The Effect of Distorted Optical Illusions on the Perception of the Illusion Effect

Seminar Image quality and Human Visual Perception

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Overview

Research question: at which distortion level is the effect of the optical illusion no longer perceptible to a human observer?

Hypothesis 1: with increased distortion levels, the illusion effects are no longer perceptible to the observer

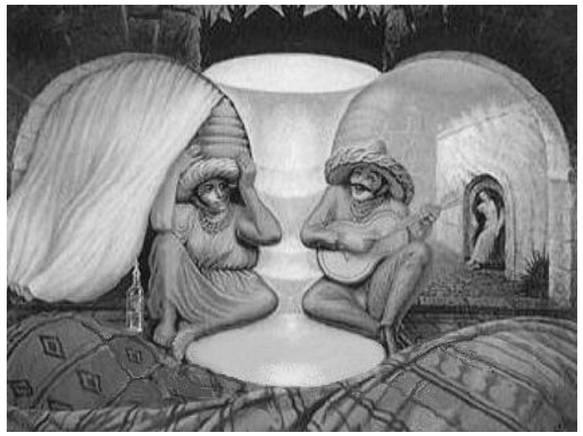
Hypothesis 2: the illusion effect might help the participant to assess the image quality

Hypothesis 3: some distortions might not change the illusion effect at all

Experimental Setup

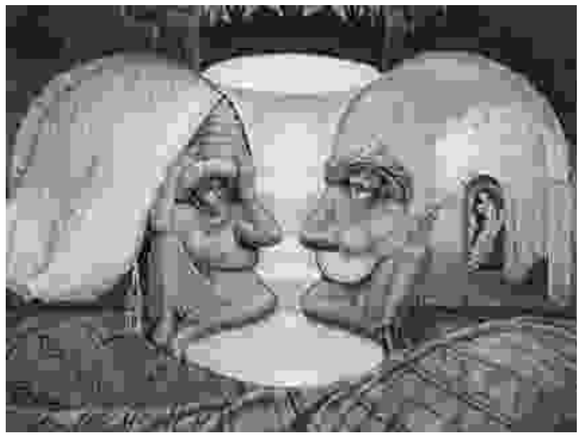
1. before the experiment starts, the chosen illusion(s) will be explained to the participant
2. all distorted illusions are presented to the observer in random order
3. each triad combination (MLDS) or illusion (MOS) was shown for 10 seconds

MLDS Experiment



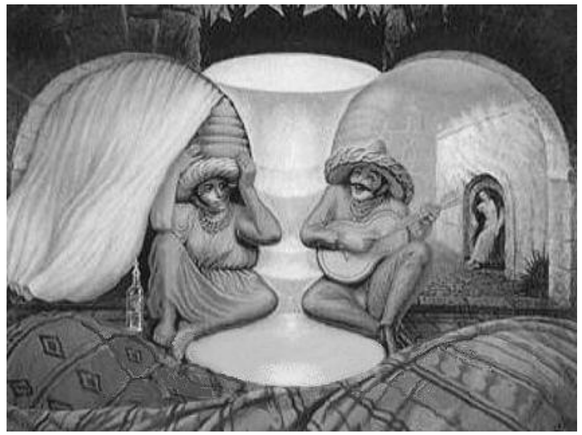
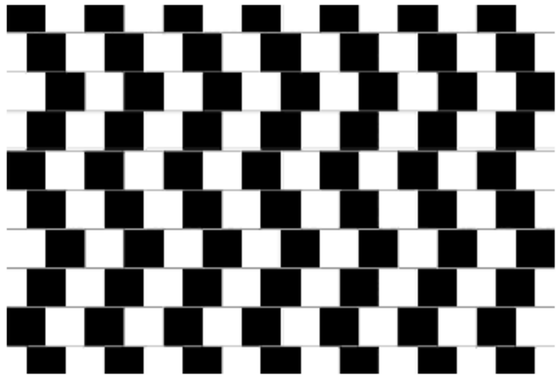
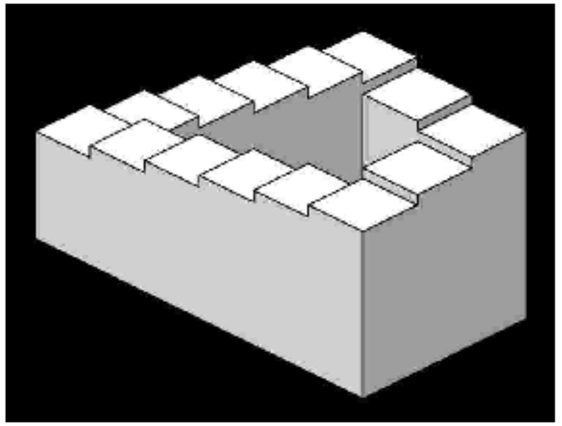
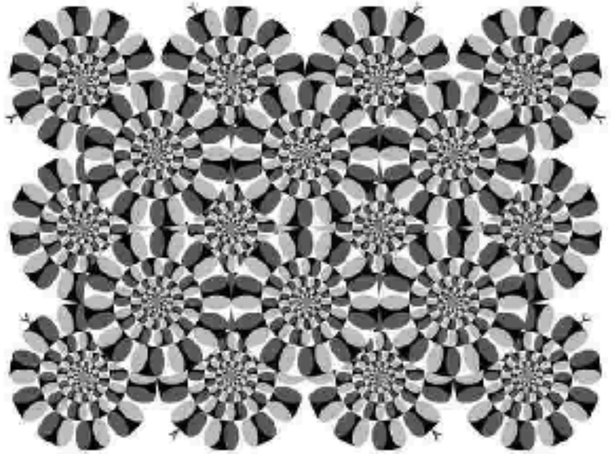
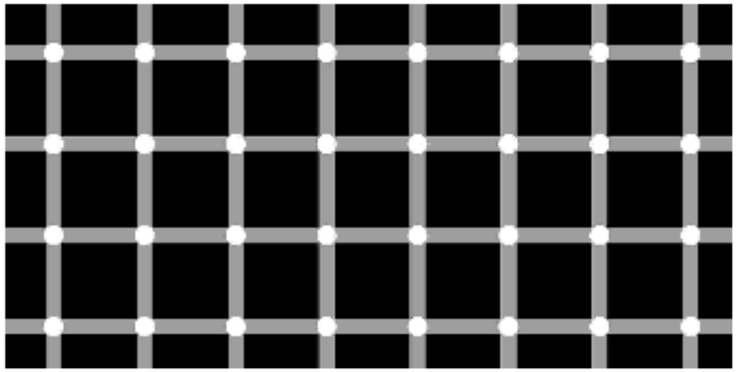
JPEG Compression

Blurring



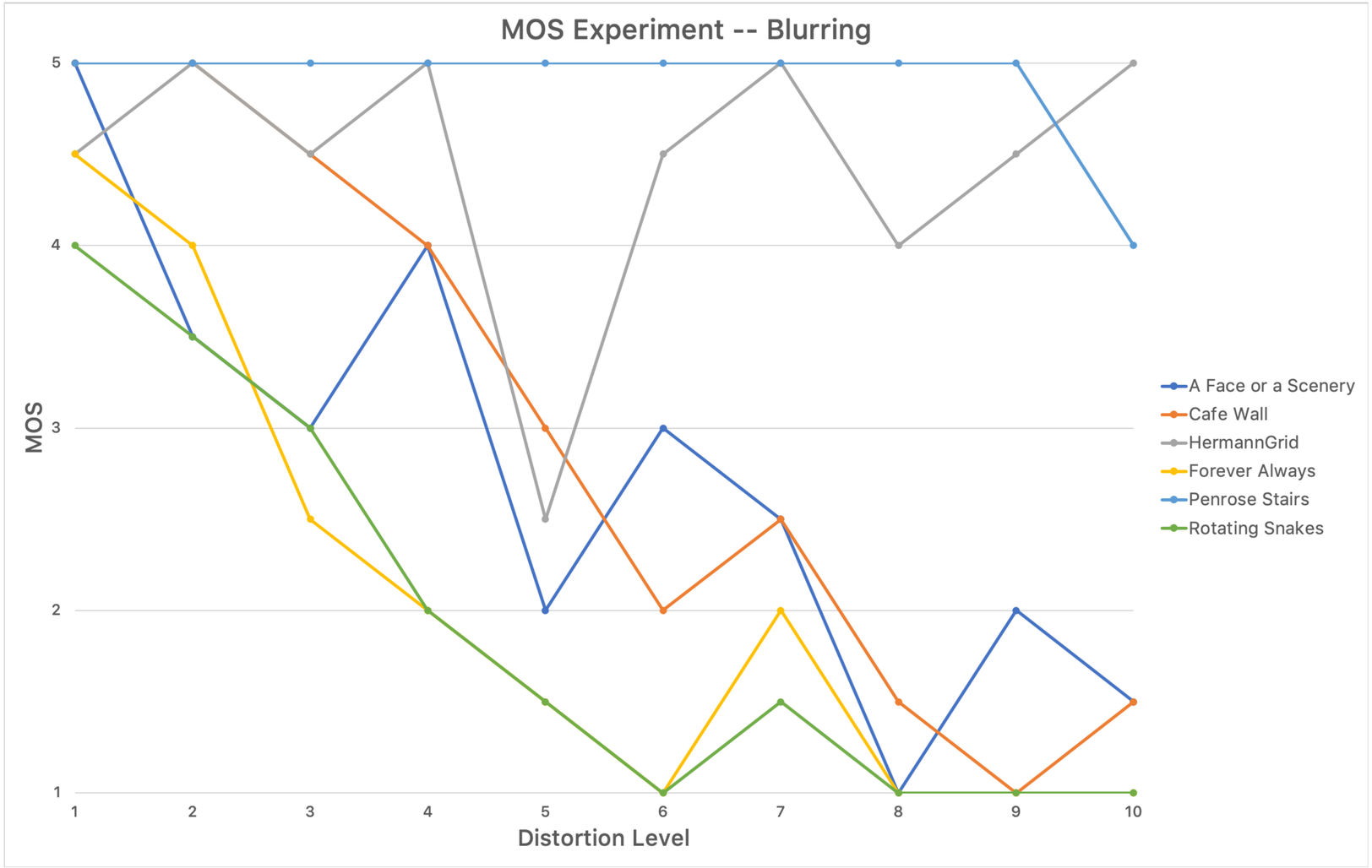
10 Levels

MOS Experiment

JPEG Compression, Blurring, Gaussian Noise, Mean Luminance Shift, Impulsive Noise Contamination

MOS-Experiment Results



MOS curves represent the median values of the data sets

MOS-Experiment Results

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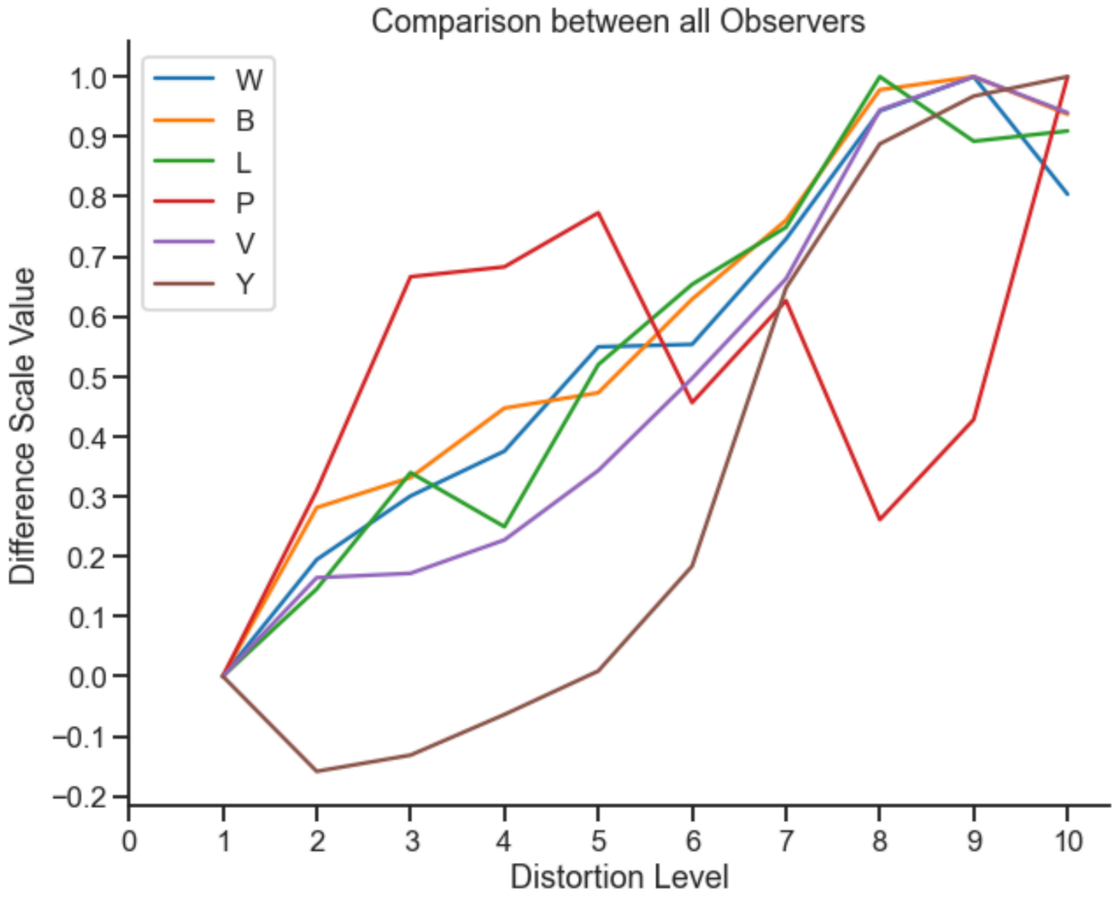
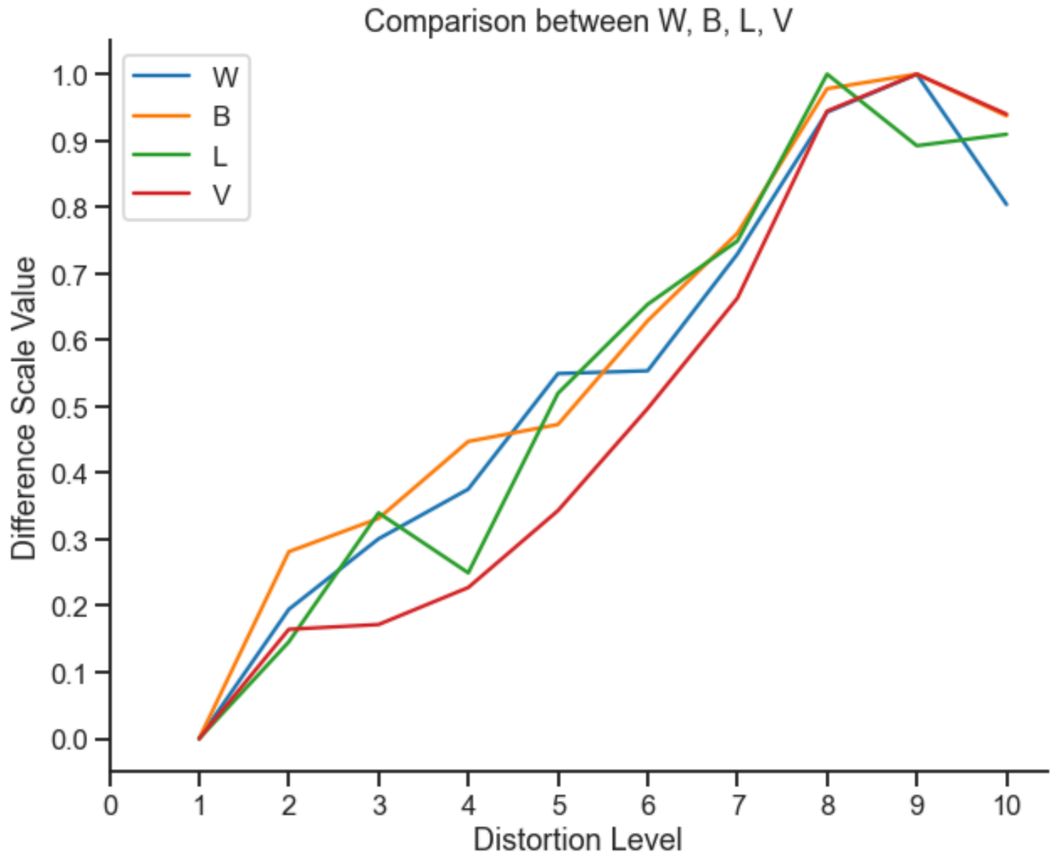
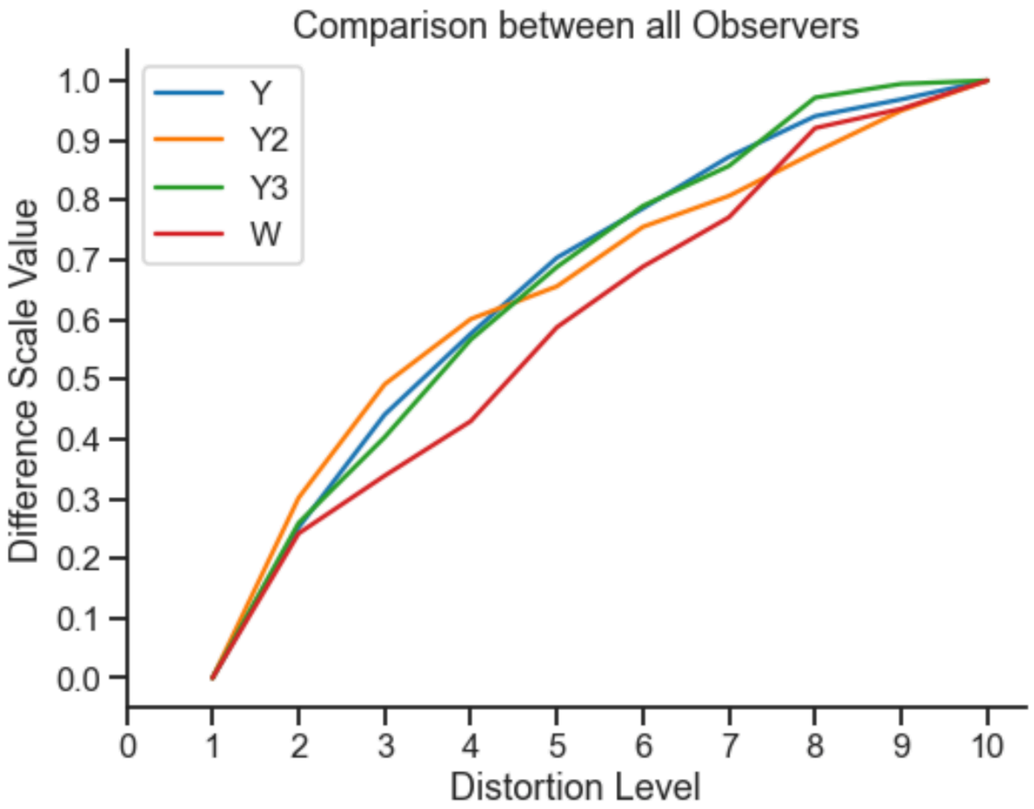
MLDS-Experiment Results

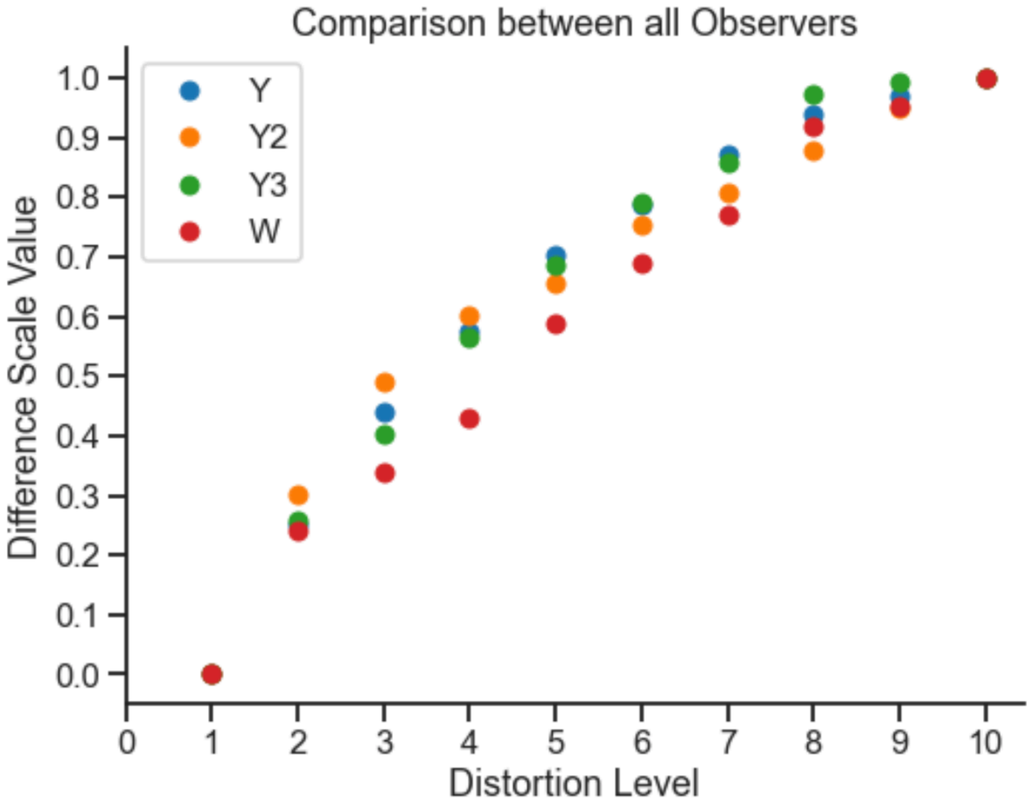




JPEG Compression

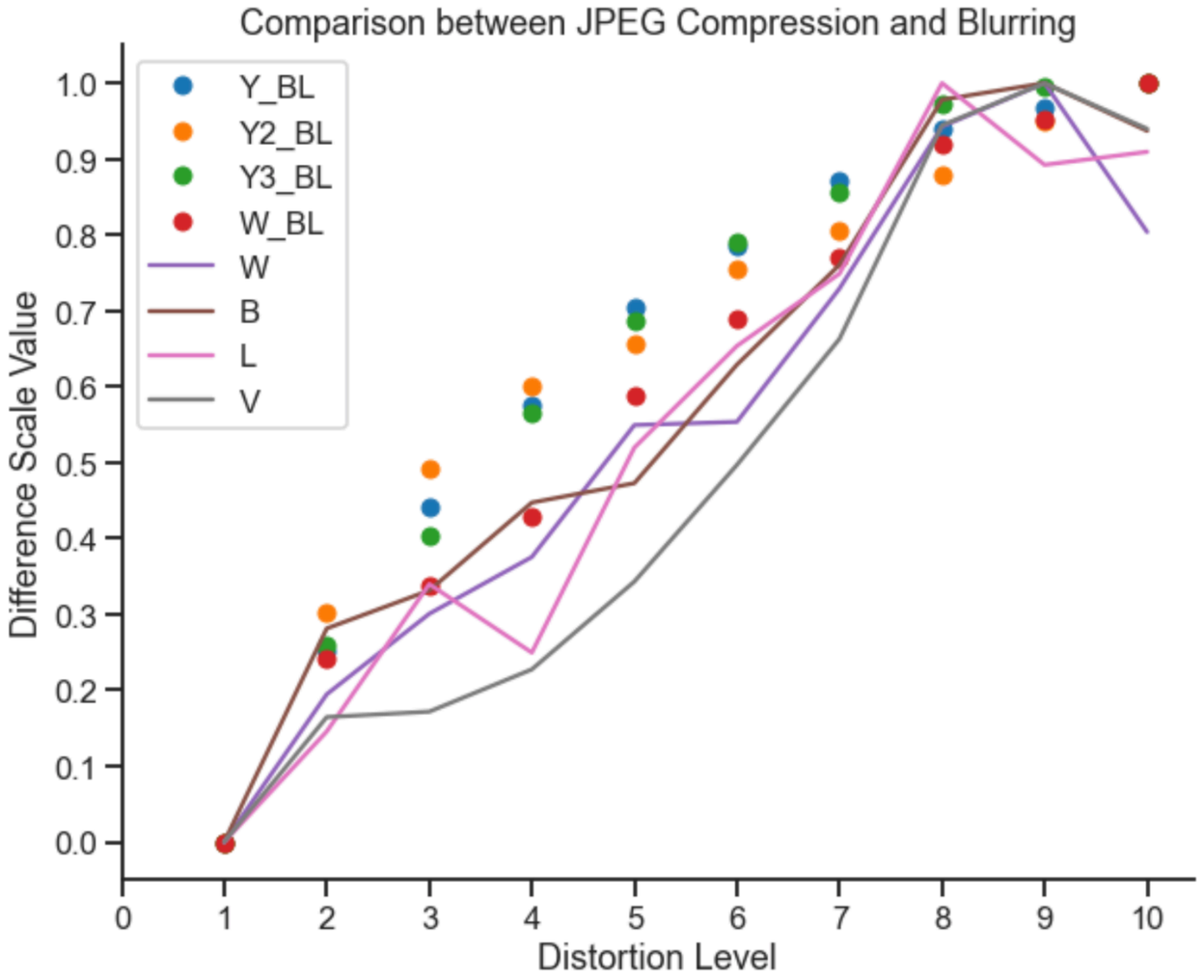
MLDS-Experiment Results





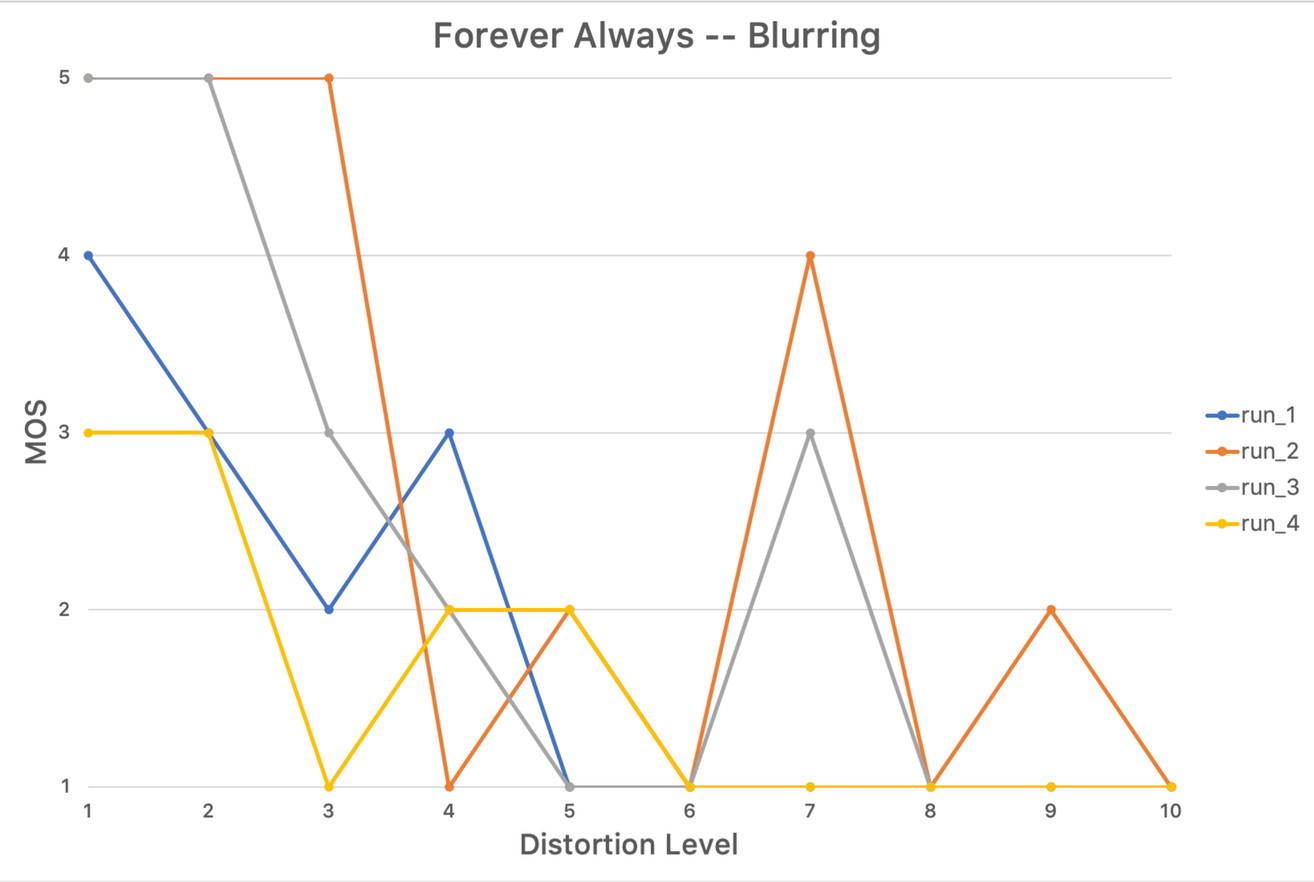
Blurring

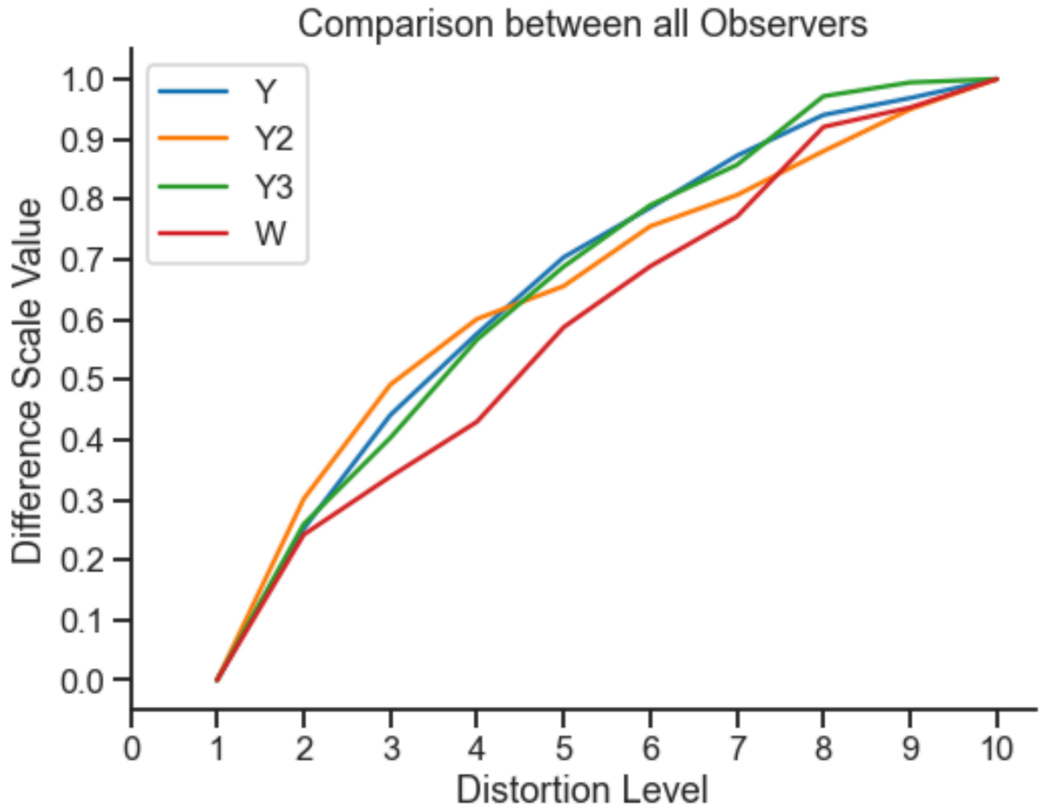
MLDS-Experiment Results



MLDS and MOS Comparison

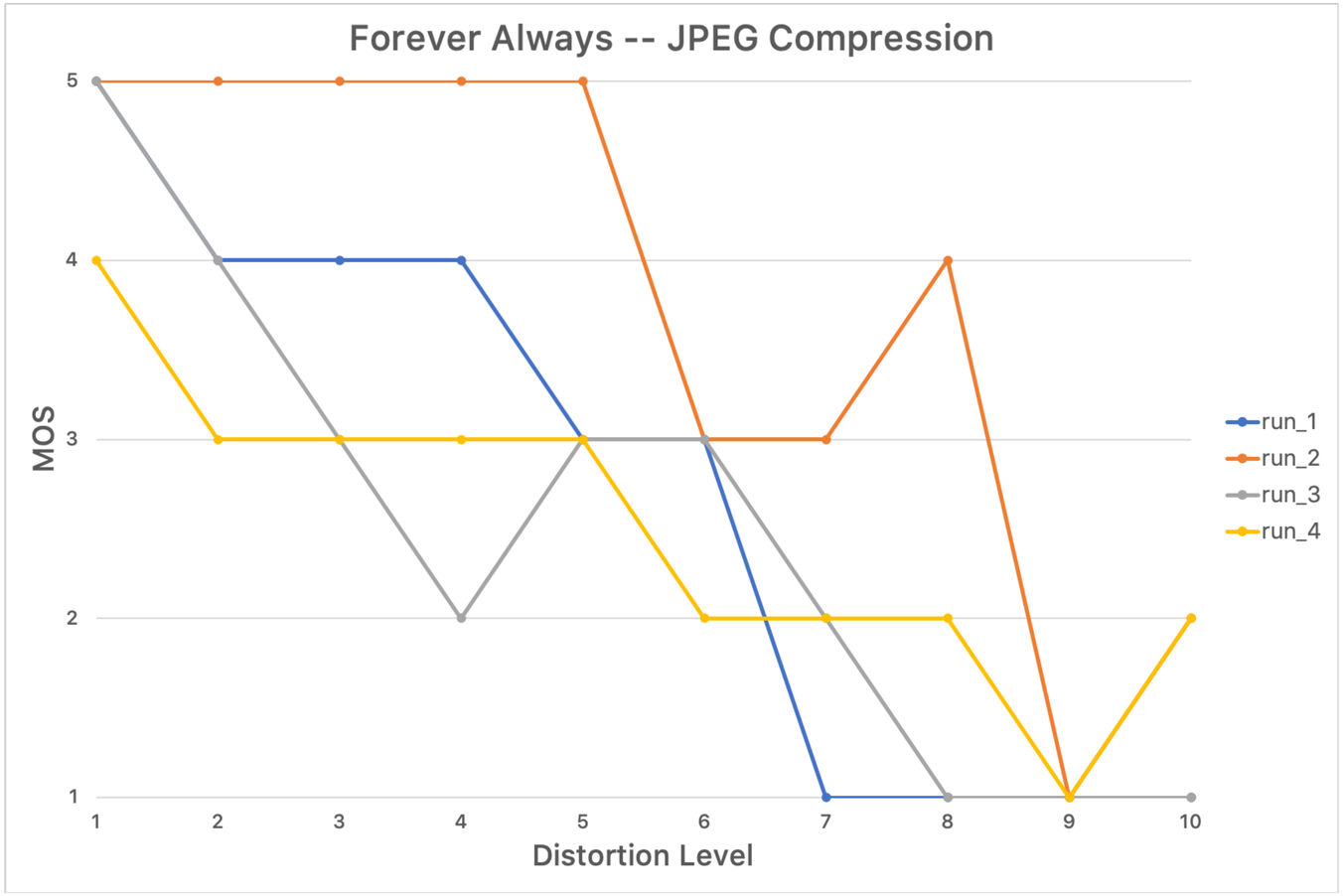
Forever Always Illusion - Blurring

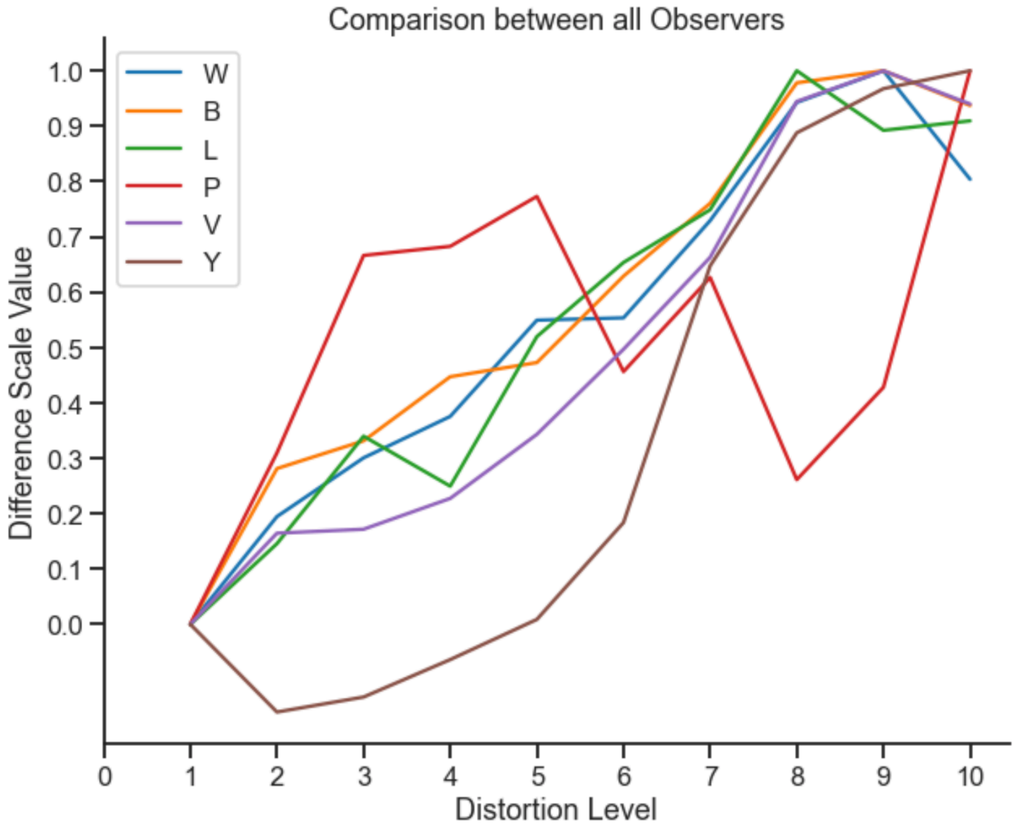




MLDS and MOS Comparison

Forever Always Illusion - JPEG Compression





Problems, Limitations, Open Questions

- MLDS: one stimulus, two distortions, distortions that would change the illusion effect
- few number of participants
- only one illusion for MLDS and MOS comparison
- influence of the illusion effect on the MLDS Experiment (pattern?)