Temporal Evolution of Rapid-Scene Visual Experience

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Background

- Visual Informativeness is influenced by :
- Type of stimuli (lab stimuli vs naturalscene images)
- Restriction on response options [1]
- Subjective confidence in rapid-scene perception is less understood

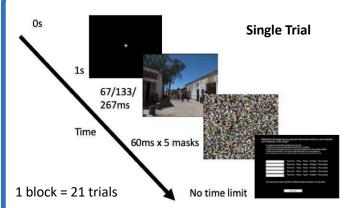




Aim

- Explore rapid-scene visual experience (five words for an image) and subjective confidence (0 – Don't know to 4 – Very confidence)
- Quantitatively examine the changes of word distributions and confidence ratings between lab stimuli and natural-scene images

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- Participants: 670 online (1 block) + 10 lab (4 blocks)
- Stimuli: 412 naturalistic images + 8 artificial images

Result 133 (N=10) 267 (N=11) 67 (N=10) obama president nan, men, mans 0.2 0.2 obama president speech Proportion of participants who reported the word 267 (N=11) letters Ν Κ Ζ Proportion of participants who reported the word 150 Prop. 8000 6000 **Examples** 4000 2000 ocruise oship ovacatio Our paradigm - just using very limited Data Included: Words that were reported number of 420 images with brief exposure more than once in all presentation already revealed 6,000 unique concepts can be generated by participants (with no eye movement) Linear regression line was fitted to the proportions of subjects reported for these Without any sign of saturation/upper words. The histogram above shows the bound, it implies that a brief moment of distribution of the slope of the regression conscious experience can potentially lines. Prop. generate many more concepts than believed before, for example [3].

Future Directions

- Further analysis on the word types (General or Specific)
 - New experiment Attentional requirement for word types
- Share this dataset with open AI community to improve human-like perception
- A potential screening tool for Alexithymia participants to report emotion words that describe the image







[2] Nishimoto, S. (2015). CiNet VideoBlocks movie library. Unpublished dataset. (All naturalistic images used were based on this dataset)
[3] Huth, A. G., Nishimoto, S., Vu, A. T., & Gallant, J. L. (2012). A continuous semantic space describes the representation of thousands of object and action categories across the human brain. *Neuron*, 76(6), 1210-1224.



