



Royal Holloway University of London
Department of Psychology, Perception, Action & Decision Making Research Group

Mini-Symposium on Empirical Aesthetics

26/02/2020 Wolfson W128

(there should be plenty of time for questions and discussions, so this timetable will be flexible)

- 13:00 *Carl Hodgetts: Welcome*
- 13:05 *Edward A. Vessel, Max-Planck Institut für empirische Ästhetik, Frankfurt*
The Challenge of Aesthetic Appeal: Individual Variability versus Cognitive Universality
- 14:00 Coffee Break
- 14:10 *Johannes Zanker, RHUL*
The Mondrian Project – design, simulation, physical & virtual model - reconstruction
- 14:25 *Doğa Gülhan, RHUL*
Exploring the Physical and Virtual Mondrian Room in Dresden – Eye tracking study
- 14:45 *Szonya Durant, RHUL*
VR: A novel research tool
- 15:00 *Elisa Raffaella Ferré, RHUL*
Aesthetic preference in space
- 15:30 Coffee Break
- 15:45 *Jasmina Stevanov, University of Bristol*
Painting and Curating with AI
- 16:30 Final Discussion
- 17:00 The Crown (optional)

The Challenge of Aesthetic Appeal: Individual Variability versus Cognitive Universality

Edward A. Vessel, Max-Planck Institut für empirische Ästhetik, Frankfurt

Abstract

Philosophers of aesthetics have long noted that the appeal of aesthetic experiences is highly subjective, yet also posit the existence of a universal cognitive mechanism underlying aesthetic appreciation. This tension presents a challenge: how can we study a universal cognitive mechanism capable of supporting highly subjective and variable aesthetic tastes? To address the issue of individual variability, we quantify the amount of “shared taste” across a population of observers for a variety of visual aesthetic domains. We find that agreement varies systematically across domains – there is a high degree of shared taste for aesthetic judgments of natural kinds such as faces and landscapes, but much more idiosyncratic tastes for artifacts of human culture, such as architecture and artwork. Despite this variability, brain imaging (functional magnetic resonance imaging; fMRI) has identified several neural systems that are consistently modulated by aesthetic appeal across individuals, hinting at the existence of a universal cognitive mechanism. One of these systems, the default-mode network (DMN), is typically suppressed when a person is asked to look at and rate images, but appears to be paradoxically engaged by paintings that are rated as highly aesthetically moving. Moreover, we find that the DMN exhibits spatial patterns of activity that can be used to predict aesthetic appeal. This pattern is domain-general, allowing for prediction when trained on one visual aesthetic domain (artworks, natural landscapes or architecture) but tested on another. In contrast, activity patterns in higher-level visual regions contain very little information about aesthetic appeal, and are domain-specific. The DMN thus appears to be part of a core system for representing aesthetic appeal that is abstracted away from both the sensory properties of specific visual domains and the idiosyncratic tastes of particular individuals.

Biography

Dr. Vessel is a Senior Research Scientist at the Max Planck Institute for Empirical Aesthetics (MPIEA) in Frankfurt, Germany. His research group, the Visual Neuroaesthetics Lab, uses behavioral and brain imaging techniques to study the psychological and neural basis of aesthetic experiences, such as when a person is aesthetically “moved” by visual art, poetry, architecture, music, or natural landscapes. Through his work and service, Dr. Vessel aims to elevate the international profile of neuroaesthetics research: he is a board member of the International Association of Empirical Aesthetics, and hosts events focused on neuroaesthetics both at MPIEA and international conferences. He received his PhD in Neuroscience at the University of Southern California and is former co-director of the New York University Artlab.

Painting and Curating with AI

Jasmina Stevanov, University of Bristol

Abstract

This research tackles a centuries-old conundrum: what makes paintings aesthetically pleasing - their style or their semantic content? Recent advances in deep neural networks open up a new route of enquiry that allows the extraction of style components from original artworks and the application of those styles to new content (Gatys et al. 2017). The usefulness of this technique is to produce convincing painting-like stimuli, allowing the controlled comparison of two works of art, and enabling us to understand the drivers of individual differences in visual preference. This is a first crucial step toward strategically curated exhibitions tailored to an individual's preferences and sensibilities.

The first study focuses on the development of a laboratory model of individual preferences. It featured landscapes, still life and group portraits in the style of Ernst Ludwig Kirchner, Fernand Léger and Egon Schiele. We tracked people's eye movements while they were looking at these artificial paintings. Participants were shown two paintings and picked the one they preferred. The two paintings shown had either the same style, or the same content. We calculated a single parameter from participants' eye movements which reflected the strength of their preference for certain styles and contents and used it to predict their choices when two paintings differed both in style and subject portrayed. To model these predictions, we chose temporally indexed functions such as the Drift Diffusion Model (DDM) and integrated accumulated evidence based on preference choices and eye movements. We demonstrated that preference for paintings was more style than content driven and that DDM can be extended to predict preference for novel paintings by parsing the relative value of paintings into the style- content components.

This method is suitable for small image sets presented on a computer screen, but not for characterising visual exploration behaviour in real-life scenarios. In September 2019, we organised a pilot exhibition at The Island gallery (Bristol) with artificial paintings mimicking the styles of Ron Donaghue, Anna Airy and Frank Auerbach, featuring natural and industrial landscapes. Primary aim was to test methods and solutions for production challenges: making high-resolution large-scale prints of artificial paintings, testing layout, order, spacing and optimal number of paintings for the gallery experiment. More than 50 visitors took part in an eye-tracking experiment during the exhibition, enabling us to extract the strength of their preference for certain styles and contents. Understanding where, and for how long, viewers directed their attention already revealed the general preferences of individual observers towards the style or subject portrayed. In the next step, we will focus on a deeper investigation of gaze trajectories across canvases to characterise gaze sub-sequences deterministic for individual preference profiles and use these to tackle the next experimental and engineering challenge: how to map the individual preferences in a multidimensional space of known artistic styles and content interactions, and use this map to predict preferences for new visual material (e.g. artworks).

Biography

Jasmina was trained as an experimental psychologist and artist at the University of Belgrade and during her doctoral (Ritsumeikan University, 2009-2013) and postdoctoral (Kyoto University, 2013-2015) work in Japan she focused on incorporating these two disciplines through the psychophysics of illusions and neuroscience of aesthetics. Her current research was supported by Bristol Vision Institute and EPSRC Platform Grant-Vision for the Future and focuses on using machine learning and eye-tracking techniques to explore individual preferences for visual art. She has been collaborating with Prof Johannes Zanker on a series of experiments tracking visitors eye movements to reveal 'Narrative' in abstract art of Jackson Pollock and Piet Mondrian. Part of the talk will be dedicated to the exploration of Mondrian's 'Salon' design in its intended space through 'Intolight installation' at Villa Bienert in Dresden.