motivations, based on two distinct samples of 1398 Greek and 408 German students. Results of both studies revealed that all the Big Five traits contributed differentially to arts attendance motivations, implying that people with different personality traits have different reasons for attending the arts. We might therefore assume that people do attend the arts to satisfy their personality-related needs or, to put it another way, the experience of art lies in the eyes of the beholder.

29. **Interest and knowledge in visual art: validating the Italian version of the VAIAK questionnaire**
Matteo Maioli, Veronika Knedlikova Wankova, Eva Specker and Marco Bertamini*
** University of Padua*

One of the aims of empirical aesthetics is to develop reliable and culturally adaptable instruments to investigate individuals' responses to artworks. Two important variables that during the last years have been shown to be highly influential are Interest and Knowledge in visual art. The Vienna Art Interest and Art Knowledge (VAIAK) questionnaire was introduced to measure each of these two variables (Specker et al., 2020). The present study aimed to develop and psychometrically validate an Italian version of the Vienna Art Interest and Art Knowledge (VAIAK) questionnaire.
A total of 537 participants completed the Italian version of the VAIAK, the revised Aesthetic Fluency Scale (AFS), the Biographical Inventory of Creative Behaviors (BICB), and the Creative Achievement Questionnaire (CAQ). Participants were divided into two groups based on their academic background and professional status. Results indicate that the VAIAK is a reliable and valid instrument for use within the Italian population. As expected, art experts scored significantly higher than laypersons on both Art Interest and Art Knowledge, supporting the construct validity of the VAIAK. Comparisons between VAIAK dimensions and the other questionnaires showed convergent and discriminant validity of these measures within the Italian context. Aesthetic fluency, as assessed by the revised AFS, showed a strong positive correlation with Art Knowledge measured by the VAIAK. In contrast, creativity, as measured by the CAQ and the BICB, showed weak correlations with the VAIAK dimensions. Additional exploratory analyses revealed interesting differences in the non-expert sample between the Italian-speaking and the German-speaking groups. These differences highlight the potential influence of cultural and educational factors and underscore the importance of cross-cultural considerations in empirical aesthetics.

30. Investigating question asking via naturalistic online gaming environments

*Yoed Kenett**

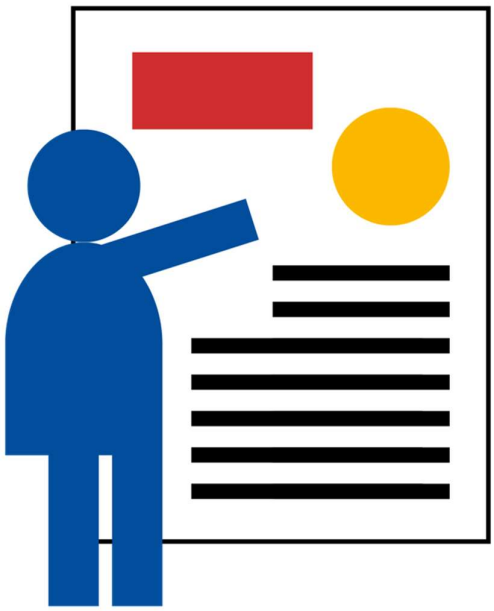
** Technion - Israel Institute of Technology*

Question asking is a crucial skill, influencing social cognition, creative problem solving, aesthetic experiences, and information seeking. Yet, its cognitive mechanisms remain poorly understood due to challenges in studying it naturally. To address this challenge, we have recently developed two online question asking games to explore question asking in naturalistic gaming environments: Spot the Spy and The Martian Game. Spot the Spy is a closed-ended game where players must find out who is the spy in a room full of people. The game begins with a 'bar' full of characters who differ by a set of visual features (gender, garments, hairstyles, and accessories), and one of them is randomly selected as the "spy". The player explores the different characters while wandering around the room, and their aim is to correctly guess who the spy is. This, by asking a chatbot agent yes or no questions about the target (i.e., "Does the spy have gray hair?"), while eliminating suspects based on the chatbots' answers till they make a guess on who the spy is. The Martian Game is an open-ended game that simulates creative problem solving in realistic contexts. Players design a solar energy system for a Martian city through two stages: (1) a problem finding phase where they ask an AI chatbot questions to gather information, and (2) a solution-planning phase producing written and visual designs. Questions are coded for complexity, originality, and relevance; solutions are rated for originality and appropriateness. Player's performance in both games is related to their assessment of intelligence, creativity, curiosity, and question asking capacities. We find that intelligence facilitates performance in the closed-ended, Spot the Spy game; whereas creativity and curiosity facilitate performance in the open-ended, Martian game. Thus, these games offer an ecologically valid approach to study question asking in naturalistic environments.

Friday 8th

17:15 – 17:30

Rosenthal (#1-8) & Carl-Zeiss (#9+)



IAEA 2026

1. **Bridging Music and Dopamine Activity: The Positive Reward of Musical Performance**

*Sofia Taylor**
** The Max Planck Institute for Empirical Aesthetics*

I hypothesize that the live performance condition will elicit stronger reward-related physiological responses and greater positive emotional yield compared to the recorded condition. 42 participants will be recruited from the Max Planck Institute for Empirical Aesthetics participant database and randomly assigned to one of two counterbalanced orders. The audience will view a sixty minute concert consisting of two pieces in dual mode of presentation. The order of the live and recorded pieces will be Live 1, Recorded 2, Recorded 1, Live 2. Throughout each piece, skin conductance and spontaneous eye-blink rate—an established proxy for dopaminergic activity—will be recorded using EOG. Participants will be fitted with EOG and skin conductance sensors after entering the auditorium and will view all pieces in the assigned order. After each piece viewing, participants will complete questionnaires assessing positive emotions, absorption, physiological sensations (e.g., chills), musical training, and genre preferences. Questionnaire items will be drawn from the Gold-MSI, GEMIAC,and GEMS inventories (Coutinho & Scherer, 2016; Lykartsis et al., 2013; Schaal et al.,2014; Zentner et al., 2008). Participants will receive a complimentary non-alcoholic beverage and a receipt of their complimentary concert ticket as compensation. Research on spontaneous eye-blink rate as a dopaminergic proxy demonstrates medium-range modulations in response to reward-related tasks (Jongkees & Colzato, 2016). Data preprocessing will be carried out in Python, with EOG analysis conducted using a combination of Python and Acknowledge. Self-report scales and blink-rate outcomes will be analyzed in SPSS using a mixed-effects framework to account for the within-subjects nature of the design. I expect the live performance to reliably produce stronger emotional responses and higher reward-related physiological activity in both counterbalanced groups. Although order effects may slightly influence responses to the second piece, I nevertheless anticipate that the live condition will produce the strongest overall effects.

2. **Attractiveness versus beauty: An empirical study of disinterested aesthetic evaluation of the human voice**

Rinko Oka, Sotaro Kondoh and Shinya Fujii*
** Faculty of Policy Management, Keio University, Japan*

Aesthetic theory emphasizes that experiences of beauty arise from a “disinterested engagement” with objects—a stance detached from instrumental goals and personal desires (Jacobsen, 2006). While empirical research on the human voice has predominantly utilized utilitarian frameworks such as sexual attractiveness and mate value, its potential for formal aesthetic appreciation remains underexplored. The present study represents a pioneering challenge to extend empirical aesthetics into the auditory domain by operationalizing the behavioral dissociation between "outcome-focused evaluation" (attractiveness driven by biological wanting) and "object-focused evaluation" (beauty characterized by disinterested liking) (Ferdenzi et al., 2015).
We investigated how evaluations of female voices are modulated by subjective (person-related) factors—specifically rater sex—and contextual (stimulus-related) factors. Using a single-speaker design to control for vocal identity, we presented female vocal stimuli across neutral modal speech and professionally aestheticized registers (e.g., broadcasting and

public announcement styles). Heterosexual male and female participants evaluated these stimuli on dimensions of beauty and attractiveness. This design allowed us to test whether semantic labels and rater internal states influence the capacity for disinterested contemplation.
Our pilot results indicate a clear behavioral dissociation: while attractiveness is idiosyncratic and tied to the rater's internal motivational state, vocal beauty is characterized by higher social consensus and can be experienced as "liking without wanting" (Chatterjee, 2011). Notably, same-sex raters demonstrated a more pronounced separation between beauty and attractiveness, suggesting that vocal beauty is recognized independently of personal reproductive desire. This research provides evidence that the human voice can serve as a formal material for disinterested contemplation, successfully bridging the gap between evolutionary psychology and empirical aesthetics by demonstrating the interplay between the object, the person, and the context.

3. **Urban Drone Transportation in Aesthetic Context: Experimental Evidence for Acceptance, Co-Evaluation, and Scene Effects**
Svantje T. Kähler, Aquiles Luna-Rodriguez and Thomas Jacobsen*
** Helmut Schmidt University*

Across three experimental studies, we investigated aesthetic and acceptance responses to urban transportation drones embedded in realistic visual scenarios. Drone scenes were contrasted with an implemented technical alternative (helicopters) and a natural baseline (geese) and systematically varied in landscape context (urban, rural, industrial), usage (medical vs. commercial), and visual salience (white vs. orange color). Two studies assessed student (Study 1) and older-adult samples (Study 2), while a third study introduced a methodological extension by experimentally manipulating whether participants evaluated acceptance alone or jointly with aesthetic judgments.
Across studies, aesthetic evaluations were strongly context dependent. Scenes containing the natural baseline were rated most beautiful in rural settings, followed by urban and industrial environments, providing a stable reference pattern across samples. For technical objects, medical applications consistently elicited higher aesthetic ratings than commercial ones, indicating halo effects. White objects were perceived as more aesthetically pleasing than orange ones in several contexts. Notably, in the first student samples, scenes with drones embedded in industrial environments were judged more beautiful than those placed in other settings, reversing the pattern observed for natural scenes and highlighting object–context congruency effects. The third study revealed partially different aesthetic patterns under modified task demands.
The third study further demonstrated that aesthetic judgments were not merely passive reflections of visual input: requiring participants to alternate between aesthetic and acceptability evaluations selectively modulated certain context-dependent effects, suggesting that evaluative goals can shift the weighting of visual cues.
Together, these findings provide converging evidence that aesthetic responses to emerging technologies are shaped by complex interactions between visual properties, environmental context, and task demands. The results contribute to empirical aesthetics by extending scene-based aesthetic research to socio-technical systems and highlight implications for urban design, technology communication, and human–technology interaction.

4. **Vocal Attractiveness – A Matter of Age?**

Romi Zäske, Verena Skuk and Stefan Schweinberger*
** Department for General Psychology and Cognitive Neuroscience, Friedrich Schiller University Jena, Germany*

In various social situations people benefit from having an attractive voice, and the increasing prevalence of professional voice trainings attests to the importance people attribute to their vocal appearance. Most research has focussed on basic acoustic properties of mostly young adult voices. Yet it is unclear how perceived vocal attractiveness relates to speaker age and to other high-level social signals in voices. Using short sentence stimuli from 61 young (18–25 years) and 59 old (60–81 years) adult speakers from the Jena Speaker Set (JESS; Zäske, Skuk, Golle, & Schweinberger, 2020), we explored how voice attractiveness relates to speaker age, likeability, perceived regional accent, and two measures of distinctiveness (deviation-based [DEV] and voice in the crowd-based [VITC]). Rating data suggested high interrater reliability (Cronbach's Alpha between .82 and .99), with young voices being rated as more attractive than old voices, particularly when male listeners judged female voices. Moreover, young female voices were rated as more likeable than both young male and old female voices. Young voices were judged to be less distinctive than old voices according to the DEV measure, with no differences in the VITC measure. Correlational analyses between rating dimensions demonstrated a highly positive correlation between attractiveness and likeability, and a strong negative correlation of both these measures with DEV-based distinctiveness. By contrast, attractiveness and likeability were uncorrelated with VITC-based distinctiveness in young voices, although a moderate negative correlation was observed for old voices. Finally, attractiveness and perceived intensity of regional accent were strongly negatively correlated. Overall, voices judged to be attractive tend to be young, likeable, non-distinctive, and speak without a regional accent. This suggests a complex interplay of various social attributes in the formation of attractiveness judgments, that need to be considered in future research, beyond low-level acoustic features.

5. **Exploring transdiagnostic patterns of music preferences and behaviour across autism and ADHD**

Silvia Castellano, Diana Omigie, Samantha Gregory and Bill Davies*
** University of Salford, Manchester*

This project explores musical preferences and behaviour in adults with varying traits of autism and Attention Deficit Hyperactivity Disorder (ADHD) through neurodiversity-affirmative and transdiagnostic perspectives. Autism and ADHD are associated with differences in attention, working memory, executive function, sensory sensitivities and social cognition. Neurodivergent individuals also tend to exhibit distinct perceptual processing in the auditory domain, idiosyncratic music use and music-related reward experiences. By adopting a transdiagnostic approach (Astle et al., 2022), the study aims to capture heterogeneity and overlap across autism and ADHD by deriving data-driven groups based on shared cognitive traits rather than traditional diagnostic categories. This method accommodates the complexities of neurodivergent people, avoiding a-priori binary categorisations and assumptions of neurotypical listeners. A large sample of participants (N>600) completed an online experiment involving questionnaires and cognitive tasks assessing aspects of attention, working memory, executive function, social perception, as well as musical engagement, reward, adaptive functions of music, emotion, sensory sensitivities and personal music preferences. Using unsupervised machine learning,

diagnosis-agnostic clusters were identified in multidimensional cognitive space. Then, their predictive validity was examined in the context of music behaviour and preferences. Preliminary results suggest that these data-driven groups may capture more individual differences in cognitive and musical profiles than diagnoses alone. These findings highlight the need for further research into the unique ways in which neurodivergent listeners engage with music in everyday life. Future work will employ naturalistic listening paradigms and computational models of musical expectation to investigate reward, emotion, and curiosity in greater depth.

6. **Spatial abilities and realistic drawing: The role of artistic expertise in production and evaluation**

Alicia Alvarez-Martinez, María Soledad Beato, Javier Eseverri, Mar Suarez, Juan Sebastián González-Rodríguez and Olivia Rivero*
** Faculty of Psychology, University of Salamanca*

Drawing and spatial abilities are known to differ between individuals with and without formal artistic training, although such differences are not consistently observed across all spatial domains. Moreover, while drawing ability has been related to spatial abilities, this relationship has typically been examined using global measures of drawing accuracy. Consequently, it remains unclear how specific spatial abilities contribute to distinct components of drawing accuracy. To address this issue, the present study employed a multidimensional drawing rating scale and aimed to (1) examine the differences between artists and non-artists in spatial and drawing abilities, (2) explore the associations between spatial and drawing measures, and (3) analyze the influence of judges' artistic experience on drawing evaluation. Fifty Fine Arts students (artists) and fifty Psychology students (non-artists) completed three spatial tasks: the Mental Rotation Test (MRT), the Paper Folding Test (PFT), and the Vividness of Visual Imagery Questionnaire (VVIQ-RV). Participants also completed the Hand Drawing Task (McManus et al., 2010). Drawings were evaluated by three groups of judges (Fine Arts professors, Psychology professors, and Psychology students) across five components: scale, proportion, three-dimensionality, completeness, and overall accuracy, using a 7-point Likert scale.
Results showed that artists scored significantly higher than non-artists on two of the spatial tasks (MRT and PFT) and across all drawing components, with no differences in VVIQ-RV. Furthermore, MRT and PFT scores were significantly correlated, confirming their convergence as measures of spatial ability. Moreover, MRT and PFT were positively correlated with three-dimensionality, proportion, and overall accuracy in the drawing task, while only MRT was related to scale. Finally, the MANOVA revealed a significant main effect of judge type, with Fine Arts professors assigning lower scores than the other judges. These findings highlight the differentiated contribution of spatial abilities to realistic drawing performance and indicate that judges' artistic experience influences drawing evaluation.

7. **Modernism as a Statistical Departure from Nature**

Olivier Penacchio and Xim Cerda-Company*
** Computer Vision Center, Universitat Autònoma de Barcelona*

Western visual art, particularly painting, is shaped by cultural conventions, social exchanges, and historical cycles of style, yet it is also constrained by biology: human vision operates through sensory systems forged in natural environments. A substantial literature indeed indicates that aesthetic evaluation is in part shaped by specific properties of early visual

processing. A central question in empirical aesthetics is whether, and how, these cultural and biological forces interact across art history.
We analysed more than 100,000 paintings spanning Western art from the Renaissance to Postmodernism using a biologically grounded model of the early visual cortex, designed to extract contours efficiently in natural scenes. From the model responses, we derived low-level image statistics known to shape visual perception, yielding time series that track their evolution across historical periods. These trajectories reveal consistent turning points between 1860 and 1890. Prior to this interval, the statistics of artworks systematically converged towards those characteristic of natural scenes; thereafter, they diverged away from them.
This pattern suggests that the early emergence of modernism was accompanied by a systematic departure from the statistical structure of natural environments. It is consistent with mimesis acting as a dominant organising principle of pictorial expression until its progressive, partial abandonment during modernism, likely accelerated by the advent of photography and a broader shift towards artistic subjectivity. By quantifying this transition, our study reframes modernism as a measurable statistical departure from nature and invites reflection on how contemporary image-making technologies, most notably generative artificial intelligence, may further reconfigure the balance between imitation, invention, and perceptual norms. More broadly, the findings highlight a dynamic interplay between cultural and biological constraints in the historical evolution of Western art.

8. Neural Style on Art History

Isamu Motoyoshi, Tomomi Itoi and Mahiro Hirata*
** The University of Tokyo*

Neural style information, a set of statistical features derived from Deep Neural Networks, is recognized for its effectiveness in representing the perceived style of images (Gatys et al., 2016). Our analysis leverages this approach to investigate the style space of classical European paintings (Motoyoshi, 2023, VSAC). In the present study, we calculated the distance in neural style information among 8,692 images, encompassing fine-art paintings spanning the 15th to 21st centuries, anime/manga, industrial design, and natural scenes. The relationships were then visualized using MDS and tSNE. The results revealed a distinctive "delta-like" distribution, with the majority of images clustered within its boundaries. The upstream region of this delta comprised realistic images, including natural scenes, Western paintings from the 16th to 18th centuries, classical East Asian artworks, and Impressionism. Paintings utilizing intense chiaroscuro, such as those by Rembrandt, were notably situated at the apex of the delta. Conversely, contemporary art, manga/anime, and industrial design were dispersed downstream, exhibiting diverse deviations from realism. Minimalist works were among the few art pieces appearing outside this delta. Historically, the centroid of artworks shifted from the center of the delta toward its apex during the Renaissance and Baroque periods. In the 18th and 19th centuries (e.g., Impressionism), this centroid returned to the center while the dispersion widened. In the 20th century, we observed that Pop Art (Lichtenstein, etc.) occupied the furthest position from realism, while Abstract Expressionism (Pollock, etc.) remained near the center. Intriguingly, Pop Art showed a proximity to anime/manga, and geometric abstraction (Mondrian, etc.) was found to be close to industrial design. These spatial relationships underscore how different art styles diverge, converge, or cross established boundaries within a broader visual space, ultimately transcending the traditional categories of fine art.

9. **Faces, Forgeries, and the Cost of "Fake Beauty"**

Long Feng Huang, Jonathan Cant and Oshin Vartanian*
** University of Toronto*

Is an object any less beautiful just because it is a fake? Authenticity status can have a rather complex and multifaceted effect on the aesthetic perception of various stimulus types. Previous work has shown that copies and forgeries of paintings tend to receive lower monetary and aesthetic evaluations compared to the original artwork (Locher et al., 2015; Rabb et al., 2018), whereas faces with makeup or plastic surgery tend to elicit lower social/moral judgments, but are not penalized in aesthetic ratings compared to natural faces (Liang et al., 2023). These findings implicate a potential nuance in the aesthetic appreciation of inauthentic stimuli, seemingly modulated by stimulus type. However, there has yet to be any work directly comparing the costs of "fake beauty" in artworks versus faces, despite the substantial parallels in their social implications (e.g., greater monetary profits through the misrepresentation of identity). As such, an eye-tracking paradigm is currently being implemented to characterize the aesthetic and oculomotor signatures of perceived authenticity. In this experiment, participants were primed with a label corresponding to a high (faces = natural, paintings = original), medium (faces = makeup, paintings = copy), or low authenticity status (faces = plastic surgery, paintings = forgery). Then, an image of a painting/face was presented, while the eye-tracker recorded the participant's free-viewing eye movements. They were subsequently asked to rate the image along the measures of familiarity, liking, impressiveness, and desire to engage with the painting/face. The preliminary findings of this experiment can contribute novel insights into the cognitive effects of perceived authenticity on the aesthetic appreciation of faces versus artworks.

10. **Language as a Cultural Bridge in Aesthetic Judgment: The Roles of Linguistic Friendliness and Immersion**

Hira Shahid and Xianyou He*
** South China Normal University, Guangzhou, Guangdong, China*

Aesthetic judgment does not emerge from visual perception alone but is shaped by the cultural and linguistic contexts through which artworks are encountered. Language, in particular, can activate culturally meaningful associations that guide interpretation and emotional engagement with art. The present study examines how linguistic friendliness and cultural immersion jointly influence aesthetic judgment. Eighty Pakistani participants evaluated the aesthetic quality of 30 Pakistani artworks presented with titles in three languages: Urdu (the national language), English (the official language), and Chinese, a culturally friendly language associated with positive intercultural relations. Participants were divided into immersed and non-immersed groups based on their exposure to the Chinese language and culture. Using a within-subject design implemented in E-Prime 2.0, a Latin-square rotation ensured that each artwork appeared equally often with each title language across participants. Results revealed a significant effect of linguistic context on aesthetic judgment, with artworks presented with Chinese titles receiving higher ratings than those titled in Urdu or English. This effect was further moderated by cultural immersion, such that participants with greater exposure to the Chinese language and culture showed a stronger preference for Chinese-titled artworks and higher overall aesthetic ratings. These findings suggest that language functions as a cultural bridge in aesthetic experience, shaping how

artworks are perceived beyond their visual features. Importantly, the results demonstrate that a culturally friendly language can enhance aesthetic appreciation even when it does not match the cultural origin of the artwork. By extending research on the foreign language effect to the domain of art perception, this study highlights the integrative role of language, culture, and experience in aesthetic judgment.

11. **Feeling Creative? A Mixed Methods Exploration of Creative Individuals' Most Creative Time of Day for Creative Practice**

Amber Rose Lim, Benedict James Williams and Ben Bullock*
** Centre for Mental Health and Brain Sciences, Swinburne University of Technology, Melbourne, Australia*

Tales of painters and poets working late into the night pervade modern history. Yet, no known empirical studies have examined the time of day when creative individuals feel most creative. The current study addressed this gap via an online survey; participants were asked to describe their creative work, answer questions about the time of day they felt most creative, and then explain why they felt most creative at that time of day (N = 176). One-sample chi-square tests were performed to evaluate the observed frequencies of most creative times of day, and inductive qualitative content analysis was used to identify suggested mechanisms underlying the subjective experience of feeling most creative at those times of the day. The observed frequencies of most creative times differed from both equal probability and normal distributions based on peak arousal times in the general population, with 9 p.m. to midnight selected most frequently. The subjective experience of feeling creative may be enhanced at night through environmental, cognitive, and social factors, such as reduced noise, fewer distractions, peak arousal, and free time. The suggested mechanisms can serve as a framework for future hypothesis testing to examine processes that may objectively facilitate or hinder creativity at different times of the day, or determine if other factors, such as individual differences in arousal or sleep phase, impact the time of day at which creative individuals objectively produce their best work.

12. **Visual Processing in Art Appreciation: Cognitive Bias as a Lens in the Classroom**

*Sue Anne Rische**
** Collin College*

I will share an ongoing redesign of an art appreciation course that treats the classroom as a hands-on lab. Moving away from outdated slide lectures toward something more impactful, students create an artist's book over the semester, making weekly pages that connect course content to the ways they see, decide, and interpret their thoughts visually.
My approach is a series of pilot classes where each semester informs the next, fitting with the "Future Follows Past" theme. In the first iteration, approximately 65 students used a personal goal they set for themselves as the anchor for their weekly pages. The work often felt meaningful, but the frame was too loose, stressful, and difficult to assess consistently. This semester informed a second version that is more structured and centers on themed cognitive biases as their subject.
In the second pilot (to be completed before the conference), approximately 35 to 40 students will build an artist's book, but the focus is cognitive bias instead of a goal. The main part of the semester is divided into three four week chunks: (1) "What is Art and the Principles & Elements of Design" paired with ego-related biases; (2) Materials & Processes paired with

time-based biases; and (3) Art History paired with attention-related biases. Across these units, students work visually with how ego, time, and attention shape both visual processing and art appreciation.
A pre/post survey tracks changes in creative confidence and how students plan and describe their visual ideas, using Likert scale questions, short, written responses, and reflections. I'll share what I find and show examples of student work. We'll also talk about how this approach helps students connect art to the way they think, notice their own patterns and blind spots, and leave with tools they can carry into their lives beyond the classroom.

13. **Colours, Feelings, Stories: Exploring the Development of Children's Aesthetic Evaluation of Art**
Amisha Keshan, Amruta Bahirwade and Kohinoor Darda*
** ARISA Foundation*

This study, which lies at the intersection of developmental psychology and empirical aesthetics, aims to observe the ways in which children of various age-groups interact with art.
Our study combines Parsons' stage theory with the systems of the aesthetic triad, aiming to bridge the gap between older and contemporary research in the field of empirical aesthetics. It focuses on appraisal through the three systems of the aesthetic triad (Vartanian & Chatterjee, 2021)—sensory-motor, emotion-valuation, and knowledge-meaning—while also looking at how each of Parsons' six criteria for evaluating paintings align with these systems of the triad. The main objective is to understand how aesthetic evaluations develop with age, and which factors of an artwork (complexity, realism-abstraction, contextual information) influence their preferences and appraisals. Participants include children aged 4–18 from different schools in Pune, India. We are controlling for previous art exposure, educational background, socio-economic status, and gender, using mixed methods of data collection—including rating tasks and semi-structured interviews. Ratings will be analyzed using linear mixed effects modeling and required post-hoc tests. Qualitative data will undergo thematic analysis to identify patterns and derive measures for how each age-group loads on each system of the triad. We predict that younger children will primarily use the sensory-motor system for appraisal, and progressively incorporate emotion-valuation and knowledge-meaning in their judgements as age increases. Contextual information will significantly enhance aesthetic experience. Potential findings could have implications in art education and art as a therapeutic tool.

14. **Default mode network and visual imagery in the aesthetic appreciation of haiku poetry**
Jimpei Hitsuwari and Michio Nomura*
** Helmut Schmidt University*

While neuroaesthetics has extensively examined visual art and music, the neural mechanisms underlying poetic appreciation remain less explored. This fMRI study investigated how the brain processes ambiguity and aesthetic experience using haiku, the world's shortest poetry form. Originating in Japan, haiku is characterized by extreme brevity, often omitting information to compel readers to generate mental imagery and confront inherent ambiguities. Its fixed 5-7-5 syllable structure makes it particularly suitable for controlled psychological experiments.
Thirty-nine Japanese participants read 48 haiku inside an MRI scanner and rated their beauty. Haiku were pre-categorized into high and low ambiguity conditions based on an independent

preliminary survey with 169 raters. Behavioral results indicated a significant preference for low-ambiguity haiku, consistent with previous cross-cultural findings suggesting that semantic accessibility enhances aesthetic appreciation.
Whole-brain neuroimaging analysis revealed that reading low-ambiguity haiku, compared to high-ambiguity ones, elicited greater activation in the posterior cingulate cortex extending into the precuneus, and the left inferior parietal lobule encompassing the angular and supramarginal gyri. These regions are core components of the Default Mode Network and are associated with self-referential processing, autobiographical memory retrieval, and semantic integration, suggesting that interpretable poems facilitate stronger internal scene construction. No significant activation was observed for the reverse contrast.
Crucially, parametric modulation analysis demonstrated that higher beauty ratings were significantly associated with increased activation in the primary and secondary visual cortex, including the calcarine cortex and lingual gyrus. Exploratory multivoxel pattern analysis further showed that the left inferior parietal lobule could decode ambiguity conditions above chance level.
Our findings suggest that the aesthetic appeal of haiku is associated with interpretability. Low-ambiguity haiku engaged regions of the Default Mode Network linked to self-referential processing, while higher beauty ratings were associated with increased activity in early visual areas, potentially reflecting vivid mental imagery during aesthetic experience.

15. Vocabulary in Scholarly Terminology of Aesthetics (VISTA)

Gregor Hayn-Leichsenring, Kirren Chana, Jan Mikuni, Stephanie Miller, Oshin Vartanian, Melvin Boog, Helene Schaefermeyer and Aenne Brielmann*
**University Hospital Jena*

Terminology in experimental aesthetics is currently not standardized. As a result, studies from different research groups often employ divergent terms, which limits the comparability of findings and hinders cumulative progress in the field. The VISTA project was developed to address this limitation by working toward a clearer and more consistent terminology in experimental aesthetics.
To this end, we used the Delphi method as an approach for establishing more uniform terminology based on expert consensus. To minimize bias, we anonymously asked experts in the field two questions: (1) “In empirical aesthetics, what are some of the cognitive, emotional or motivational processes that are either most important or most commonly discussed?” (processes), and (2) “When you think about aesthetic experiences, what are some of the adjectives that come to mind for characterizing it?” (adjectives).
So far, we have collected data from 10 experts, revealing substantial diversity in responses to both questions. Prior to the conference, we will structure these results using statistical analyses, insights from the empirical aesthetics literature, and AI-based methods to develop a short experimental task for participants at the IAEA conference (and other upcoming aesthetics conferences). Participants will evaluate the degree of similarity between individual processes, assess which adjectives are associated with specific processes, and provide examples (e.g., artworks, experiences, or situations) that exemplify the processes.
Using this multi-step approach, we aim to establish a matrix of terms describing aesthetic processes and their associated descriptors, thereby working toward operational definitions for key concepts in empirical aesthetics.

16. Measuring Flow in Abstract Dynamic Generative Computer Art with Varying Complexity

*Samuelle Maria Rachel Jardin**
** Goldsmiths, University of London*

The study aimed to explore if various levels of dynamic abstract art (e.g. Generative Art) could induce Flow State in a general population sample. Further, it aimed to determine the optimal level of complexity of a generative artwork that induced Flow State. Twenty-seven (27) visual stimuli produced through a 3x3 (3 levels of complexity * 3 complexity parameters) factorial within-groups design was conducted to 163 participants to measure Flow State, Beauty Perception, and Aesthetic Liking. Art Engagement was also included as a co-variate. In addition, the relationship of Aesthetic Perception and Flow state was also investigated through correlational analysis. Further, Affect Change was also measured before and after exposure to experimental stimuli. Mixed results were obtained due to interactionist cognitive and affective processes that have possibly occurred during viewing the stimuli. Variance in experimental results could be accounted for by processing fluency, cognitive and affective arousal, cognitive emergence, feelings-as-information theory. Beauty Perception and Aesthetic Liking were found to have the highest effect in inducing Flow State, but not Affect Change. Objective and Subjective Complexity, on the other hand, were only found to have a moderate effect in inducing Flow State, and only a low positive effect on Affect Change. Art Engagement also had a significant effect on Subjective Complexity Perception of visual stimuli. Caveats at future research for evolutionary art systems (e.g. Generative Art) were also implied, such as the application of Makin's ''Gestalt Nightmare'' (2017), as analysis to such types of emergent computer art.

17. Linking appreciation for order and complexity in natural images, art, and abstract patterns

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** KU Leuven*

What do preferences for order and complexity in abstract patterns tell us about preferences for order and complexity in other stimulus sets like paintings or natural scenes? In this study, we compare preferences for order and complexity at the individual and at the population level across five different stimulus sets: natural scenes, paintings, natural textures, photographs of neatly organized compositions, and abstract patterns. Based on subjective ratings from earlier studies, we selected pairs of images differing in either perceived order or perceived complexity while controlling for the other perceived dimension. Data were collected online for 505 image pairs and 249 student participants. In the pairs differing in perceived order, participants generally preferred the images with greater order. In the pairs differing in perceived complexity, participants generally preferred the images with greater complexity, except in the texture set. At the individual level, preferences for order and complexity within each stimulus set tended to be positively correlated: participants who more often preferred the more ordered image in the pairs testing for order influences, also more often preferred the more complex image in the complexity pairs, especially for the paintings, natural scenes and abstract patterns. Although correlations between an individual's preferences for order and complexity across stimulus sets were generally positive, they were relatively low (for complexity: r = .05 to .34, for order: r = -.03 to .28, overall: r = -.05 to .30). In further data collection and analyses, we will assess the test-retest reliability of the preferences at the individual participant level and explore how different image and person characteristics, like objective image properties and individual differences

in personality and art expertise, influence preferences for order and complexity across stimulus sets and individuals.

18. **Measuring Atmosphere: A Multi-Method Framework for Studying Generational Differences in Architectural Experience**

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**independent researcher*

Spatial atmospheres emerge through interaction between architectural features, cultural memory, and embodied perception. While phenomenological accounts describe atmospheres as relational properties, empirical operationalization remains limited. We propose a multi-method framework investigating how generational cohorts differently experience utopian architecture across three dimensions: affordance perception (invited actions), qualitative character (felt atmospheric qualities), and visual salience (attentional focus).

The framework targets the Narkomfin Communal House, a 1930 Soviet constructivist building materializing revolutionary ideology through distinctive features (pilotis, horizontal windows, communal facilities). We compare older adults with Soviet biographical experience (ages 55–75) and contemporary young adults (ages 20–35).

The methodology integrates three cognitive tasks. First, verb association assesses affordances: participants generate action verbs describing possible activities, operationalizing Böhme's "ecstasies" through Gibsonian affordances. Second, adjective association captures atmospheric qualities: participants list descriptive adjectives revealing felt character. Third, visual salience marking: participants circle zones attracting strongest attention in photographs, revealing embodied focal points.

This design generates testable predictions. Older cohorts should generate more collective-oriented verbs (gather, share) reflecting lived socialist experience, while younger cohorts produce observation-oriented verbs (photograph, study) reflecting museological framing. For atmospheric qualities, older cohorts should use warmer, community-oriented adjectives while younger cohorts emphasize historical distance. Critically, both cohorts should converge on embodied spatial descriptors (openness, lightness) and focus visual attention on prominent architectural features, indicating stable sensorimotor affordances modulated by cultural-biographical interpretation.

This framework advances empirical aesthetics by decomposing atmospheric experience into measurable dimensions while preserving phenomenological complexity, enabling systematic investigation of how ideology, memory, and embodiment interact in architectural perception.

19. **What's in a title? or 'Untitled'**

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Indeterminacy characterises the difficulty in forming a coherent spatial interpretation of visual cues, encouraging active resolution of a 'visual puzzle' (Pepperell, 2011; Hertzmann, 2020). In vision science, such ambiguity is operationalised using Mooney images and similar high-contrast, degraded stimuli (Van de Cruys et al., 2021). In art, indeterminacy consists in the intentional use of ambiguous forms that never resolve in a coherent Gestalt, but balance semantic instability and abstraction (Muth, Pepperell & Carbon, 2013). Building on previous work by Wallraven et al. (2007), the present study examines how semantic ambiguity in titles

affects eye movements and meaning-making in indeterminate art. Participants viewed 30 indeterminate paintings by Robert Pepperell during three consecutive sessions: first without titles (pre-reveal); then with either a secular, religious, or 'Untitled' title (reveal); and finally without titles (post-reveal). Before revealing the title, participants guessed the title type (congruent, incongruent or neutral guess type) and rated each painting on relevant variables both pre- and post-reveal.
Results showed significantly fewer, longer fixations and higher stationary entropy in the post reveal session if participants' guess type was neutral ('Untitled' title), especially compared to when it was incongruent (for either secular or religious titles). Moreover, participants' confidence about their guess was significantly and positively predicted by participants' curiosity about the title reveal, in opposite tendency with previous findings on Mooney images (Van de Cruys et al., 2021). Overall, our findings suggest slower and deeper processing for the least informative condition ('Untitled' title), providing supporting evidence that visual attention is directly impacted by the type of semantic information at hand when engaging with visual indeterminacy in art images. We will discuss these results in relation to other relevant variables and contextualise them by considering individual differences in viewers' interpretative and visual strategies.

20. **The Influence of Script and Paper Type on the Aesthetic Appreciation of Japanese Calligraphy—Moderated by the Recipient's Degree of Japanese Enculturation**
Michael Sprengel, Valentin Wagner, Uta Lauer, Jimpei Hitsuwari, Jörg B. Quenzer and Thomas Jacobsen*
** Helmut Schmidt University / University of the Federal Armed Forces Hamburg*

In an experiment featuring physical artworks, we investigated the implicit influence of script and paper type on aesthetic judgments about Japanese calligraphy, and to what extent these influences are modulated by the recipient's degree of Japanese enculturation. We asked individuals with varying degrees of Japanese enculturation to aesthetically evaluate calligraphies of contemporary Japanese haiku in two types of script and on three types of paper, in an art-exhibition-like setting. Afterwards, we also asked them to rank both the script types and the paper types according to their general (and explicit) aesthetic preferences regarding these features, considered in isolation. A Bayesian multilevel regression revealed that calligraphies in cursive script were evaluated as more beautiful than calligraphies in regular script, and that the most enculturated individuals found the calligraphies more beautiful than the least enculturated individuals but yielded evidence against an effect of paper. It also revealed an unexpected moderation of the interaction between script and paper by the degree of enculturation, further indicating the role of different levels at which the artworks are processed, especially with regard to linguistic aspects. The expected cultural influence on the main effects of script and paper was, in fact, contradicted by the calligraphy evaluations but supported by the participants' tendencies to rank the script and paper types. As this dissociation between the calligraphy evaluations and ranking tendencies was also evident among the least enculturated individuals, it suggests an interaction of explicit script and paper preferences with the visual Gestalt of the calligraphy, rather than with linguistic or other culturally significant aspects of the artwork. Thus, our findings suggest that the aesthetic appreciation of calligraphy is not a simple function of preferences for isolated aspects like script or paper but rather that "the whole is more than the sum of its parts".

21. Art of the Absurd: Exploring the Psychology of Surrealism

Alina Spas, Katherine Cotter, Aleksandra Igdalova and Brendan O'Connor*
** SUNY Albany*

Surrealist art emerged as a vehicle for building an ethical and fulfilling society via imagination, authenticity, and creative freedom in response to socio-political conflict. Renewed attention to surrealist art, shaped by historical and contemporary shifts toward non-realist aesthetics during periods of socio-political instability, coinciding with technologically mediated re-envisioning of reality, and the 100th anniversary of the surrealist art movement, positions surrealist art engagement as ripe for research to understand its benefits. While previous research focused on psychological and aesthetic experiences stemming from art engagement generally, this pre-registered exploratory study examined cognitive and emotional experiences and psychological benefits stemming from surrealist art engagement against the backdrop of current socio-political context. Data collection on the largest traveling surrealism exhibit in the US is taking place at the Philadelphia Art Museum (PAM) until the pre-registered goal of 250 participants is achieved. Participants will be recruited and surveyed as they exit the surrealism exhibit or the non-surrealist PAM collection. Participants will be surveyed on emotional, attitudinal, and aesthetic items connected to their art experience at the museum on that day, perceptions of their own resilience and psychological richness as well as socio-cultural attitudes following their visit to the respective art exhibits. Participants will also be asked about their reasons for enjoying and engaging with surrealist art. The data will be assessed on whether liking surrealism predicts greater aesthetic engagement, emotional response, and well-being, and whether viewing surrealist art—compared with other exhibits—is linked to distinct emotional, aesthetic, and well-being-related experiences as well as beliefs about the current state of the world. The findings of this study would contribute to understanding cognitive, emotional, and aesthetic experiences connected to enjoying and engaging with surrealist art, and the ways in which engaging with surrealist art might be linked to psychological well-being and worldview at a socially unstable time.

22. Composers' mysterious mental strength , A systematic study of suicidality and depression among historical and contemporary creative artists

Vincent Jorda and Marcel Prof. Dr. Zentner*
**Universität Innsbruck*

This study investigates whether different creative professions entail preventive factors against suicidality, depression as well their life satisfaction. To this end a historical sample (N = 900) and a contemporary sample (N = 949) of writers, visual artists, composers, and a control group were analysed.
The study found, in both the historical analysis of famous artists and the contemporary sample, that writers exhibited the highest levels of mental distress, whereas composers showed the lowest. Furthermore, income emerged as a major factor associated with an individual's suicidality. Based on the results of both studies, it can be concluded that the creative process entails resilience-enhancing properties, which manifest to varying degrees across different professional groups.
The question remains what aspects of music in particular help the resilience of composers and how we can better offer help to writers as more of them are struggling with mental problems.

23. The Influence of Depressive Symptoms on Emotional and Hedonic Evaluations of Art

Giulia Fiorentini, Alessandra Maria Roberta Santona and Rossana Actis Grosso*
**University of Milano-Bicocca*

Aesthetic experience involves the appreciation of artworks and the pleasure derived from them. Aesthetic emotions, elicited by the intrinsic qualities of an artwork, are accompanied by a hedonic response and are strongly shaped by individual differences. The same artwork can evoke different affective responses depending on personal history, personality traits, affective state, and art expertise. Depressive traits are particularly relevant, as they are associated with persistent negative affect and cognitive-emotional biases in processing emotional information. Prior research shows that individuals with depressive symptoms tend to rate both emotional and neutral stimuli more negatively, consistent with a broader negativity bias described by cognitive theories of depression.
The present study investigates whether this bias extends to the aesthetic domain. Participants viewed 45 artworks (15 negative, 15 neutral, 15 positive) and rated each image on valence, arousal, and liking. They also completed the BDI-II and additional measures assessing anxiety, positive and negative affect, perceived quality of life, artistic interest, and familiarity with the images. Correlations between BDI-II scores and affective evaluations will clarify whether depressive traits influence emotional responses to visual art and whether other individual variables modulate this relationship.
We expect higher BDI-II scores to be associated with more negative emotional evaluations. Specifically, increasing depressive symptoms should correspond to less positive ratings of positive artworks, more negative evaluations of neutral artworks, and more negative responses to negative artworks. For arousal, positive artworks are predicted to be perceived as less arousing, whereas negative and neutral artworks as more arousing with higher BDI-II scores. Regarding liking, higher BDI-II scores are expected to be associated with an overall reduction in subjective pleasure, consistent with anhedonia, although negative artworks may elicit higher liking due to psychological distance and emotional congruence. Exploratory analyses will examine additional contributions of anxiety, affectivity, quality of life, artistic interest, and familiarity.

24. Who Attends the Arts and why? Examining the Role of Personality Across Two Distinct Samples

Maria Manolika, Valentin Wagner and Thomas Jacobsen*
** Helmut Schmidt Universität*

Previous research in psychological aesthetics has already highlighted the influence of personality on the experience and appreciation of art. And yet, the question of whether personality can manifest itself in arts attendance behavior remains far from settled. In this study, we examined the hypothesis that personality –measured with the Mini International Personality Item Pool– is linked to arts attendance motivations, based on two distinct samples of 1398 Greek and 408 German students. Results of both studies revealed that all the Big Five traits contributed differentially to arts attendance motivations, implying that people with different personality traits have different reasons for attending the arts. We might therefore assume that people do attend the arts to satisfy their personality-related needs or, to put it another way, the experience of art lies in the eyes of the beholder.

25. Who the HAL does the job? About the Locus of Control in Human Creativity with AI as a Collaborator

Lena Vogl and Claus-Christian Carbon*
** University of Bamberg*

This paper examines the perceived locus of control in human creativity and artificial intelligence (AI) in art production. Specifically, it explores how we perceive the quality and role of AI as a collaborative partner in generating art. We considered key factors of artistic quality, derived from recent aesthetic research, such as authenticity, trust, autonomy and initiative to understand the complex cognitive processes underlying human-AI artistic collaboration. We chose simulated time pressure and competitive scenarios as independent variables within the framework conditions for collaboration. Authenticity appears to be a fundamental aspect in evaluating the success of AI-human partnerships in art production. Moreover we collect the perceived LoC as a dependent variable. We highlight the cognitive mechanisms that influence the dynamic of trust, autonomy and initiative between human artists and AI systems under time pressure and competition. Applying theories of aesthetics, we aim to decode the aesthetic peculiarities of AI-generated art and attempt to understand the cognitive processes underlying specific aesthetic experiences. We plan an online study with a sample size (N=50) and will be using the Rotter Internal-External Locus of Control Scale (I-E Scale). Based on previous studies, we expect that the subjective experience of the respective situation varies depending on the LoC. This will expand the evolving discourse on human-AI collaboration in art by understanding the cognitive characteristics of perception and appreciation of art co-created by humans and AI.

26. Simulating Aesthetic Evolution: An Agent-Based Validation of Martindale's Theory

*Ahmed Elgammal**
** Rutgers University*

Colin Martindale (1943-2008) proposed a theory to explain what drives the transitions in style (A psychological theory of aesthetic evolution) [Martindale 1990]. Martindale emphasized the importance of habituation and least-effort principle in deriving the art-producing system. Martindale theory was controversial-even ignored by art historians- yet remains influential in the domain of empirical esthetics. One of the main limitations to the theory is the challenge of validating it through the experimental psychology methodology, since we cannot measure the arousal potential of subjects who lived in the past, say, the 15th century. Therefore, using art historical data for validation by human subjects living today is questionable. Moreover, measuring the arousal potential of human subjects would not allow for simulating the habituation that occurs over a long period of time.
In this talk, we introduce a new computational methodology that can help validate Martindale theories. We present an agent-based model that simulates art observers at any historical time and can estimate their arousal potential. The model can control the agent's exposure to prior art works and level of habituation. This way, the agents can simulate the whole spectrum of art observers, ranging from an average person to the avant-garde artist, at any point in time. These models are also augmented by art-producing agents, which can optimize different criteria based on arousal potentials to select which art to produce next at any given time. Any art-producing agent is also an art-observing agent, and interaction between art-observing and art-producing agents can help us understand the behavior of the whole art-producing system over the course of history. This facilitates a novel way for using

art historical data for validating Martindale's theory and identifying where it is applicable and when it fails.

27. **Wonder (and Wander) in The City — Investigating the Role of Wonder in Public Art Perception**

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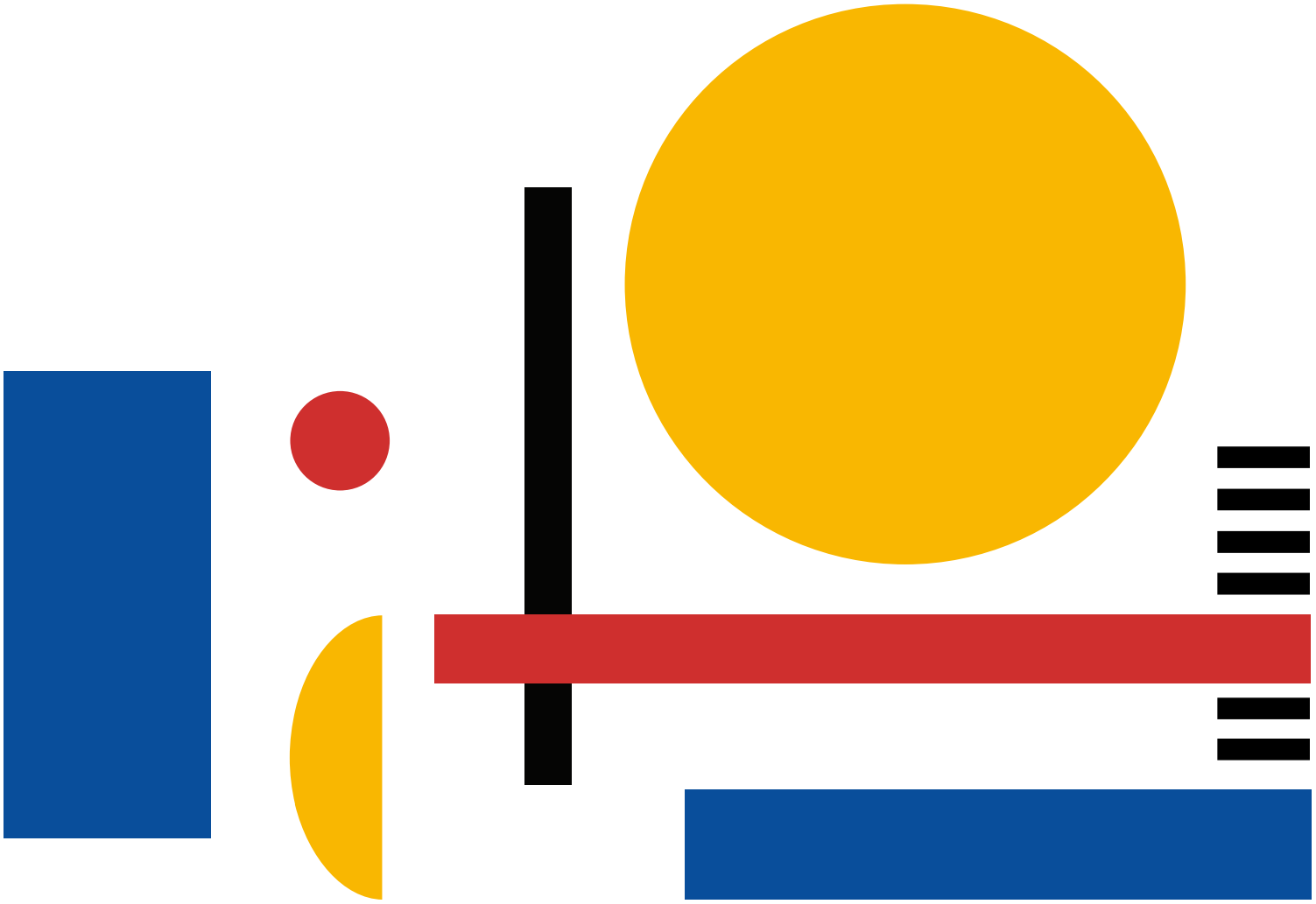
Empirical research on aesthetic experience has predominantly focused on institutional settings such as museums, where encounters with art are intentional and audiences self-selected. Recent work by Miller et al. (2025) identified five experiential profiles in museum art perception, among which the Novel Experience profile is characterized by positive affect, openness to challenge, metacognitive engagement, and self-reflective insight. The present project extends this framework to the urban environment, investigating whether such cognitively rich aesthetic experiences can emerge through encounters with public art. Focusing on 5+ public art in Berlin and Vienna, this project examines aesthetic experiences that arise during, conceptualized here as wandering: everyday non-art-directed urban transit. In contrast to museum visits, these encounters are unplanned and lack institutional framing. The central claim of this project is that public art can reliably elicit a Novel Experience analogous to that found in museum contexts, and that emotions related to wonder play a key role in this process.
Building on Affective Aesthetic Cognitivism, the project hypothesises that wonder — theorised as a mixed-valenced epistemic emotion that sustains engagement with novelty and motivates inquiry — plays a key role in facilitating cognitive expansion and self-change. Using a dataset of public art experiences measured with 16 core phenomenological items derived from Miller et al., plus a measure of wonder, the study applies Latent Profile Analysis to identify experiential profiles. Regression and mediation analyses are used to examine the role of wonder within the Novel Experience profile and how it is associated with metacognitive and self-change indicators.
By demonstrating that cognitively valuable art experiences can occur outside institutional art settings, this research contributes to theories of aesthetic cognition, informs debates in neurourbanism, and supports the potential of public art as a wellbeing intervention and social prescribing.



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