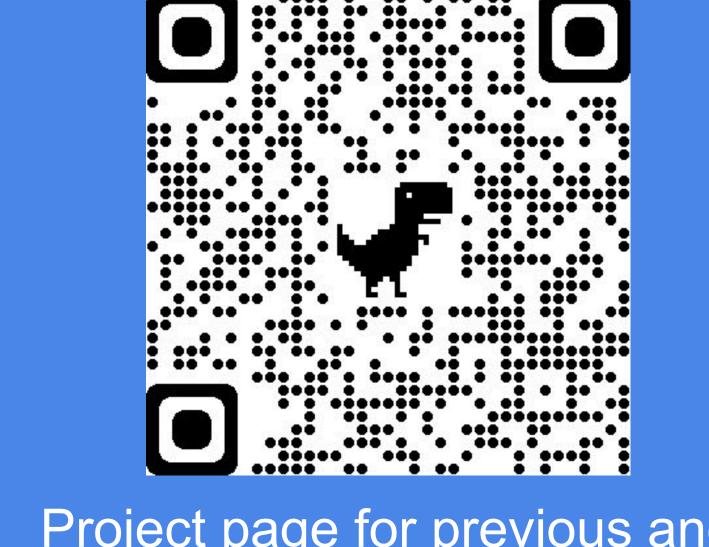
Toward Quantifying Ambiguities in Artistic Images

Xi Wang¹, Zoya Bylinskii², Aaron Hertzmann², Robert Pepperell³

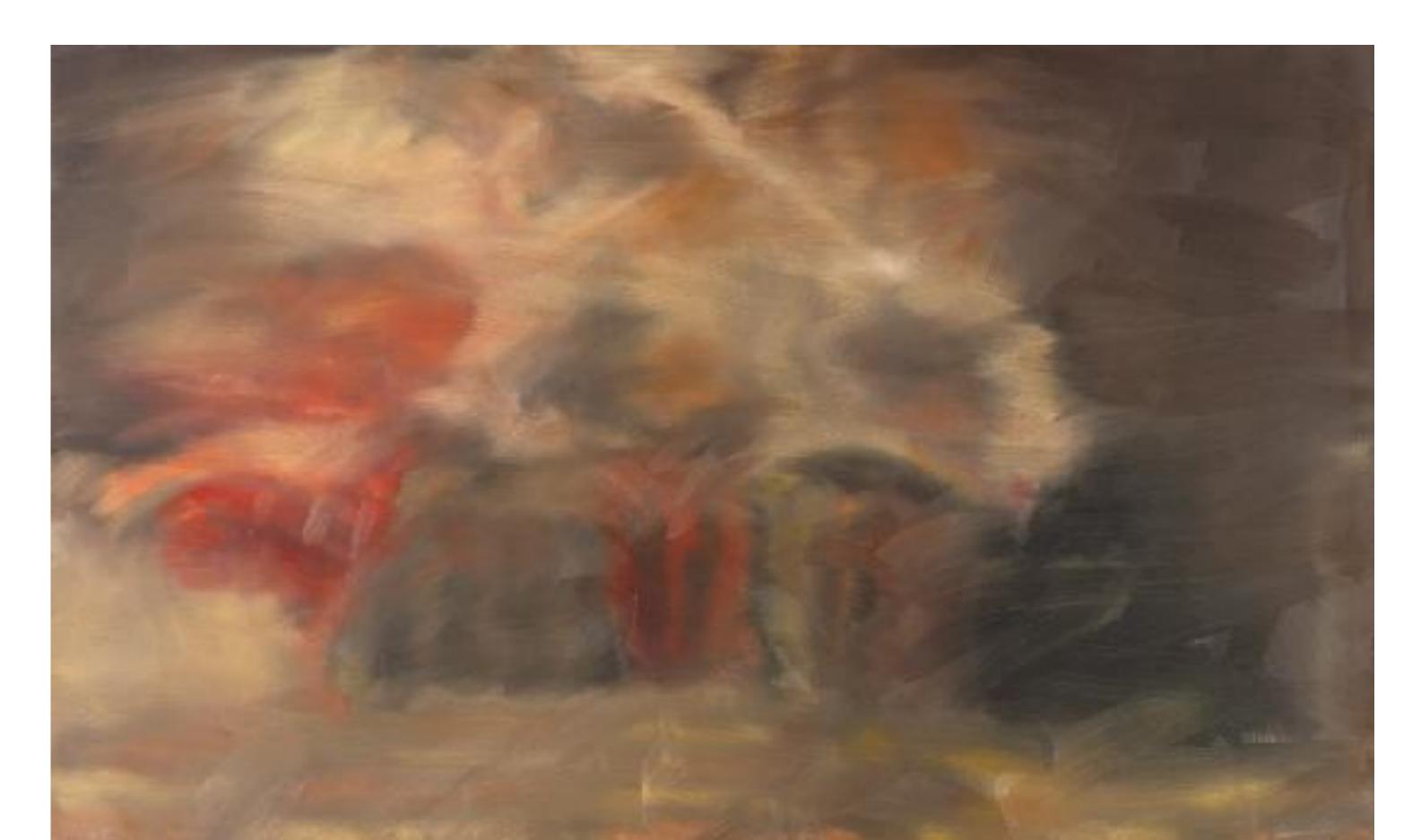
¹ETH Zurich, ²Adobe research, ³Fovolab/Cardiff Metropolitan University



Project page for previous and upcoming results, code and demo

Visual Ambiguity

Artists deliberately create and value visually ambiguous images.



Annunciation After Titian by Gerhard Richter, Oil on Canvas, 1973 (CR 344-1). © Gerhard Richter 2020 (0099).



Succulus by Robert Pepperell, Oil on Panel, 2005.

Quantifying Ambiguities

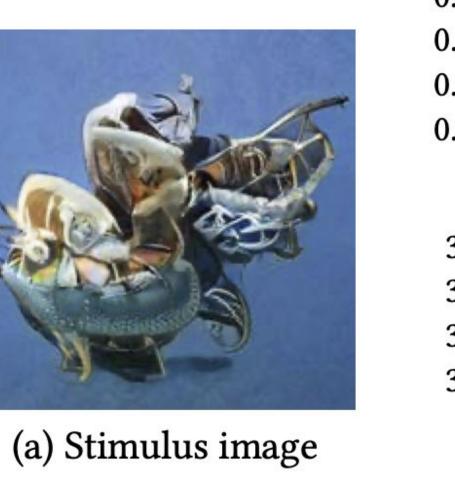
Crowdsourcing data collection

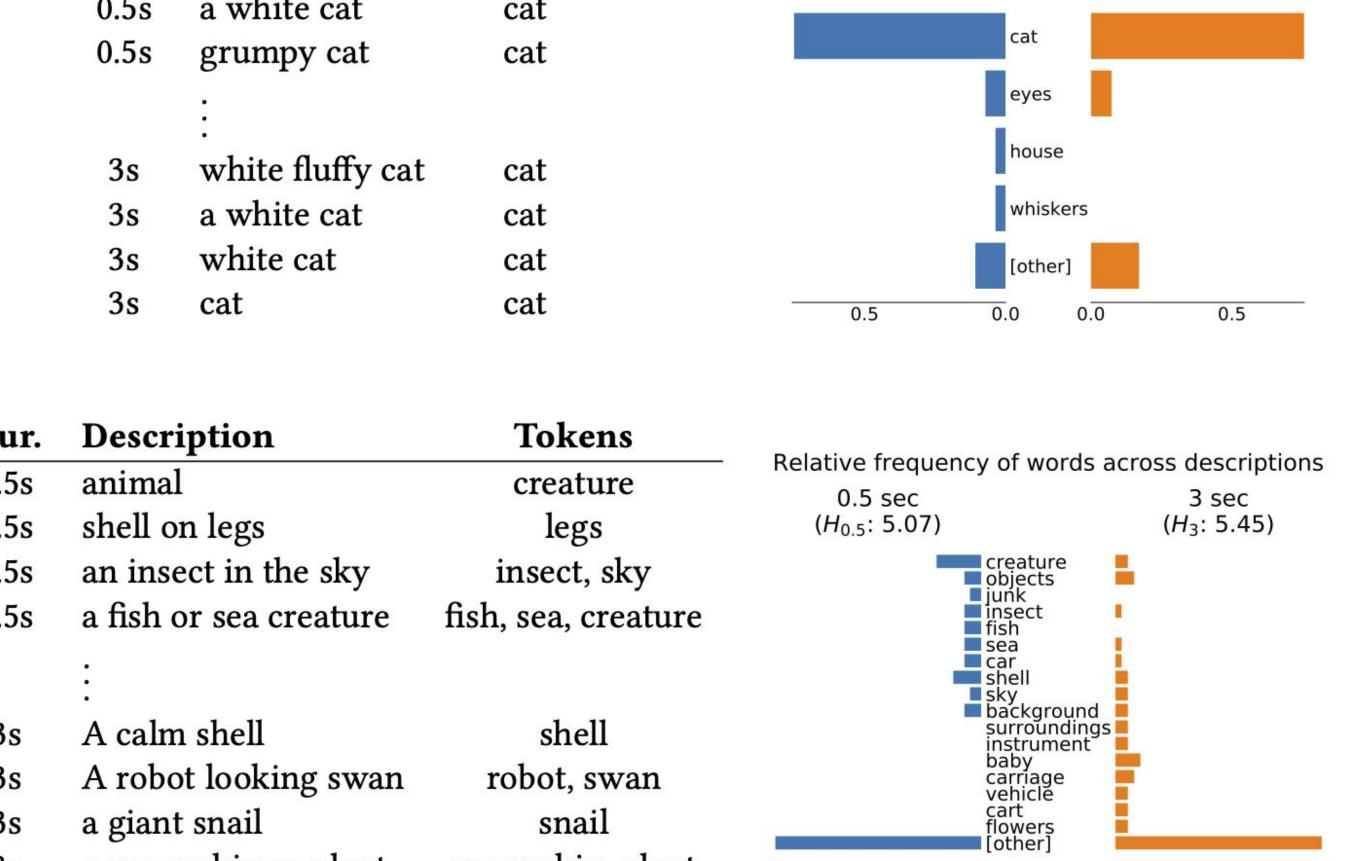
Task: Describing image content after either 0.5s or 3s viewing

Stimuli: Images from Artbreeder.com which we broadly categorised in five groups.

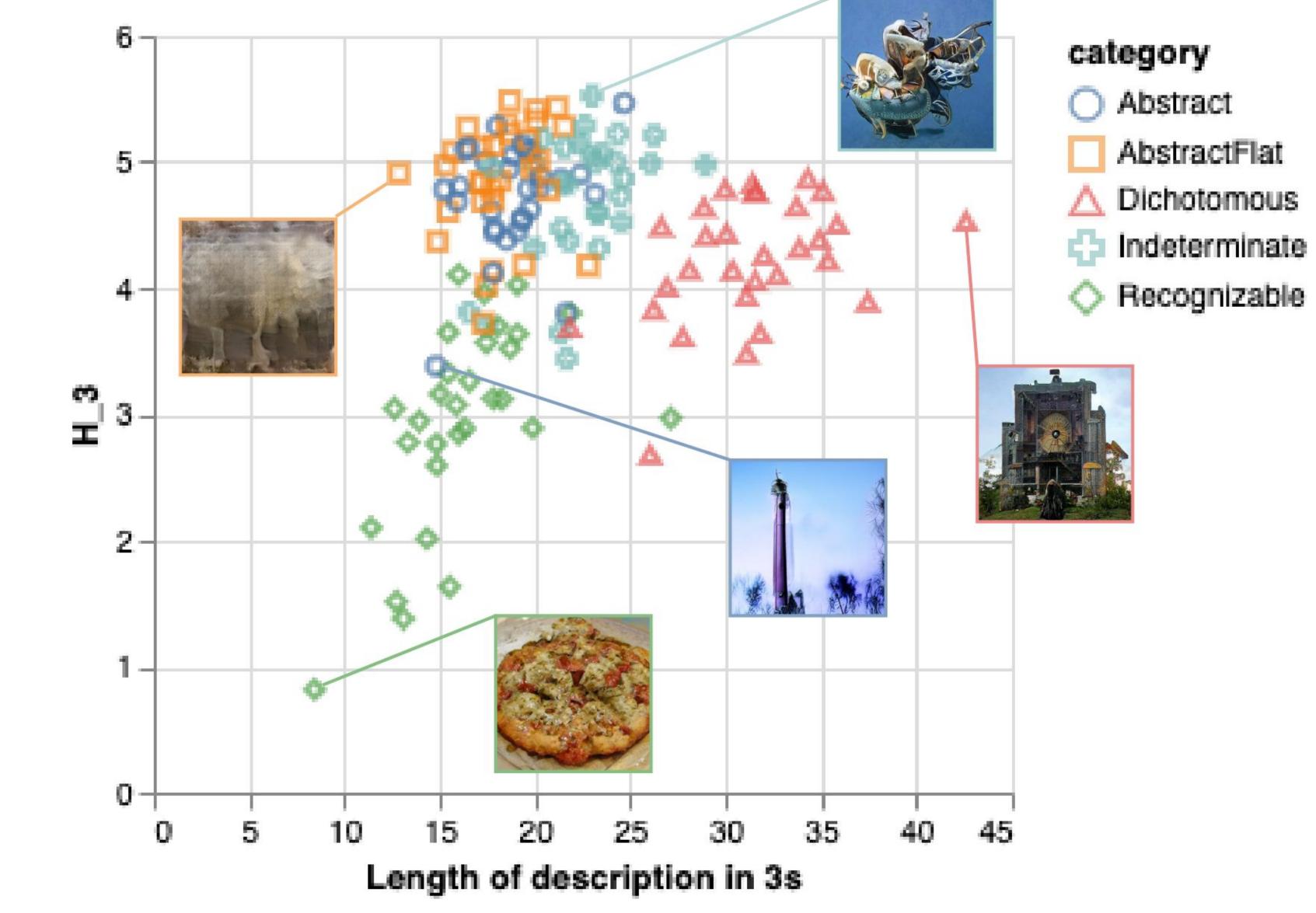






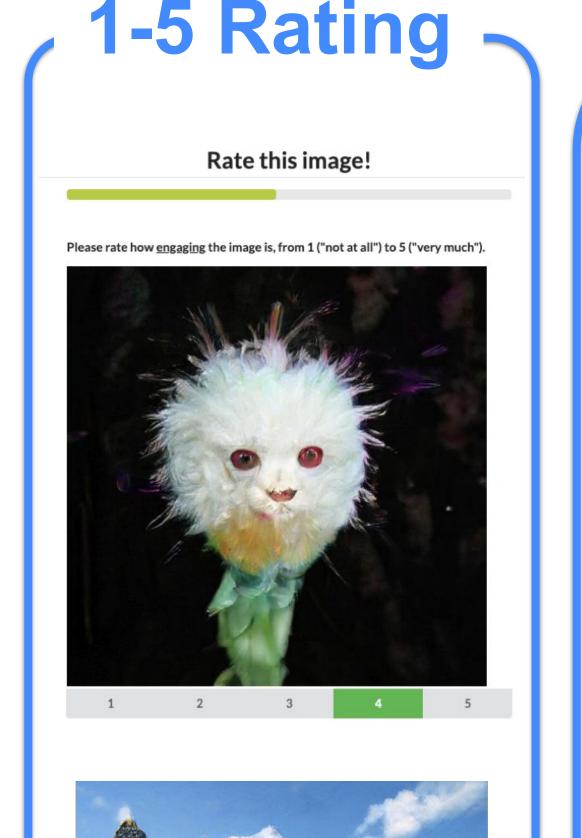


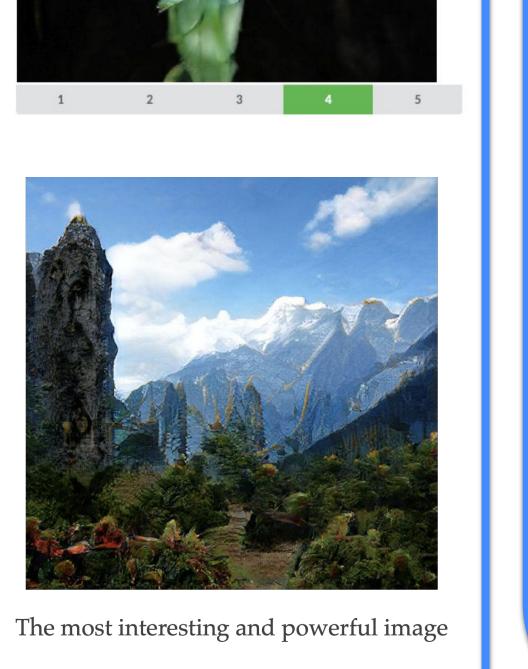
(b) Sampling of image descriptions



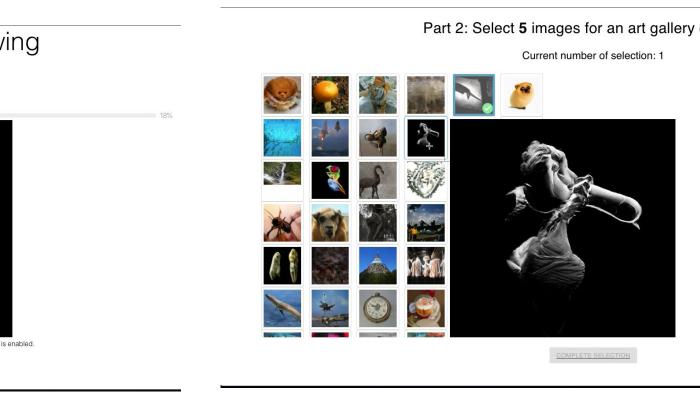
Categories of ambiguity emerge

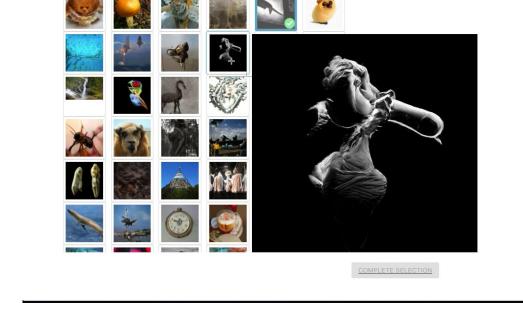
-Aesthetic Evaluation

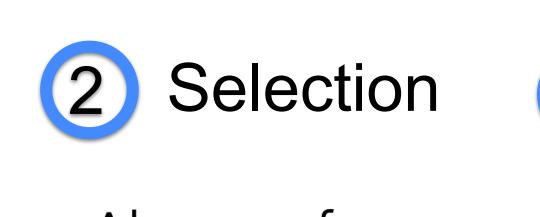






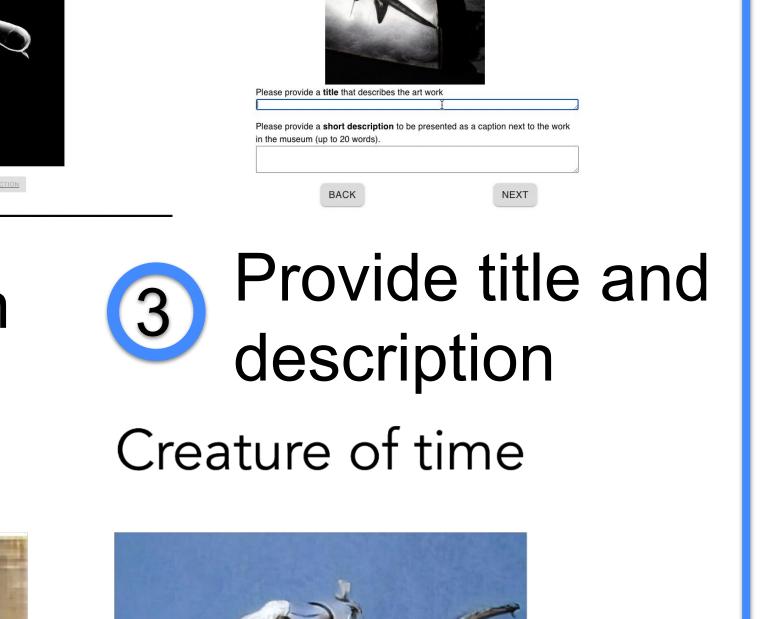






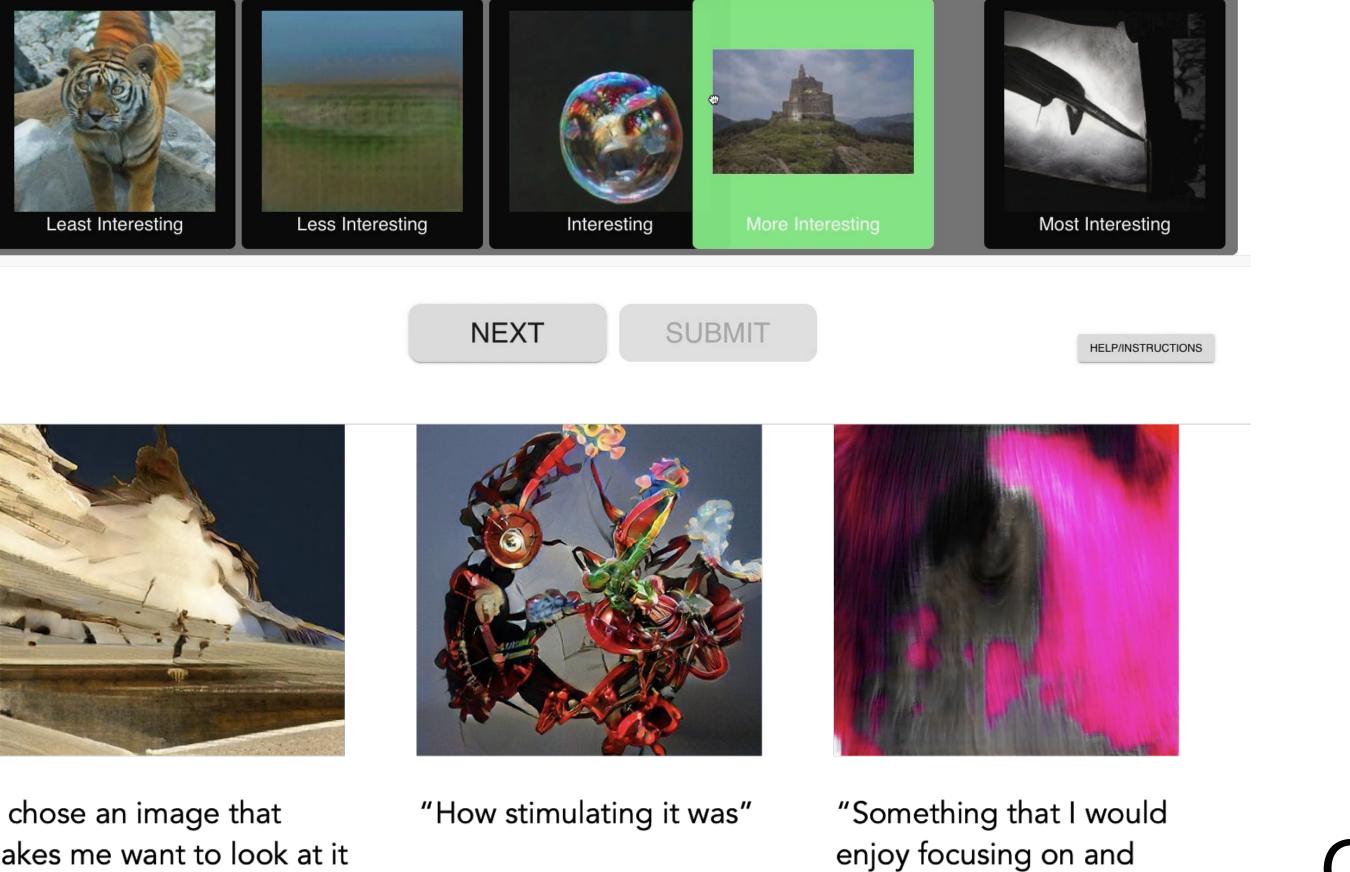








longer to understand it



want to know more

Group that prefers recognisable artworks







Group that prefers ambiguous artworks

Recognizable determinate_Isha Abstract ImageNet Indeterminate Renaissance

(c) Description histograms

Conclusion/Observations

- Variability in freefrom responses quantifies visual ambiguities.
- Categorizations begin to emerge from the data.
- For Aesthetic evaluation, the form of the task affect the results.
- Aesthetic judgement is different for different people: some prefer ambiguous or indeterminate artworks while others prefer recognisable ones.
- Evaluation across different artwork styles is still challenging.