1

00:00:00,550 --> 00:00:04,750

[Auto-generated transcript. Edits may have been applied for clarity.]

The validation set is used to monitor the model's performance during training.

2

00:00:05,110 --> 00:00:11,740

As you train, the loss function on the validation set typically drops until it starts to rise again.

3

00:00:12,250 --> 00:00:17,260

This increase indicates overfitting, and at that point you halt the training.

4

00:00:17,650 --> 00:00:25,750

You stop training when the validation error begins to increase, which helps ensure that the model generalizes well to unseen data.

5

00:00:26,110 --> 00:00:31,870

By stopping training at the right moment, you preserve a model that performs well on the test set.

6

00:00:32,080 --> 00:00:38,320

A completely unseen data set. Although the validation set isn't used to train the model directly,

7

00:00:38,680 --> 00:00:44,380

it plays a critical role in determining when to stop training and finalize the model parameters.

8

00:00:44,710 --> 00:00:47,770

Now let's introduce the concept of epochs.

9

00:00:47,950 --> 00:00:52,900

While training neural networks, we present the data to the model multiple times.

10

00:00:53,080 --> 00:00:56,770

Adjusting the weights via backpropagation after each pass.

11

00:00:57,520 --> 00:01:02,020

Each time the full data set is shown to the network and the weights are updated.

12

00:01:02,140 --> 00:01:10,300

That cycle is called an epoch. For example, in epoch one, you show the data, compute the loss, and adjust the weights.

13

00:01:10,810 --> 00:01:15,400

Then you show the data again. Compute the new loss and adjust the weights again.

14

00:01:16,060 --> 00:01:21,580

Each of these four passes through the data set followed by weight updates is one epoch.

15

00:01:21,910 --> 00:01:26,080

Every small tweak to the weights during training happens within an epoch,

16

00:01:26,320 --> 00:01:33,430

and the model gradually improves as the number of epochs increases until it starts to overfit, which is when you stop.