tf.image.total_variation

```
total_variation(
    images,
    name=None
)
```

Defined in `tensorflow/python/ops/image_ops_impl.py`.

See the guide: Images > Denoising

Calculate and return the total variation for one or more images.

The total variation is the sum of the absolute differences for neighboring pixel-values in the input images. This measures how much noise is in the images.

This can be used as a loss-function during optimization so as to suppress noise in images. If you have a batch of images, then you should calculate the scalar loss-value as the sum: `loss = tf.reduce_sum(tf.image.total_variation(images))`

This implements the anisotropic 2-D version of the formula described here:

https://en.wikipedia.org/wiki/Total_variation_denoising

Args:

- `images`: 4-D Tensor of shape `[batch, height, width, channels]` or 3-D Tensor of shape `[height, width, channels]`.
- `name`: A name for the operation (optional).

Raises:

- `ValueError`: if images.shape is not a 3-D or 4-D vector.

Returns:

The total variation of `images`.

If `images` was 4-D, return a 1-D float Tensor of shape `[batch]` with the total variation for each image in the batch. If `images` was 3-D, return a scalar float with the total variation for that image.

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