Database description

A total of **499 original images** labeled with the "mountain" tag were sourced from Pixabay and are distributed under the Simplified Pixabay License, which permits non-commercial use without requiring attribution. To maintain consistency, the content was intentionally restricted to a single content type, however having some variation, such as day and night images, winter and summer scenes, images featuring a central subject (human, animal, or building) and those without, thereby covering a range of landscapes with varying contrasts, colorfulness, busyness, and other features within the "mountain" category.

**Individual contrast preferences** were gathered from **22 observers** within the controlled environment of the NTNU Colourlab. Outliers are removed.

We used the **Three-Alternative Forced Choice (3AFC) method** to collect preference values and a modified adaptive staircase algorithm, which allowed observers to converge on their opinions within image triplets. Each triplet consisted of images with "higher," "middle," and "lower" contrast level applied. This process was repeated until the score values converged. Subsequently, a new image triplet was presented, and this process was continued for all 499 images. For more details, please refer to Cherepkova et al. [1]. The contrast change algorithm was sourced from the Kadid10K database and can be downloaded from [2] (imcontrastc.m).

Data organization

The individual preferences that were collected have been stored in the file *"22\_observers\_preferred\_contrast.xlsx".* Each row corresponds to an image, and each column corresponds to an observer. Image names are stored in the first column, observer IDs are in the first row.

The contrast values range from -1 to 1, with -1 representing the lowest possible contrast and 1 representing the highest. A contrast value of zero corresponds to the "original" image.

Additionally, we have measured various original image features (by original image we mean image with contrast value=0). These features include RMS contrast (the absolute contrast value of the original image), colorfulness, lightness, spatial information (SI), busyness, and complexity. The algorithms used for these measurements are detailed in paper [1], and the results have been saved in the file *"image\_features\_contrast\_zero.xlsx"* for additional help.

499 original images (with applied contrast = 0) can be found in the *"images\_contrast\_zero"* folder.

References

1. Cherepkova, Olga, Seyed Ali Amirshahi, and Marius Pedersen. "Individual Contrast Preferences in Natural Images." Journal of Imaging 10.1 (2024): 25.

2. Lin, H.; Hosu, V.; Saupe, D. KADID-10k: A large-scale artificially distorted IQA database. In Proceedings of the 2019 Eleventh International Conference on Quality of Multimedia Experience (QoMEX), Berlin, Germany, 5–7 June 2019; pp. 1–3. Available online: http://database.mmsp-kn.de/kadid-10k-database.html (accessed on 1 November 2021).