tf.contrib.metrics.streaming_pearson_correlation

```
streaming_pearson_correlation(
    predictions,
    labels,
    weights=None,
    metrics_collections=None,
    updates_collections=None,
    name=None
)
```

Defined in `tensorflow/contrib/metrics/python/ops/metric_ops.py`.

See the guide: Metrics (contrib) > Metric `Ops`

Computes Pearson correlation coefficient between `predictions`, `labels`.

The `streaming_pearson_correlation` function delegates to `streaming_covariance` the tracking of three [co]variances:

- `streaming_covariance(predictions, labels)`, i.e. covariance
- `streaming_covariance(predictions, predictions)`, i.e. variance
- `streaming_covariance(labels, labels)`, i.e. variance

The product-moment correlation ultimately returned is an idempotent operation `cov(predictions, labels) / sqrt(var(predictions) * var(labels))`. To facilitate correlation computation across multiple batches, the function groups the `update_op` s of the underlying streaming_covariance and returns an `update_op`.

If `weights` is not None, then it is used to compute a weighted correlation. NOTE: these weights are treated as "frequency weights", as opposed to "reliability weights". See discussion of the difference on https://wikipedia.org/wiki/Weighted_arithmetic_mean#Weighted_sample_variance

Args:

- `predictions`: A `Tensor` of arbitrary size.
- `labels`: A `Tensor` of the same size as predictions.
- `weights`: Optional `Tensor` indicating the frequency with which an example is sampled. Rank must be 0, or the same rank as `labels`, and must be broadcastable to `labels` (i.e., all dimensions must be either `1`, or the same as the corresponding `labels` dimension).
- `metrics_collections`: An optional list of collections that the metric value variable should be added to.
- `updates_collections`: An optional list of collections that the metric update ops should be added to.
- `name`: An optional variable_scope name.

Returns:

- `pearson_r`: A `Tensor` representing the current Pearson product-moment correlation coefficient, the value of `cov(predictions, labels) / sqrt(var(predictions) * var(labels))`.
- `update_op`: An operation that updates the underlying variables appropriately.

Raises:

- `ValueError`: If `labels` and `predictions` are of different sizes, or if `weights` is the wrong size, or if either `metrics_collections` or `updates_collections` are not a `list` or `tuple`.

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