

tf.clip_by_global_norm

```
clip_by_global_norm(  
    t_list,  
    clip_norm,  
    use_norm=None,  
    name=None  
)
```

Defined in [tensorflow/python/ops/clip_ops.py](#).

See the guide: [Training > Gradient Clipping](#)

Clips values of multiple tensors by the ratio of the sum of their norms.

Given a tuple or list of tensors `t_list`, and a clipping ratio `clip_norm`, this operation returns a list of clipped tensors `list_clipped` and the global norm (`global_norm`) of all tensors in `t_list`. Optionally, if you've already computed the global norm for `t_list`, you can specify the global norm with `use_norm`.

To perform the clipping, the values `t_list[i]` are set to:

```
t_list[i] * clip_norm / max(global_norm, clip_norm)
```

where:

```
global_norm = sqrt(sum([l2norm(t)**2 for t in t_list]))
```

If `clip_norm > global_norm` then the entries in `t_list` remain as they are, otherwise they're all shrunk by the global ratio.

Any of the entries of `t_list` that are of type `None` are ignored.

This is the correct way to perform gradient clipping (for example, see [Pascanu et al., 2012 \(pdf\)](#)).

However, it is slower than `clip_by_norm()` because all the parameters must be ready before the clipping operation can be performed.

Args:

- `t_list`: A tuple or list of mixed `Tensors`, `IndexedSlices`, or `None`.
- `clip_norm`: A 0-D (scalar) `Tensor` > 0. The clipping ratio.
- `use_norm`: A 0-D (scalar) `Tensor` of type `float` (optional). The global norm to use. If not provided, `global_norm()` is used to compute the norm.
- `name`: A name for the operation (optional).

Returns:

- `list_clipped`: A list of `Tensors` of the same type as `list_t`.
- `global_norm`: A 0-D (scalar) `Tensor` representing the global norm.

Raises:

- `TypeError : If t_list is not a sequence.`

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