

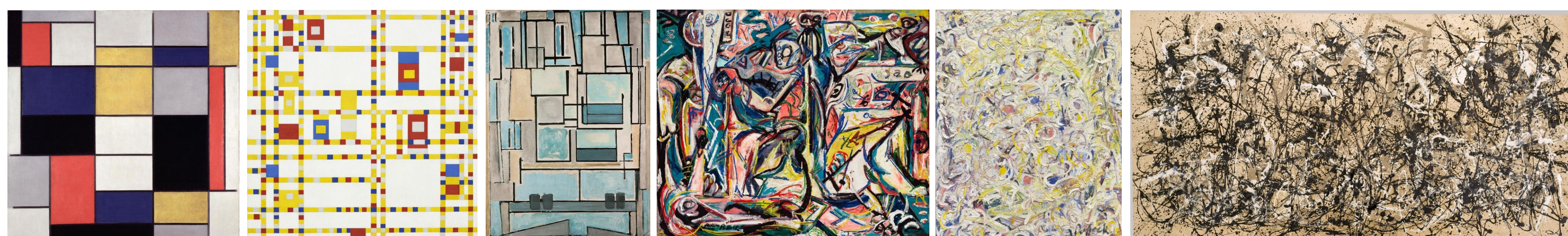
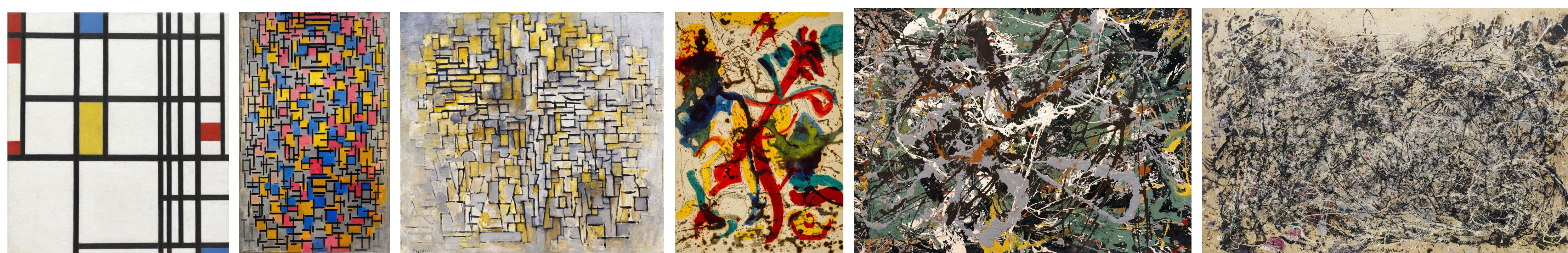
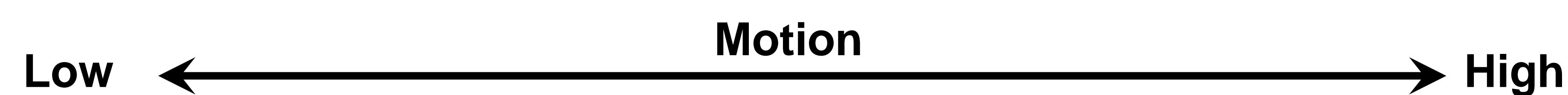
Background

- Visible artistic gestures and brush strokes in paintings imply the movements of an artist.
- A brushstroke contains information about its parent action, such as trajectory and force.
- Recent work has begun to investigate how the brain represents high-level attributes in art, such as the movement or dynamics of an abstract painting.
- Do viewers simulate an artist's movements when viewing paintings? Does perception of implied movement contribute to aesthetic appreciation?
- Hypothesis 1:** Observers simulate an artist's movements when viewing visible brushstrokes in paintings.
 - Prediction: Activity in motor cortical areas will be modulated by the degree of visible motion in the paintings.
- Hypothesis 2:** Motor responses to art contribute to preference computations.
 - Prediction: Greater activity in motor cortical areas will predict the aesthetic enjoyment of paintings.



Method

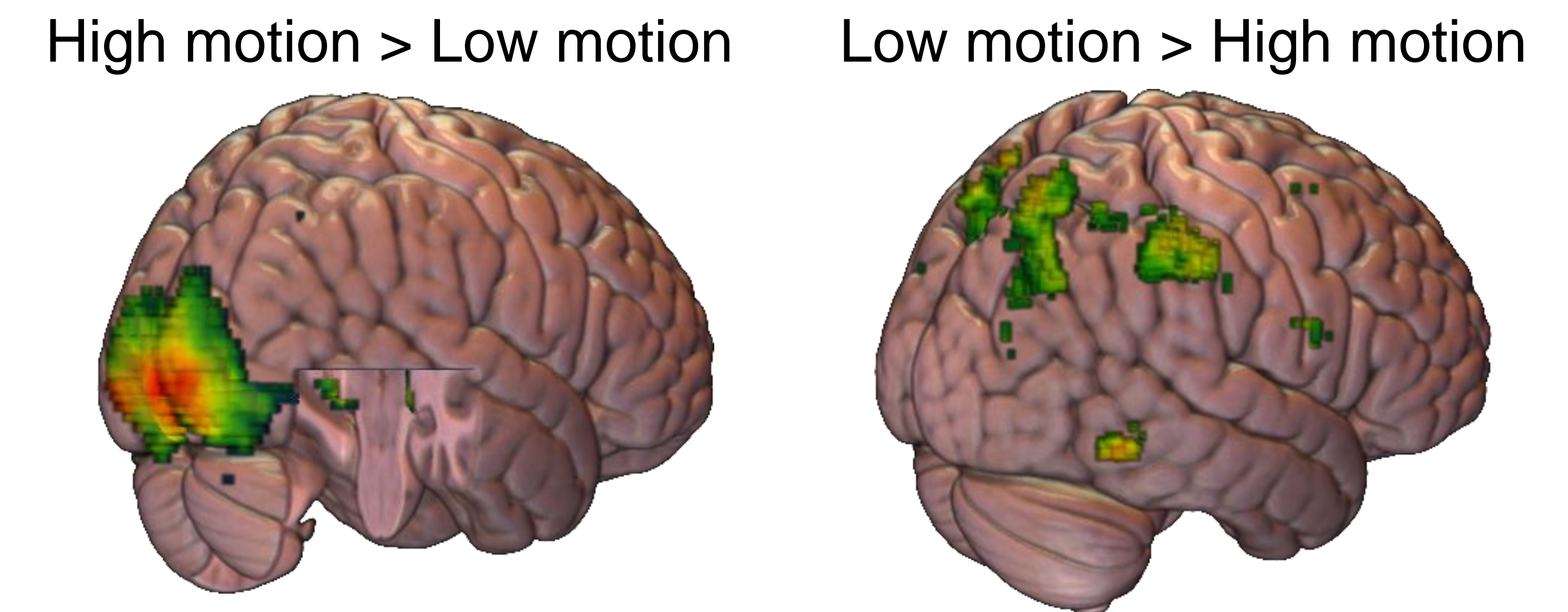
- fMRI task:** 31 participants made binary like-dislike preference decisions to 60 abstract paintings presented twice each, for a total of 120 trials. Stimuli varied on a continuum from low to high motion.
 - 30 Mondrian paintings = low to medium motion.
 - 30 Pollock paintings = medium to high motion.
- Behavioural task:** After scanning, participants provided appreciation (Liking, Interest) and attribute (Motion, Complexity, Balance) ratings for the same paintings.



Results

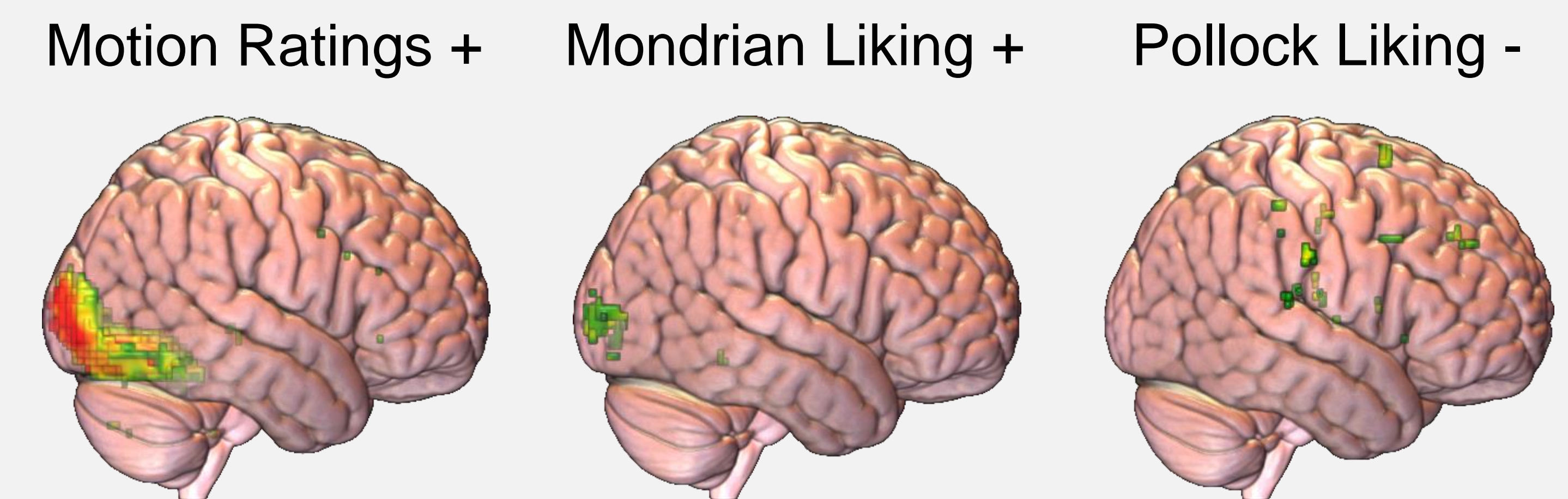
Whole Brain

- Pollock > Mondrian: visual cortex and hippocampus.
- Mondrian > Pollock: superior & inferior parietal lobules, inferior temporal gyrus.



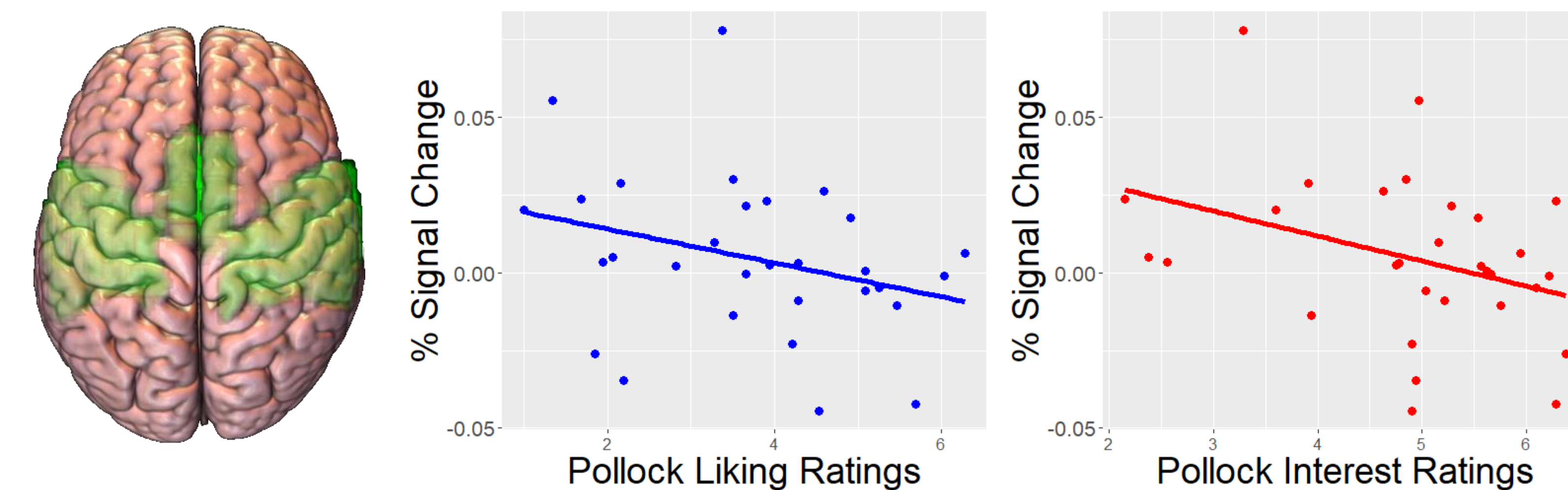
Parametric Modulation

- Response amplitudes in visual (but not motor) cortex modulated by motion ratings.
- Liking of Mondrians positively predicted by activity in visual cortex.
- Liking of Pollocks negatively predicted by activity in premotor, sensory, and dorsolateral prefrontal cortices.



Region of Interest (Motor Cortex)

- Greater % signal change in motor cortex (Pollock > Mondrian) negatively predicted Liking of and Interest in Pollock paintings



Discussion

- Identifying motion in abstract paintings was primarily linked to visual rather than motor responses.
- Activity in motor areas predicted aesthetic appreciation, although negatively.
- Challenges assumptions from theories of embodied aesthetics that assume motor responses to artwork are linked to aesthetic pleasure.