

tf.contrib.losses.sigmoid_cross_entropy

```
sigmoid_cross_entropy(  
    logits,  
    multi_class_labels,  
    weights=1.0,  
    label_smoothing=0,  
    scope=None  
)
```

Defined in [tensorflow/contrib/losses/python/losses/loss_ops.py](#).

See the guide: [Losses \(contrib\)](#) > [Loss operations for use in neural networks](#).

Creates a cross-entropy loss using `tf.nn.sigmoid_cross_entropy_with_logits`. (deprecated)

THIS FUNCTION IS DEPRECATED. It will be removed after 2016-12-30. Instructions for updating: Use `tf.losses.sigmoid_cross_entropy` instead. Note that the order of the predictions and labels arguments has been changed.

`weights` acts as a coefficient for the loss. If a scalar is provided, then the loss is simply scaled by the given value. If `weights` is a tensor of size `[batch_size]`, then the loss weights apply to each corresponding sample.

If `label_smoothing` is nonzero, smooth the labels towards 1/2:

```
new_multiclass_labels = multiclass_labels * (1 - label_smoothing)  
                      + 0.5 * label_smoothing
```

Args:

- `logits`: `[batch_size, num_classes]` logits outputs of the network.
- `multi_class_labels`: `[batch_size, num_classes]` labels in `(0, 1)`.
- `weights`: Coefficients for the loss. The tensor must be a scalar, a tensor of shape `[batch_size]` or shape `[batch_size, num_classes]`.
- `label_smoothing`: If greater than 0 then smooth the labels.
- `scope`: The scope for the operations performed in computing the loss.

Returns:

A scalar `Tensor` representing the loss value.

Raises:

- `ValueError`: If the shape of `logits` doesn't match that of `multi_class_labels` or if the shape of `weights` is invalid, or if `weights` is `None`.

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