Retinal OCT Image Classification

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About Dataset

. Retinal optical coherence tomography (OCT) captures high-resolution retinal cross-sections in living patients.
. The dataset includes four classes: DRUSEN, CNV, DME, and Normal.
. Total of 84,495 images.
. 83,484 train images.
. 968 test images.
. Validation set consists of 32 images.

Task Objective

Our primary objective with this dataset is to classify the OCT scans based on the disease they depict

Previous work

Architectures	Test Accuracy	Sensitivity	Specificity	Weighted Error
InceptionV3 (limited)	93.40	96.60	94.00	12.70
Human Expert 2 [10]	92.10	99.39	94.03	10.50
InceptionV3 [10]	96.60	97.80	97.40	6.60
ResNet50-v1 [28]	99.30	99.30	99.76	1.00
MobileNet-v2 [32]	99.40	99.40	99.80	0.60
Human Expert 5 [10]	99.70	99.70	99.90	0.40
Xception [33]	99.70	99.70	99.90	0.30
OpticNet-71 [Ours]	99.80	99.80	99.93	0.20

Our Workings

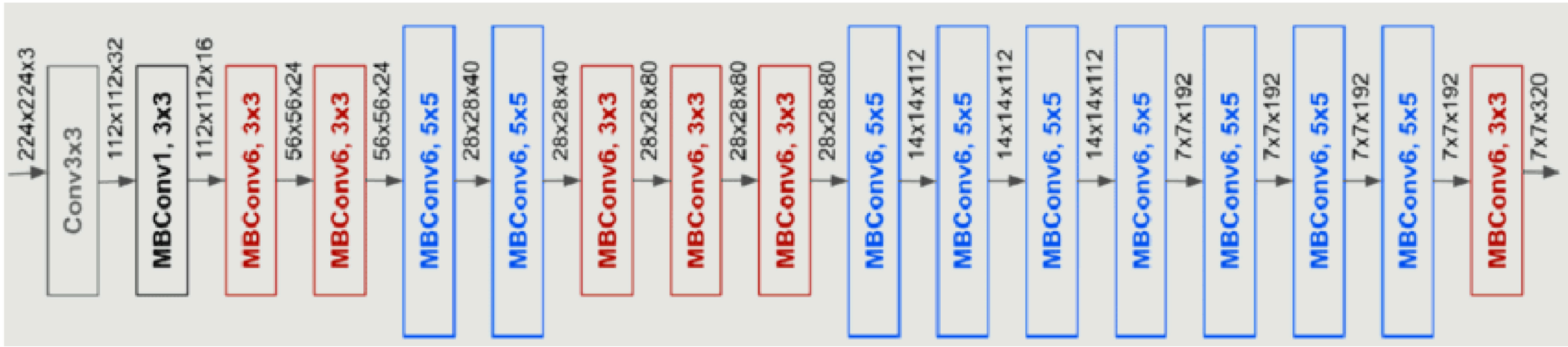
Squeeze & Excitation

For architectural changes in OpticNet-71

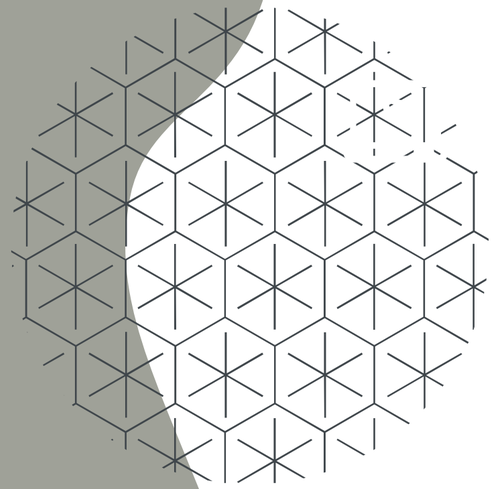
EfficientNet B0

Reducing number of parameters from 12.8M to 5.3M

EfficientNet B0 Architecture



Hyperparameters Used



32

Batch Size

0.0001

Adam Optimizer with
Learning Rate

20

Epochs

Loss

Cross Entropy

02

Accuracy

Thank You