DATA SIZE	NO. CLASSES	TRAIN/TEST SAMPLES
6499	75	5199 / 1300

2 & 3. TRAINING SPEED OPTIMIZATION

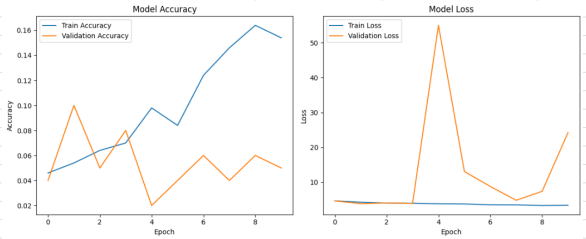
MODEL	OPTIMIZATION	TOTAL TIME	N.O. OF EPOCHS	TRAIN NUM / VAL NUM	TRAINING ACCURACY	VALIDATION ACCURACY	NOTES
ResNet50	CPU	34 MINUTES	10	500 / 100	0.1853	0.05	used only 500 train imgs, 100 for validation; otherwise it would have taken too much time
ResNet50	GPU	6 MINUTES	10	4159 / 1300	0.7136	0.30	validation acc really low
ResNet50	transfer learning	1 MINUTE	10	4159 / 1300	0.7907	0.6854	best; using it further

4. ACCURACY OPTIMIZATION

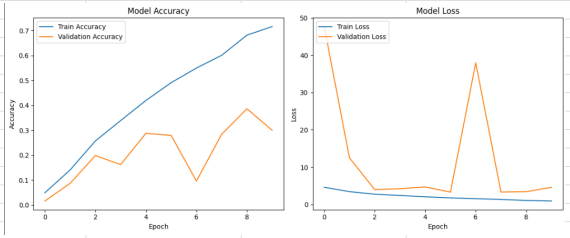
MODEL	OPTIMIZATION	TOTAL TIME	N.O. OF EPOCHS	TRAIN NUM / VAL NUM	TRAINING ACCURACY	VALIDATION ACCURACY	
ResNet50	normalization	1 MINUTE	10	4159 / 1300	0.8427	0.7777	
ResNet50	augmentation	12 MINUTES	20	4159 / 1300	0.8699	0.8115	started using early stopping due to increasing epochs
ResNet50	dropout	12 MINUTES	20	4159 / 1300	0.7632	0.8123	better validation accuracy but worse training accuracy because of dropout
ResNet50	additional data	15 MINUTES	20	5199 / 1300	0.7951	0.8431	it increased comparing to previous' results
ResNet50	img size 96x96	8 MINUTES	20	5199 / 1300	0.6561	0.7415	worse because of img size
ResNet50	img size 150x150	15 MINUTES	20	5199 / 1300	0.7951	0.8431	
ResNet50	img size 160x160	16 MINUTES	20	5199 / 1300	0.7833	0.8185	
ResNet50	img size 224x224	28 MINUTES	20	5199 / 1300	0.8058	0.8623	the best out of img sizes; will use it futher
ResNet50	batch size 16	35 MINUTES	20	5199 / 1300	0.8683	0.8792	
ResNet50	batch size 32	26 MINUTES	20	5199 / 1300	0.8058	0.8623	using this for less time, and its optimal and the standard
ResNet50	batch size 64	30 MINUTES	20	5199 / 1300	0.7494	0.8100	
ResNet50	net structure	29 MINUTES	20	5199 / 1300	0.8058	0.8623	the best out of all net structures :)
ResNet101	net structure	30 MINUTES	20	5199 / 1300	0.7354	0.8492	
DenseNet121	net structure	31 MINUTES	20	5199 / 1300	0.6524	0.7877	
InceptionV3	net structure	19 MINUTES	20	5199 / 1300	0.6528	0.6915	
MobileNetV2	net structure	26 MINUTES	20	5199 / 1300	0.6968	0.7562	
FINAL MODEL	parameters						
ResNet50	batch size 32, img size 224x224, normalization, augumentation, dropout, additional data	54 MINUTES	39/50 early stopping	5199 / 1300	0.9086	0.8908	gave it more epochs for one final accuracy :]

PLOT TRAINING HISTORY

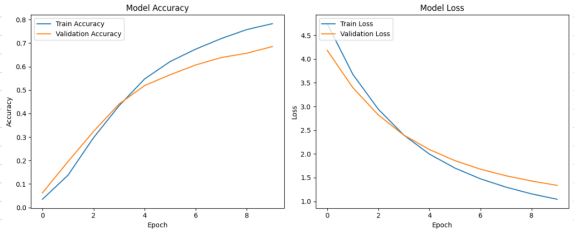
RESNET50 CPU



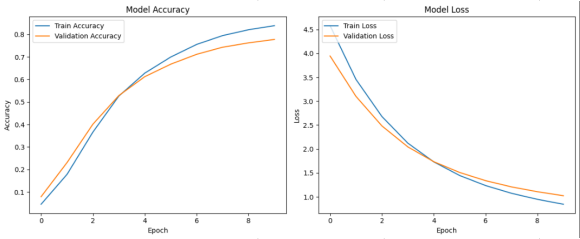
RESNET50 GPU



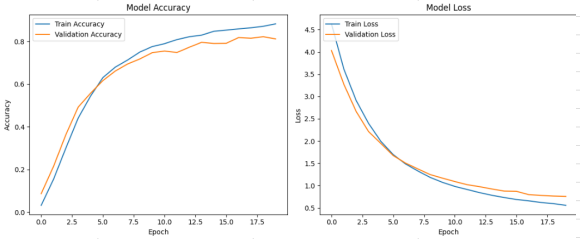
TRANSFER LEARNING



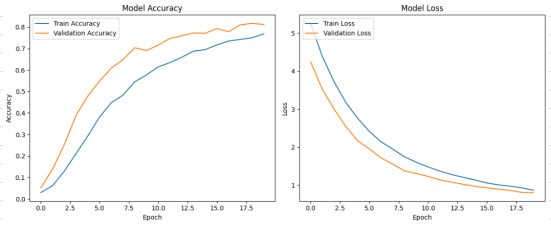
NORMALIZATION



AUGUMENTATION



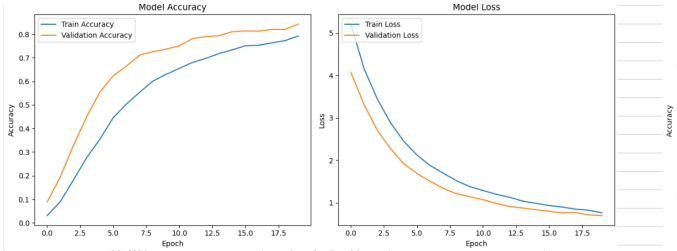
DROPOUT



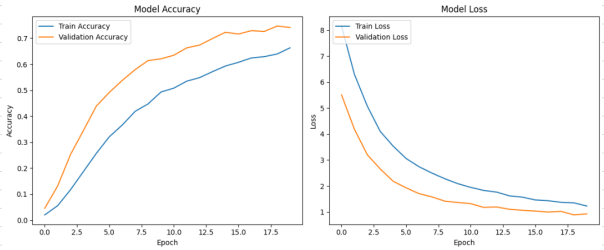
ADDITIONAL DATA

96X96

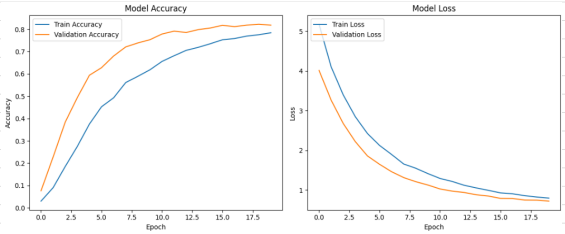
160X160



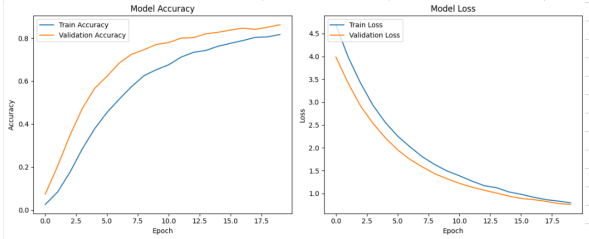
224X224



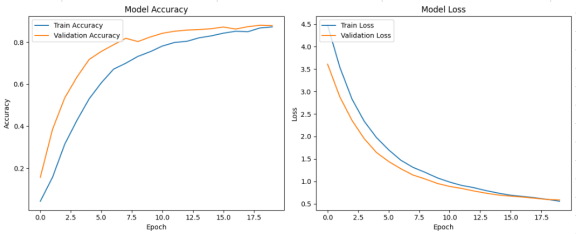
batch size 32



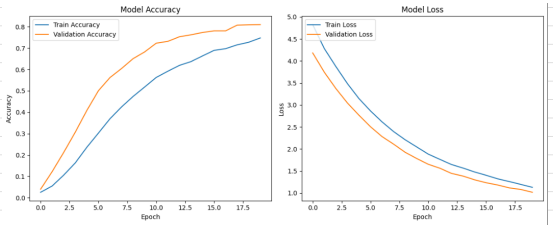
batch size 16



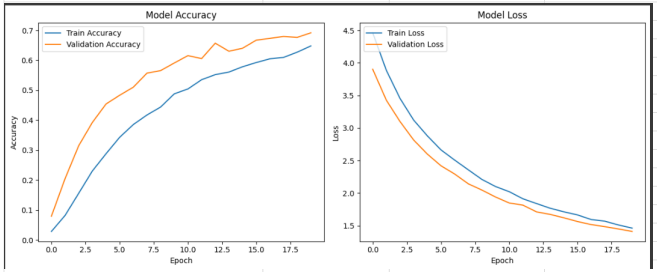
batch size 64



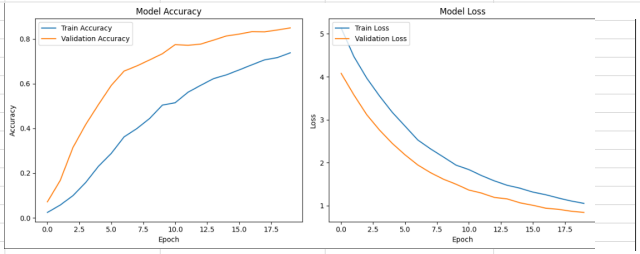
InceptionV3



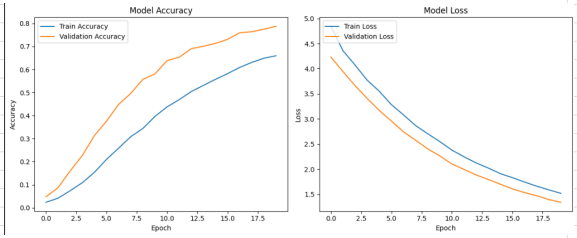
ResNet101



DenseNet121



MobileNet



BEST