tf.nn.erosion2d

```
erosion2d(
    value,
    kernel,
    strides,
    rates,
    padding,
    name=None
)
```

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

See the guide: Neural Network > Morphological filtering

Computes the grayscale erosion of 4-D `value` and 3-D `kernel` tensors.

The `value` tensor has shape `[batch, in_height, in_width, depth]` and the `kernel` tensor has shape `[kernel_height, kernel_width, depth]`, i.e., each input channel is processed independently of the others with its own structuring function. The `output` tensor has shape `[batch, out_height, out_width, depth]`. The spatial dimensions of the output tensor depend on the `padding` algorithm. We currently only support the default "NHWC" `data_format`.

In detail, the grayscale morphological 2-D erosion is given by:

```
output[b, y, x, c] =
   min_{dy, dx} value[b,
                      strides[1] * y - rates[1] * dy,
                      strides[2] * x - rates[2] * dx,
                      c] -
                kernel[dy, dx, c]
```

Duality: The erosion of `value` by the `kernel` is equal to the negation of the dilation of `-value` by the reflected `kernel`.

Args:

- `value`: A `Tensor`. 4-D with shape `[batch, in_height, in_width, depth]`.
- `kernel`: A `Tensor`. Must have the same type as `value`. 3-D with shape `[kernel_height, kernel_width, depth]`.
- `strides`: A list of `ints` that has length `>= 4`. 1-D of length 4. The stride of the sliding window for each dimension of the input tensor. Must be: `[1, stride_height, stride_width, 1]`.
- `rates`: A list of `ints` that has length `>= 4`. 1-D of length 4. The input stride for atrous morphological dilation. Must be: `[1, rate_height, rate_width, 1]`.
- `padding`: A `string` from: `"SAME", "VALID"`. The type of padding algorithm to use.
- `name`: A name for the operation (optional). If not specified "erosion2d" is used.

Returns:

A `Tensor`. Has the same type as `value`. 4-D with shape `[batch, out_height, out_width, depth]`.

Raises:

- `ValueError`: If the `value` depth does not match `kernel`' shape, or if padding is other than `'VALID'` or `'SAME'`.

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