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VAIQ Saliency

Final Presentation | SS 2020

Agenda

- Research Question + Hypothesis
- Experimental Design
- Plot of Results
- Interpretation, Potential Problems, Open Questions

Research Questions

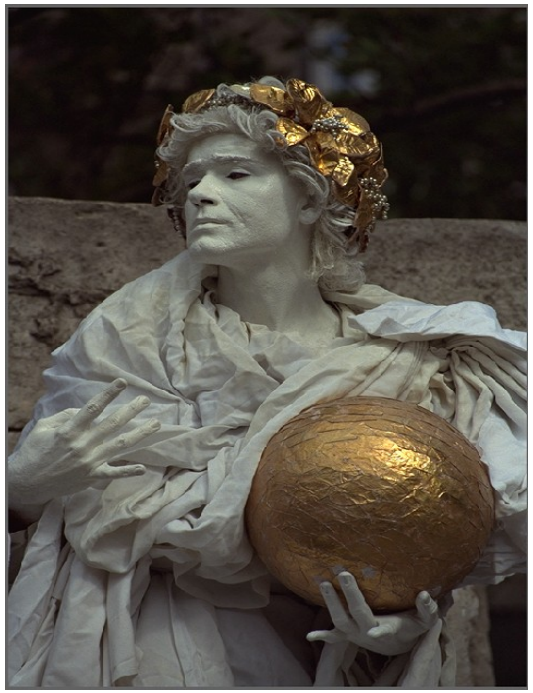
"Does saliency have an effect/impact on perceived image quality?"

Hypothesis

*"Distortions appearing on salient region of an image do have higher impact on **perceived** image quality"*

Experimental Design

- Choose 6 images from databases
- Extract the salient and non-salient region of images
- Apply gaussian-blur to the images in scale of 0-5
- Measure with MLDS (for 2 images)
- Measure with Likert-Scale with MOS (for 6 images)
- Compare the results



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Experimental design

Salient

Sigma blur = 0

Sigma blur = 1

Sigma blur = 2

Sigma blur = 3

Sigma blur = 4

Sigma blur = 5

Experimental design

Non-Salient

Sigma blur = 0

Sigma blur = 1

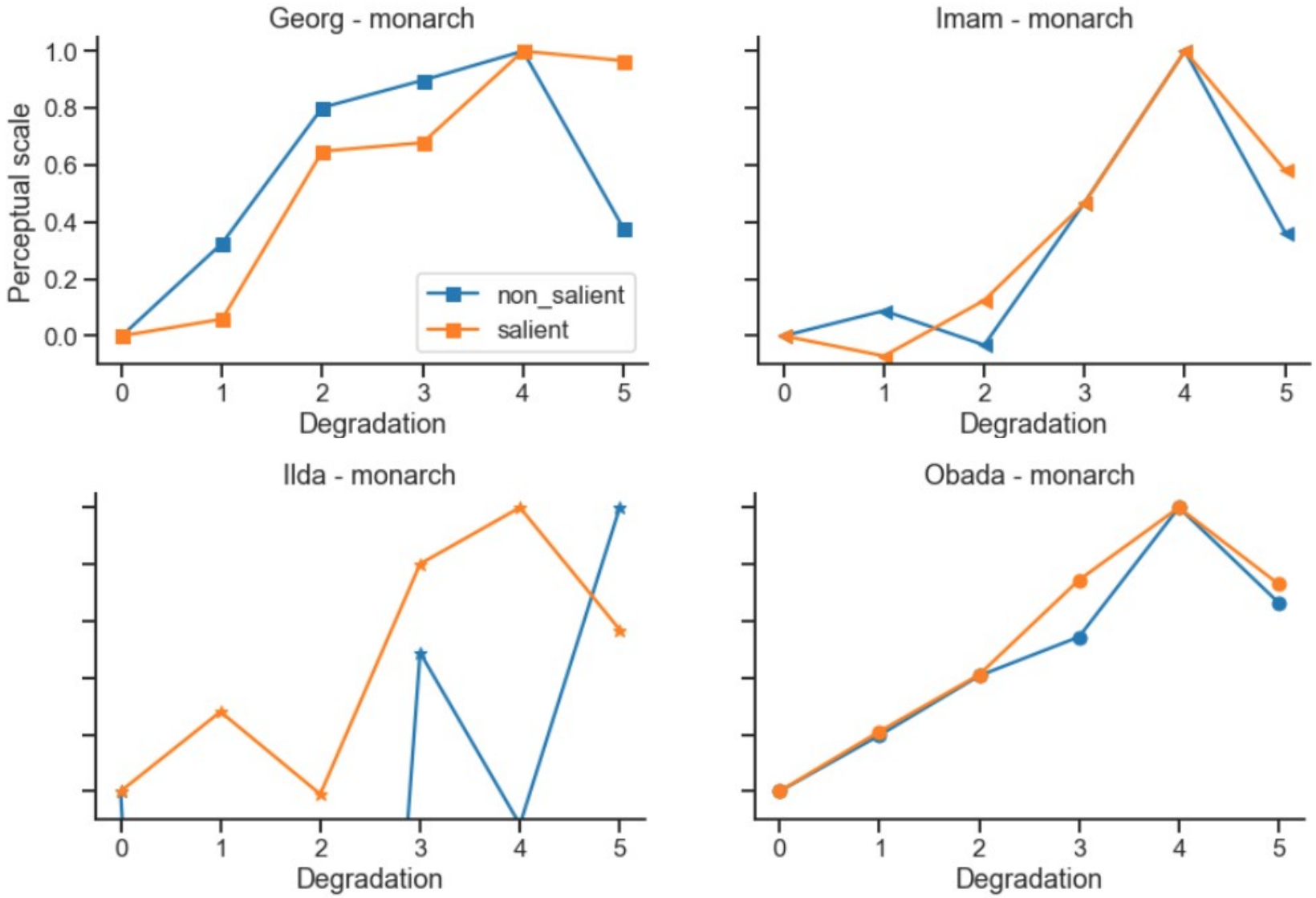
Sigma blur = 2

Sigma blur = 3

Sigma blur = 4

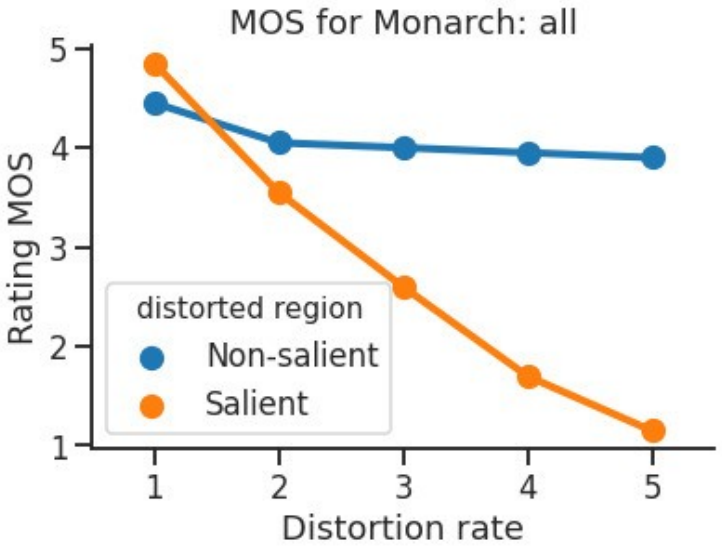
Sigma blur = 5

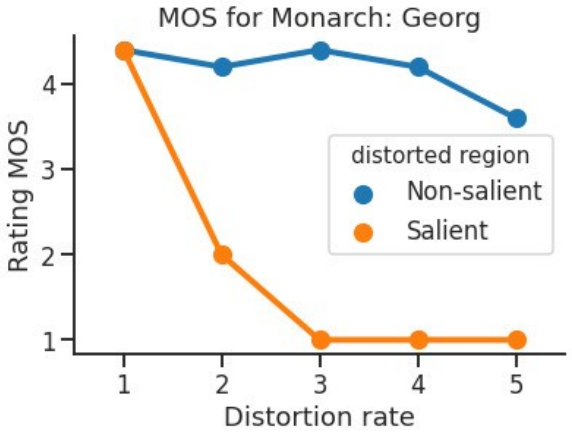
Plot of Results - MLDS

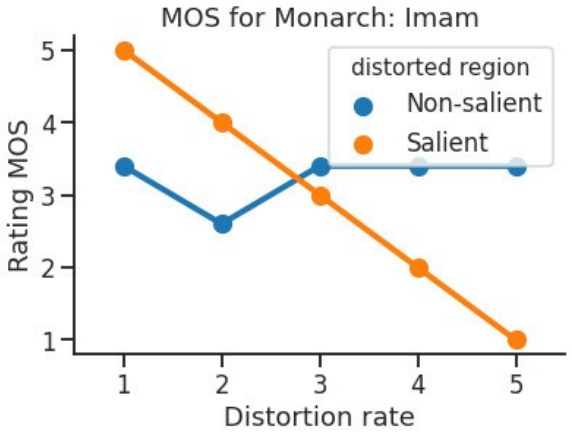


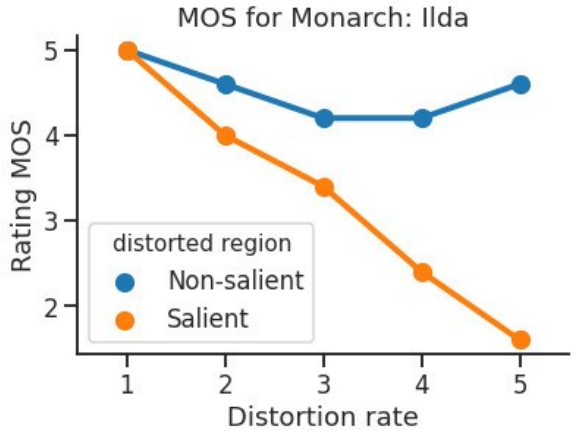
Plot of Results – Likert MOS

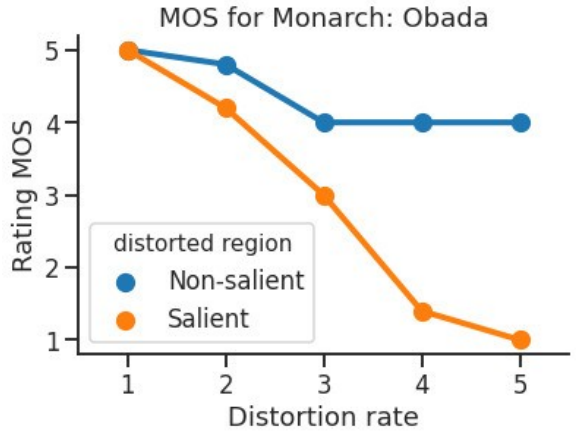
Plot of Results – Likert MOS











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Plot of Results – Likert MOS

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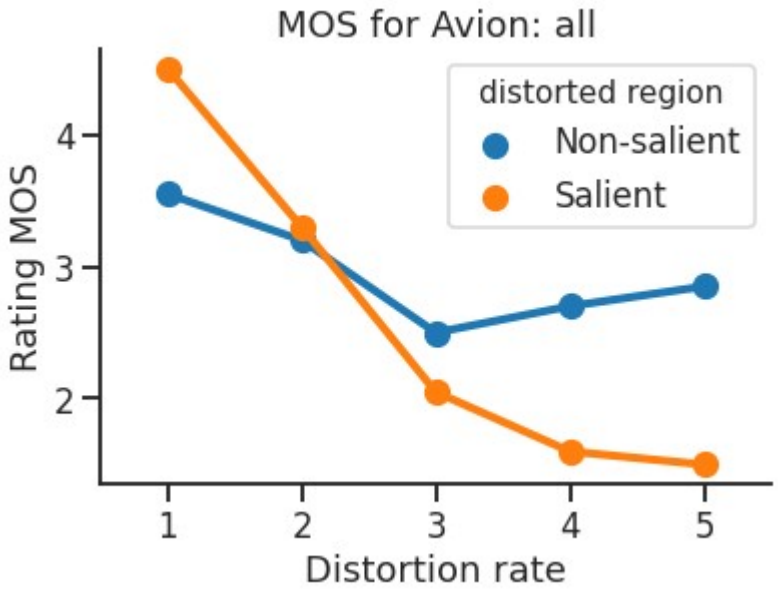

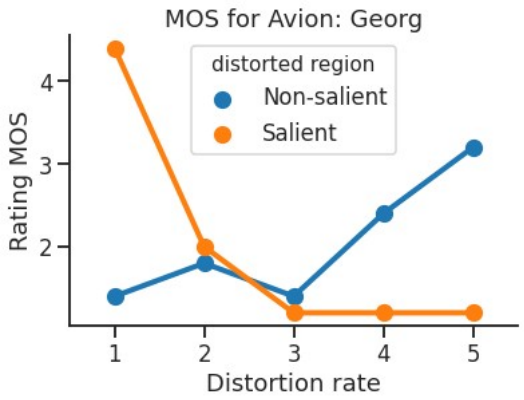

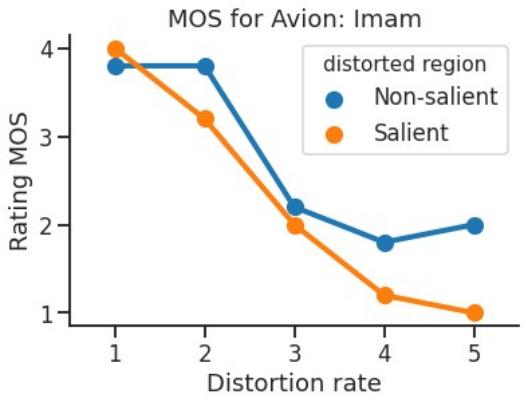

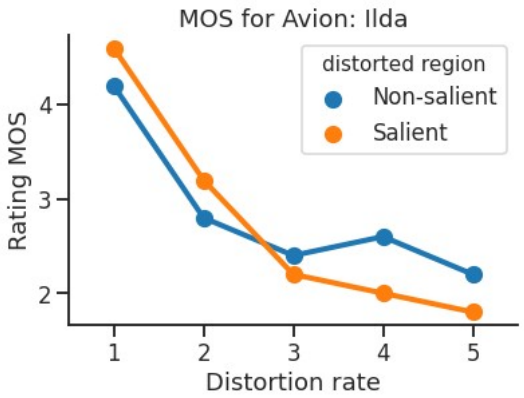

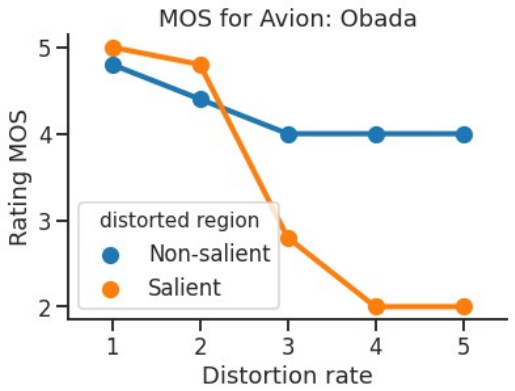

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Potential Problems

Interpretation

The MLDS plots showed that the perception of the salient region is stronger than the non-salient, we observe some variations, It might be because of the lack of resources, the insufficient trails, which hinder the accuracy of our results.

We observe that for the Likert experiment the MOS for salient-only distortions is clearly smaller than the MOS for non-salient-only distortions.
Even though there are noticeable differences in perceived image quality for distortions appearing on non-salient regions, the MOS for distorted salient regions is coherent.

Potential Problems

- Too much time to compute the saliency map
- Develop an algorithm
- Implements the distortion separately.

An open question is how blurring generalizes to other types of distortions.

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Open Questions?