

nn.logsoftmax

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Copy `fnlogsoftmax(tensor:@Tensor, axis:usize)->Tensor`

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Applies the natural log to Softmax function to an n-dimensional input Tensor consisting of values in the range [0,1].

$$\text{! log softmax} (x_i) = \log \left(\frac{e^{x_i}}{\sum_{j=1}^n e^{x_j}} \right) \text{ \texttt{log softmax}(x_i) = \log(frac{e^{x_i}}{\sum_{j=1}^n e^{x_j}})}$$

Args

- tensor
- (@Tensor
-) - The input tensor.
- axis
- (usize
-) - The axis along which to compute the natural log softmax outputs.
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Returns

A Tensor of fixed point numbers with the same shape than the input Tensor.

Type Constraints

Constrain input and output types to fixed point tensors.

Examples

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Copy `usecore::array::{ArrayTrait,SpanTrait};`

`use orion::operators::tensor::{TensorTrait,Tensor,FP8x23}; use orion::operators::nn::{NNTrait,FP8x23NN};
use orion::numbers::{FP8x23,FixedTrait};`

`fn logsoftmax_example()->Tensor { let tensor=TensorTrait::new(shape:array![2,2].span(), data:array![
FixedTrait::new(0,false), FixedTrait::new(1,false), FixedTrait::new(2,false), FixedTrait::new(3,false),].span(),);`

`return NNTrait::logsoftmax(@tensor,1); }` This will first generate the softmax output tensor

`[[2255697,6132911],[2255697,6132911]] // The fixed point representation of // [[0.2689,
0.7311],[0.2689, 0.7311]]`

Applying the natural log to this tensor yields

`// The fixed point representation of: // [[-1.3134, -0.3132],[-1.3134, -0.3132]]`

...

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Last updated 3 months ago