

tf.contrib.layers.instance_norm

```
instance_norm(  
    inputs,  
    center=True,  
    scale=True,  
    epsilon=1e-06,  
    activation_fn=None,  
    param_initializers=None,  
    reuse=None,  
    variables_collections=None,  
    outputs_collections=None,  
    trainable=True,  
    data_format=DATA_FORMAT_NHWC,  
    scope=None  
)
```

Defined in [tensorflow/contrib/layers/python/layers/normalization.py](#).

Functional interface for the instance normalization layer.

Reference: <https://arxiv.org/abs/1607.08022>.

"Instance Normalization: The Missing Ingredient for Fast Stylization" Dmitry Ulyanov, Andrea Vedaldi, Victor Lempitsky

Args:

- inputs**: A tensor with 2 or more dimensions, where the first dimension has **batch_size**. The normalization is over all but the last dimension if **data_format** is **NHWC** and the second dimension if **data_format** is **NCHW**.
- center**: If True, add offset of **beta** to normalized tensor. If False, **beta** is ignored.
- scale**: If True, multiply by **gamma**. If False, **gamma** is not used. When the next layer is linear (also e.g. **nn.relu**), this can be disabled since the scaling can be done by the next layer.
- epsilon**: Small float added to variance to avoid dividing by zero.
- activation_fn**: Activation function, default set to None to skip it and maintain a linear activation.
- param_initializers**: Optional initializers for beta, gamma, moving mean and moving variance.
- reuse**: Whether or not the layer and its variables should be reused. To be able to reuse the layer scope must be given.
- variables_collections**: Optional collections for the variables.
- outputs_collections**: Collections to add the outputs.
- trainable**: If **True** also add variables to the graph collection **GraphKeys.TRAINABLE_VARIABLES** (see **tf.Variable**).
- data_format**: A string. **NHWC** (default) and **NCHW** are supported.
- scope**: Optional scope for **variable_scope**.

Returns:

A **Tensor** representing the output of the operation.

Raises:

- `ValueError` : If `data_format` is neither `NHWC` nor `NCHW` .
- `ValueError` : If the rank of `inputs` is undefined.
- `ValueError` : If rank or channels dimension of `inputs` is undefined.

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