

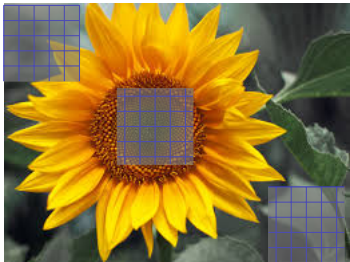
## Module 8.6 : Parameter Sharing and tying

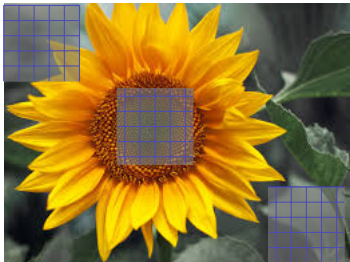
## Other forms of regularization

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

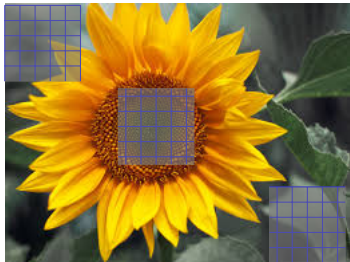
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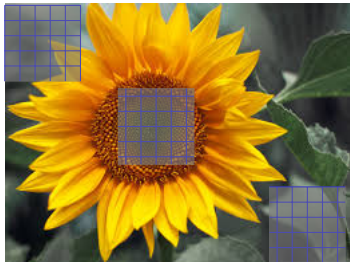


## Parameter Sharing



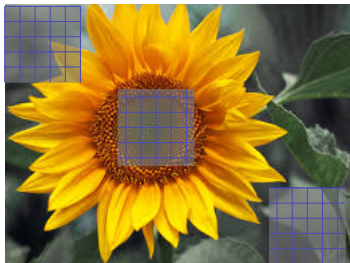
## Parameter Sharing

- Used in CNNs



## Parameter Sharing

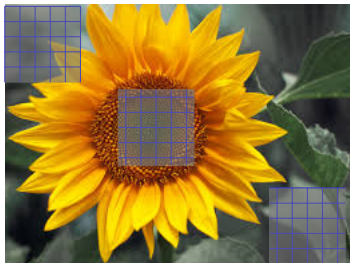
- Used in CNNs
- Same filter applied at different positions of the image



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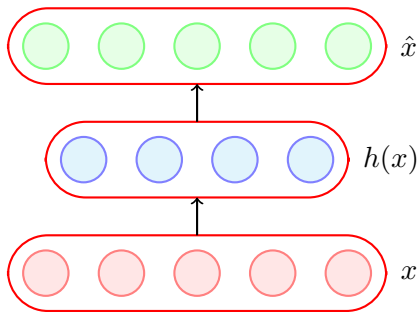
- Used in CNNs
- Same filter applied at different positions of the image
- Or same weight matrix acts on different input neurons

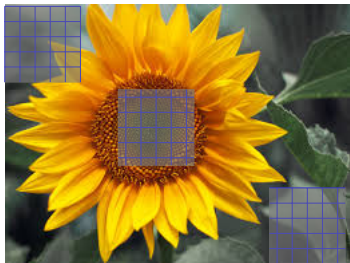




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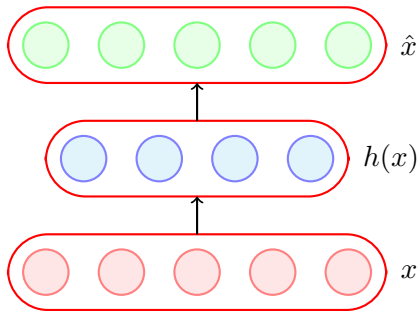
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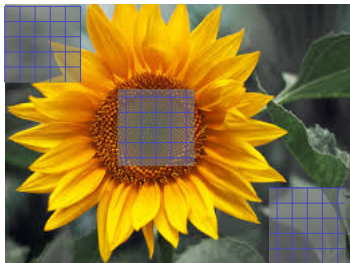


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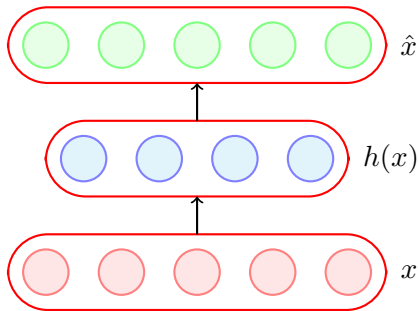


## Parameter Tying



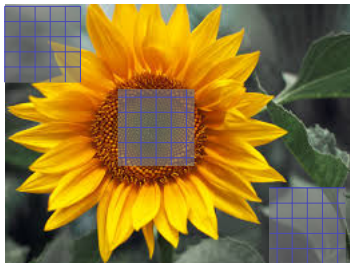
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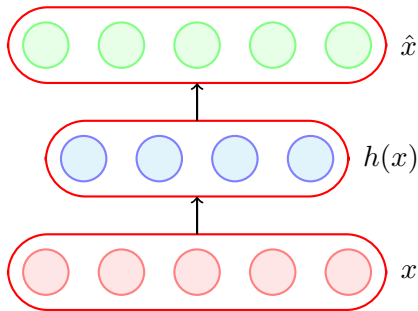
## Parameter Tying

- Typically used in autoencoders



## Parameter Sharing

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## Parameter Tying

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