

tf.train.ProximalAdagradOptimizer

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Class ProximalAdagradOptimizer

Methods

`__init__``apply_gradients`Class **ProximalAdagradOptimizer**Inherits From: [Optimizer](#)Defined in [tensorflow/python/training/proximal_adagrad.py](#).See the guide: [Training > Optimizers](#)

Optimizer that implements the Proximal Adagrad algorithm.

See this [paper](#).

Methods

`__init__`

```
__init__(  
    learning_rate,  
    initial_accumulator_value=0.1,  
    l1_regularization_strength=0.0,  
    l2_regularization_strength=0.0,  
    use_locking=False,  
    name='ProximalAdagrad'  
)
```

Construct a new ProximalAdagrad optimizer.

Args:

- `learning_rate`: A **Tensor** or a floating point value. The learning rate.
- `initial_accumulator_value`: A floating point value. Starting value for the accumulators, must be positive.
- `l1_regularization_strength`: A float value, must be greater than or equal to zero.
- `l2_regularization_strength`: A float value, must be greater than or equal to zero.
- `use_locking`: If **True** use locks for update operations.
- `name`: Optional name prefix for the operations created when applying gradients. Defaults to "Adagrad".

Raises:

- `ValueError` : If the `initial_accumulator_value` is invalid.

apply_gradients

```
apply_gradients(
    grads_and_vars,
    global_step=None,
    name=None
)
```

Apply gradients to variables.

This is the second part of `minimize()` . It returns an `Operation` that applies gradients.

Args:

- `grads_and_vars` : List of (gradient, variable) pairs as returned by `compute_gradients()` .
- `global_step` : Optional `Variable` to increment by one after the variables have been updated.
- `name` : Optional name for the returned operation. Default to the name passed to the `Optimizer` constructor.

Returns:

An `Operation` that applies the specified gradients. If `global_step` was not None, that operation also increments `global_step` .

Raises:

- `TypeError` : If `grads_and_vars` is malformed.
- `ValueError` : If none of the variables have gradients.

compute_gradients

```
compute_gradients(
    loss,
    var_list=None,
    gate_gradients=GATE_OP,
    aggregation_method=None,
    colocate_gradients_with_ops=False,
    grad_loss=None
)
```

Compute gradients of `loss` for the variables in `var_list` .

This is the first part of `minimize()` . It returns a list of (gradient, variable) pairs where "gradient" is the gradient for "variable". Note that "gradient" can be a `Tensor` , an `IndexedSlices` , or `None` if there is no gradient for the given variable.

Args:

- `loss` : A Tensor containing the value to minimize.
- `var_list` : Optional list or tuple of `tf.Variable` to update to minimize `loss` . Defaults to the list of variables collected in the graph under the key `GraphKey.TRAINABLE_VARIABLES` .
- `gate_gradients` : How to gate the computation of gradients. Can be `GATE_NONE` , `GATE_OP` , or `GATE_GRAPH` .

- `aggregation_method` : Specifies the method used to combine gradient terms. Valid values are defined in the class `AggregationMethod` .
- `colocate_gradients_with_ops` : If True, try colocating gradients with the corresponding op.
- `grad_loss` : Optional. A `Tensor` holding the gradient computed for `loss` .

Returns:

A list of (gradient, variable) pairs. Variable is always present, but gradient can be `None` .

Raises:

- `TypeError` : If `var_list` contains anything else than `Variable` objects.
- `ValueError` : If some arguments are invalid.

get_name

```
get_name()
```

get_slot

```
get_slot(
    var,
    name
)
```

Return a slot named `name` created for `var` by the Optimizer.

Some `Optimizer` subclasses use additional variables. For example `Momentum` and `Adagrad` use variables to accumulate updates. This method gives access to these `Variable` objects if for some reason you need them.

Use `get_slot_names()` to get the list of slot names created by the `Optimizer` .

Args:

- `var` : A variable passed to `minimize()` or `apply_gradients()` .
- `name` : A string.

Returns:

The `Variable` for the slot if it was created, `None` otherwise.

get_slot_names

```
get_slot_names()
```

Return a list of the names of slots created by the `Optimizer` .

See `get_slot()` .

Returns:

A list of strings.

minimize

```
minimize(  
    loss,  
    global_step=None,  
    var_list=None,  
    gate_gradients=GATE_OP,  
    aggregation_method=None,  
    colocate_gradients_with_ops=False,  
    name=None,  
    grad_loss=None  
)
```

Add operations to minimize `loss` by updating `var_list`.

This method simply combines calls `compute_gradients()` and `apply_gradients()`. If you want to process the gradient before applying them call `compute_gradients()` and `apply_gradients()` explicitly instead of using this function.

Args:

- `loss`: A `Tensor` containing the value to minimize.
- `global_step`: Optional `Variable` to increment by one after the variables have been updated.
- `var_list`: Optional list or tuple of `Variable` objects to update to minimize `loss`. Defaults to the list of variables collected in the graph under the key `GraphKeys.TRAINABLE_VARIABLES`.
- `gate_gradients`: How to gate the computation of gradients. Can be `GATE_NONE`, `GATE_OP`, or `GATE_GRAPH`.
- `aggregation_method`: Specifies the method used to combine gradient terms. Valid values are defined in the class `AggregationMethod`.
- `colocate_gradients_with_ops`: If True, try colocating gradients with the corresponding op.
- `name`: Optional name for the returned operation.
- `grad_loss`: Optional. A `Tensor` holding the gradient computed for `loss`.

Returns:

An Operation that updates the variables in `var_list`. If `global_step` was not `None`, that operation also increments `global_step`.

Raises:

- `ValueError`: If some of the variables are not `Variable` objects.

Class Members

GATE_GRAPH

GATE_NONE

GATE_OP

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