TECHSURF2022

Optimal score for image quality

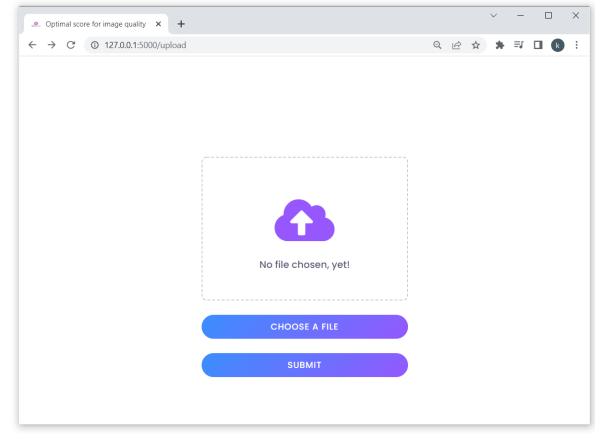
A website which calculates the optimal score for image quality for a given image and saved it on the server.

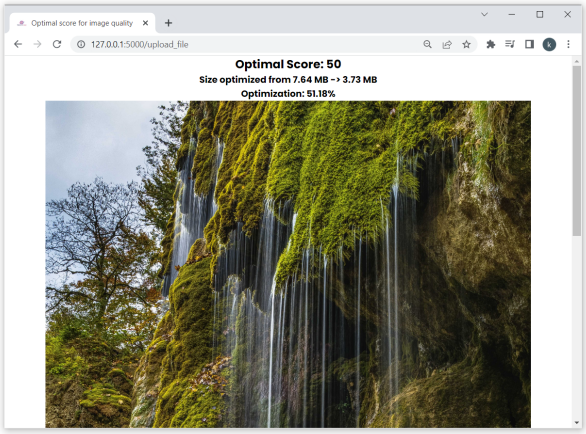
GITHUB LINK

DEMO

* the artifacts in the demo is due to gif compression used to save the video and not the alogorithm (Feel free to test).

About The Project





The project uses SSIM (Similarity Structural Image Metric) to calculate the optimal score for image quality.

Features

- ☑ Image dimensions remains the same.
- ☑ There is minimal noticeable difference between the images.
- ☑ Faster and more accurate (no artefacts) than any CNN/GAN based approach (tested).
- ☑ Returns the image pixel density ratio for compression as mentioned in the question.
- ☑ No need for GPU on the server.
- ☑ Optimizes for human perception visual quality.
- ☑ Only saves the optimal image, uploaded image remains in memory buffer.
- ☑ No need to download the image from the server.
- ☑ Depends on standardized algorithm from `scikit-image`.
- ☑ Lower latency than other approaches.
- ☑ Very minimal code, to increase maintainabiity.
- ☑ Leverages parallelism to speed up the process.

- [x] The algorithm is not dependent on the image size or format.

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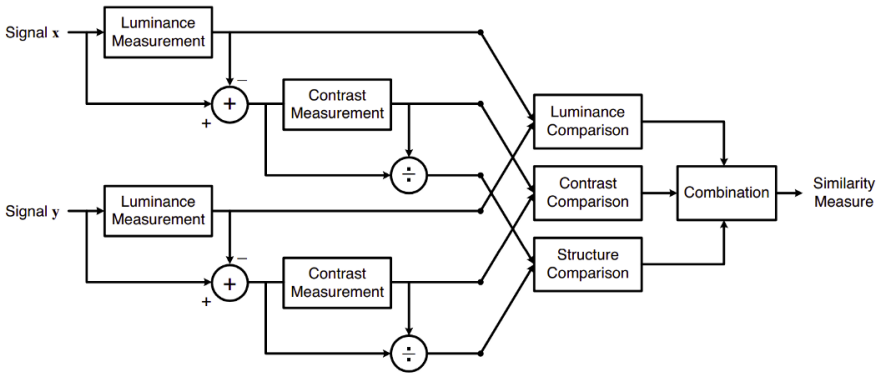

Structural Similarity Image Metric

Built With

- python
- flask
- skimage
- Pillow
- torch (alternative backend)

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Getting Started

Just install the required packages and run the server.

Prerequisites

- install prerequisites

```
pip install -r requirements.txt
```

Running the server

```
python app.py
```

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