

CNN Report - Cats and Dogs

Otávio Dittrich Moreira

April 18, 2025

Contents

1	Results	2
1.1	Training and Validation Loss	2

1 Results

1.1 Training and Validation Loss

All models were trained with 50 epochs, with a batch size of 32, using the Adam optimizer with a learning rate of 0.0001. The data augmentation methods used were rotation (-30 to 30 degrees) and horizontal flip (50% chance).

Table 1: Results

	Hidden Layers	Data Augmentation	Batch Norm	Train Accuracy	Test Accuracy
1	[64, 64, 32, 32, 32, 32, 32]	Yes	Yes	91%	95%
2	[64, 64, 32, 32, 32, 32, 32]	Yes	No	81%	88.6%
3	[64, 64, 32, 32, 32, 32, 32]	No	Yes	96%	89%
4	[64, 64, 32, 32, 32, 32, 32]	No	No	85%	81%



Figure 1: Training and validation loss with data augmentation and batch norm

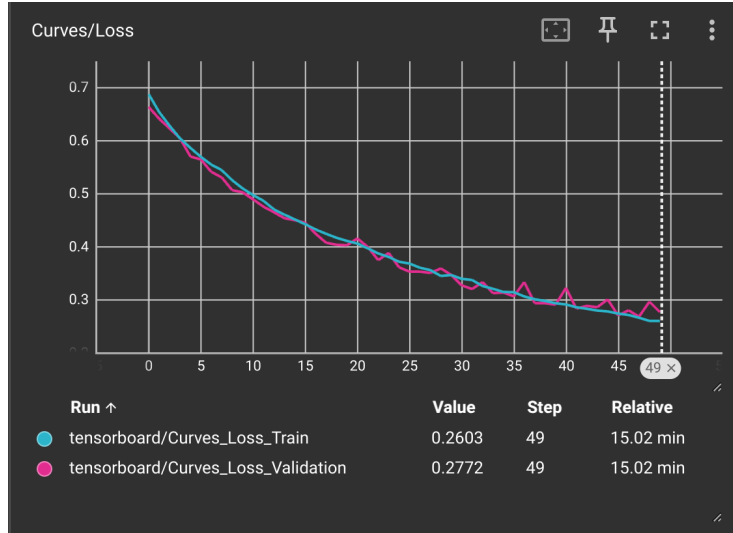


Figure 2: Training and validation loss with data augmentation, no batch norm

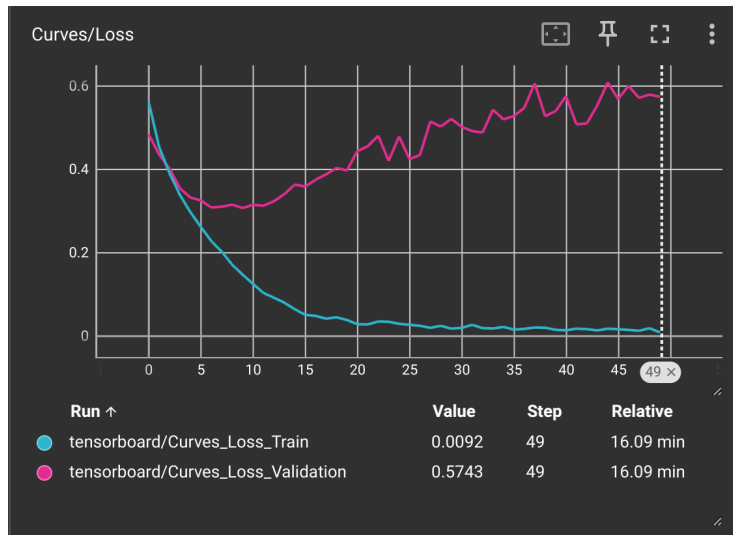


Figure 3: Training and validation loss with batch norm, no data augmentation

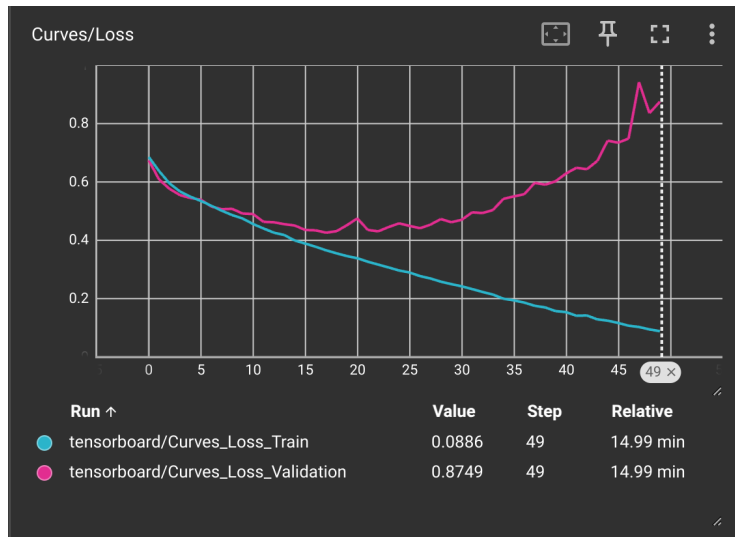


Figure 4: Training and validation loss with no data augmentation and no batch norm