



## Early Stopping

## Binding and Merging Data

## Deep Learning

- ✓ **Video:** Neural Networks  
6 min
- ✓ **Reading:** More Neural Net Theory  
10 min
- ▶ **Video:** Deep Learning Part 1  
9 min
- ▶ **Video:** Deep Learning Part 2  
10 min
- 📋 **Practice Quiz:** Deep Learning Basics  
3 questions
- ▶ **Video:** Deep Learning with Grids  
11 min
- ▶ **Video:** Regression with Deep Learning  
7 min
- 📋 **Practice Quiz:** More Deep Learning  
2 questions

## Summary and Assignment

- ▶ **Video:** Introducing The Graded Task  
3 min
- ▶ **Video:** Summary Of Week Four  
1 min
- 📋 **Peer-graded Assignment:** Deep Learning  
1h
- 💬 **Review Your Peers:** Deep Learning
- 📖 **Reading:** Extension Project Ideas



# Neural Nets/Deep Learning

A good starting point is, of course, Wikipedia:

[https://en.wikipedia.org/wiki/Artificial\\_neural\\_network](https://en.wikipedia.org/wiki/Artificial_neural_network)

It contains a huge number of references and links to learn n

A short, but clear, explanation of what the bias input is doin

<http://www.chioka.in/why-do-we-need-a-bias-neuron/>

The best bias is learned during training, just like the connect

This paper shows a comparison of the different activation fu ("dropout" is coming up next) on one data set. (Be aware th necessarily generalize to other data sets, even quite similar your own experimentation.)

<https://arxiv.org/pdf/1707.04940.pdf>

## Regularization

In some of the upcoming videos we will try setting L1 and L2 described in terms of linear models, but the same explanati learning.

There is good discussion at

<https://www.quora.com/What-is-the-difference-between-L1-does-it-solve-the-problem-of-overfitting-Which-regularizer-t>

Or the diagrams on this Wikipedia page might be helpful:

[https://en.wikipedia.org/wiki/Regularization\\_%28mathemat](https://en.wikipedia.org/wiki/Regularization_%28mathemat)

