

tf.contrib.bayesflow.entropy.renyi_alpha

```
renyi_alpha(  
    step,  
    decay_time,  
    alpha_min,  
    alpha_max=0.99999,  
    name='renyi_alpha'  
)
```

Defined in [tensorflow/contrib/bayesflow/python/ops/entropy_impl.py](#).

See the guide: [BayesFlow Entropy \(contrib\) > Ops](#)

Exponentially decaying **Tensor** appropriate for Renyi ratios.

When minimizing the Renyi divergence for $0 \leq \alpha < 1$ (or maximizing the Renyi equivalent of elbo) in high dimensions, it is not uncommon to experience **NaN** and **inf** values when **alpha** is far from **1**.

For that reason, it is often desirable to start the optimization with **alpha** very close to 1, and reduce it to a final **alpha_min** according to some schedule. The user may even want to optimize using **elbo_ratio** for some fixed time before switching to Renyi based methods.

This **Op** returns an **alpha** decaying exponentially with step:

```
s(step) = (exp{step / decay_time} - 1) / (e - 1)  
t(s) = max(0, min(s, 1)), (smooth growth from 0 to 1)  
alpha(t) = (1 - t) alpha_min + t alpha_max
```

Args:

- step**: Non-negative scalar **Tensor**. Typically the global step or an offset version thereof.
- decay_time**: Positive scalar **Tensor**.
- alpha_min**: **float** or **double Tensor**. The minimal, final value of **alpha**, achieved when **step** \geq **decay_time**.
- alpha_max**: **Tensor** of same **dtype** as **alpha_min**. The maximal, beginning value of **alpha**, achieved when **step** $== 0$.
- name**: A name to give this **Op**.

Returns:

- alpha**: A **Tensor** of same **dtype** as **alpha_min**.

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