

Deep Learning
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Module - 8.6
Lecture - 08
Parameter Sharing and Tying

The next thing that I would like to talk about, and this quickly go over this Parameter Sharing and Tying.

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Other forms of regularization

- l_2 regularization
- Dataset augmentation
- **Parameter Sharing and tying**
- Adding Noise to the inputs
- Adding Noise to the outputs
- Early stopping
- Ensemble methods
- Dropout

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Parameter Sharing

- Used in CNNs
- Same filter applied at different positions of the image
- Or same weight matrix acts on different input neurons

Parameter Tying

- Typically used in autoencoders
- The encoder and decoder weights are tied.

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So, parameter sharing and tying; I will just quickly go on this because for the sake of completeness it is there in this lecture, but it should, it would really make sense when I do convolutional neural networks. So, for the time being just take my word for it that in convolutional neural networks, you do a lot of parameter sharing whereas the other place that you have seen parameter tying. So, that is again something that I am not going to talk about.

So, this is typically used in auto encoders, where the encoder and decoder weights are shared and that effectively reduces the number of parameters in the model which effectively reduces the complexity on the model. If the complexity of the model goes down, $\omega \theta$ goes down because that is what which wise man told us that time, thanks fine.