tf.contrib.layers.variance_scaling_initializer

```
variance_scaling_initializer(
    factor=2.0,
    mode='FAN_IN',
    uniform=False,
    seed=None,
    dtype=tf.float32
)
```

Defined in **tensorflow/contrib/layers/python/layers/initializers.py** .

See the guide: Layers (contrib) > Initializers

Returns an initializer that generates tensors without scaling variance.

When initializing a deep network, it is in principle advantageous to keep the scale of the input variance constant, so it does not explode or diminish by reaching the final layer. This initializer use the following formula:

```
if mode='FAN_IN': # Count only number of input connections.
  n = fan_in
elif mode='FAN_OUT': # Count only number of output connections.
  n = fan_out
elif mode='FAN_AVG': # Average number of inputs and output connections.
  n = (fan_in + fan_out)/2.0

  truncated_normal(shape, 0.0, stddev=sqrt(factor / n))
```

- To get Delving Deep into Rectifiers, use (Default):
  `factor=2.0 mode='FAN_IN' uniform=False`

- To get Convolutional Architecture for Fast Feature Embedding, use:
  `factor=1.0 mode='FAN_IN' uniform=True`

- To get Understanding the difficulty of training deep feedforward neural networks, use:
  `factor=1.0 mode='FAN_AVG' uniform=True.`

- To get `xavier_initializer` use either:
  `factor=1.0 mode='FAN_AVG' uniform=True` , or
  `factor=1.0 mode='FAN_AVG' uniform=False` .

Args:

- `factor` : Float. A multiplicative factor.
- `mode` : String. 'FAN_IN', 'FAN_OUT', 'FAN_AVG'.
- `uniform` : Whether to use uniform or normal distributed random initialization.
- `seed` : A Python integer. Used to create random seeds. See `tf.set_random_seed` for behavior.
- `dtype` : The data type. Only floating point types are supported.

Returns:

An initializer that generates tensors with unit variance.

Raises:

- `ValueError` : if `dtype` is not a floating point type.
- `TypeError` : if `mode` is not in ['FAN_IN', 'FAN_OUT', 'FAN_AVG'].

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