

Callback Functions → To customize the behaviour of a keras model during training, evaluation or inference.

→ Callback functions are tools used in deep learning frameworks like TensorFlow and Keras to customize and extend the behavior of training processes

→ These functions are called at specific points during training, such as at the start or end of an epoch, before or after a batch, or before or after a training step.

Some common callback functions

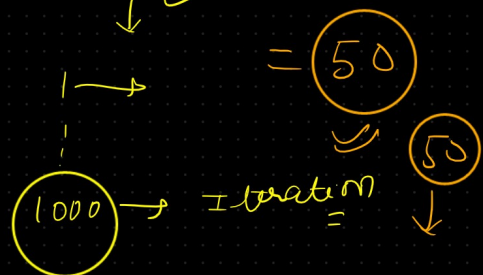
→ ① Model Checkpoint →

→ ✓ ② Early Stopping

→ ③ TensorBoard

→ epochs = 1000

Optimizers - SGD



callback function → Early Stopping

→ Stop → Acc → No Change
loss → No Change ↓

validation set =

validation acc
(validation loss ↓↓)

① Model checkpoint → Model Save

1000 epoch = 500 ↓
↓ model

Intuition:

→ Saves the model's weights at certain intervals during training, typically when the validation loss decreases.

Example:

Useful to save the best model weights to avoid losing progress in case of unexpected interruptions or to later select the best-performing model based on validation metrics.

② Early Stopping

Intuition

→ stop training when a monitored metric has stopped improving

Monitors a specified metric on the validation set and stops training if the metric stops improving for a certain number of epochs (patience).

Example

Prevents overfitting by halting training when the model's performance on the validation set starts to degrade.

③ TensorBoard → visualize

1000 epoch → 30
↓
Improve
loss, acc

30 epoch → stop

Intuition

→ epoch, time steps, iteration 30 epoch

Allows visualization of various metrics and model architectures during training using TensorBoard, a visualization tool.

Example

Visualizing training/validation loss, accuracy, and other metrics over time, as well as model graphs and histograms of weights and biases.