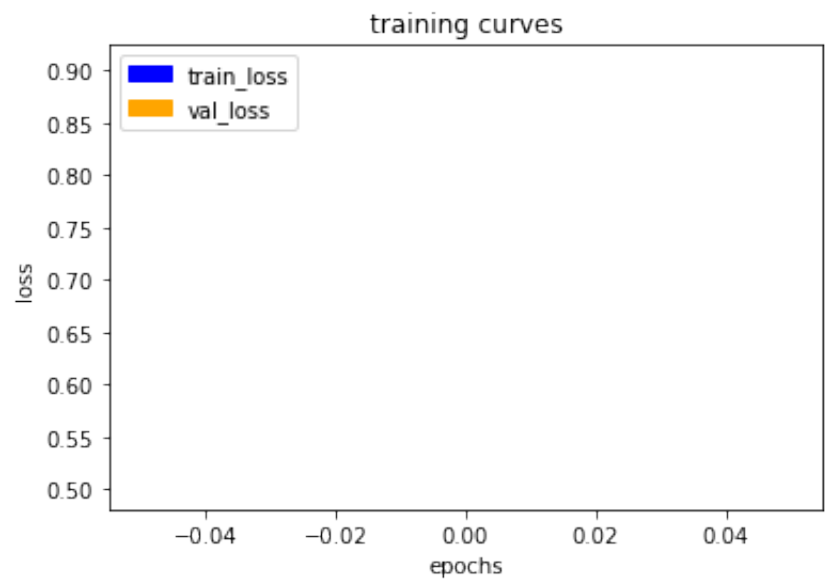


On AWS instance

Epoch 1/75

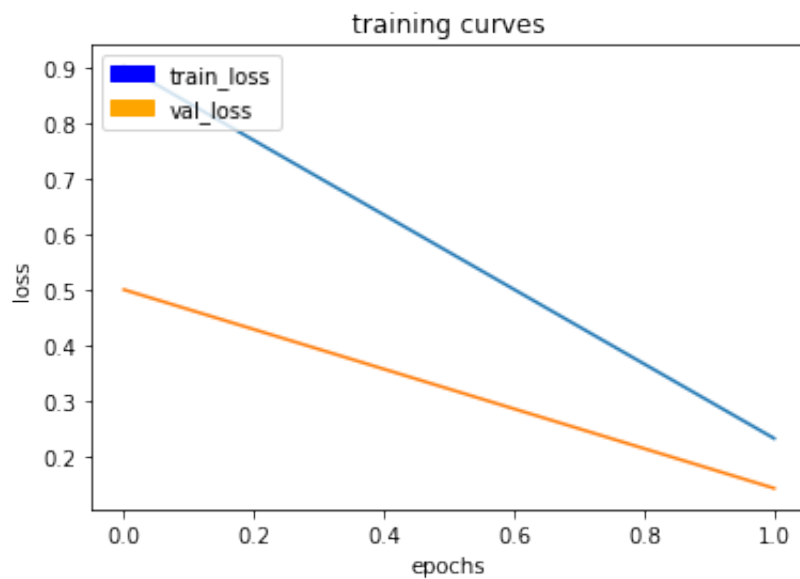
64/65 [=====>.] - ETA: 2s - loss: 0.9083



65/65 [=====] - 191s - loss: 0.9025 - val  
\_loss: 0.5012

Epoch 2/75

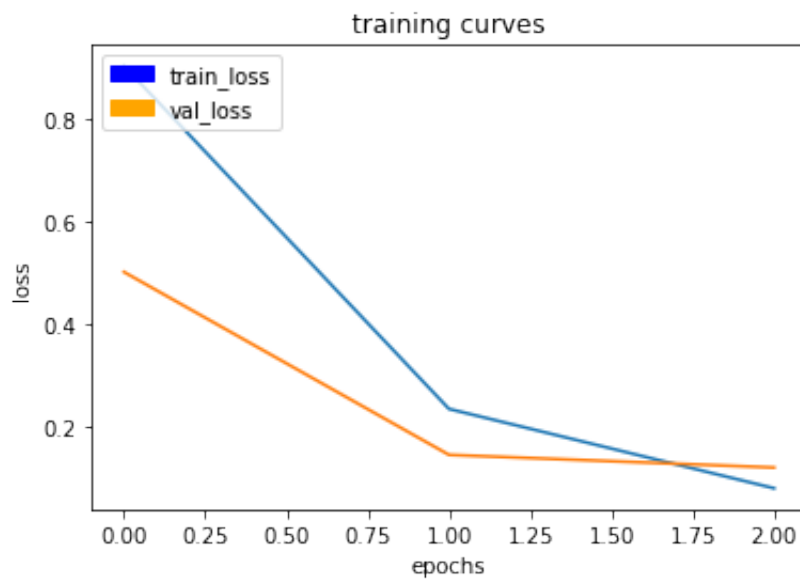
64/65 [=====>.] - ETA: 2s - loss: 0.2344



65/65 [=====] - 187s - loss: 0.2323 - val\_loss: 0.1432

Epoch 3/75

64/65 [=====>.] - ETA: 2s - loss: 0.0779

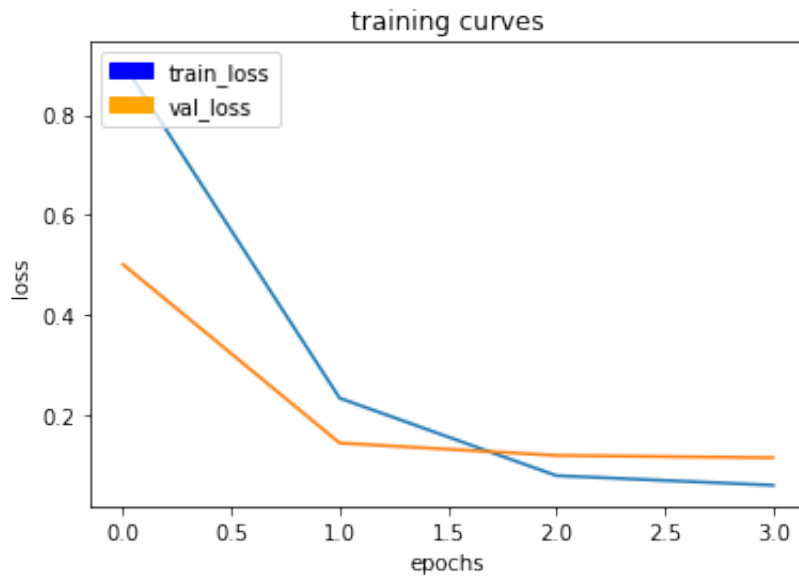


65/65 [=====] - 188s - loss: 0.0778 - val\_loss: 0.1184

Epoch 4/75

64/65 [-----] - ETA: 2s - loss: 0.0597

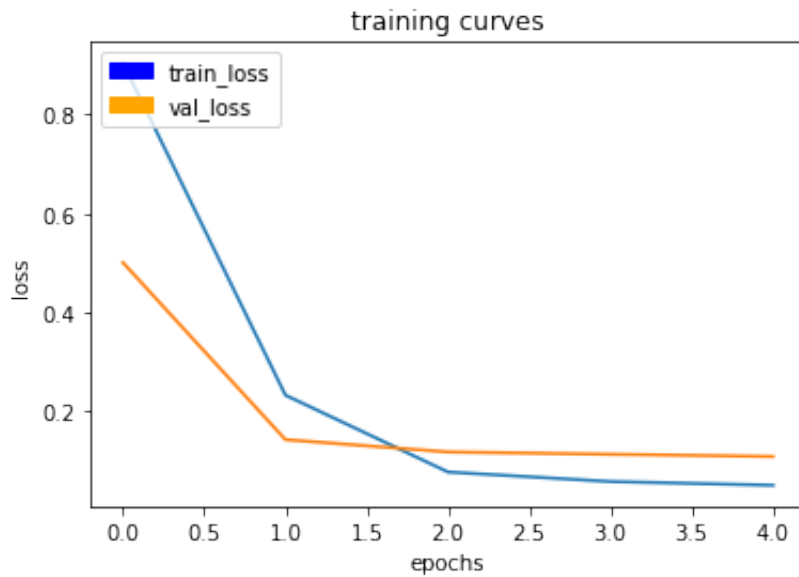
64/65 [=====>.] - ETA: 2s - loss: 0.0567



65/65 [=====] - 188s - loss: 0.0586 - val  
\_loss: 0.1137

Epoch 5/75

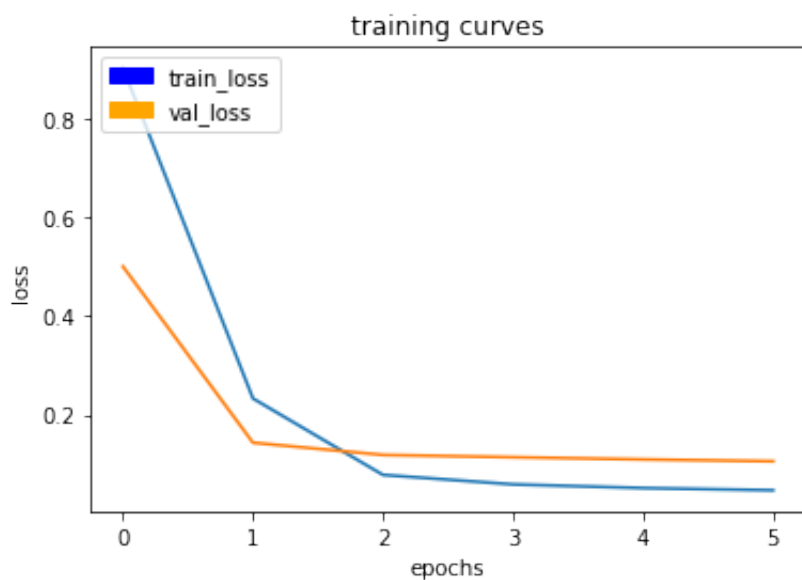
64/65 [=====>.] - ETA: 2s - loss: 0.0511



65/65 [=====] - 188s - loss: 0.0511 - val  
\_loss: 0.1093

Epoch 6/75

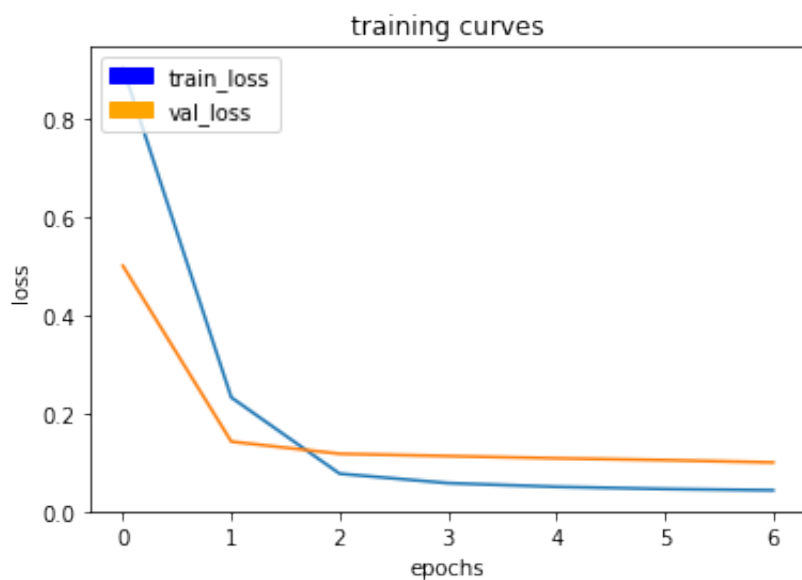
64/65 [=====>.] - ETA: 2s - loss: 0.0468



65/65 [=====] - 188s - loss: 0.0468 - val\_loss: 0.1055

Epoch 7/75

64/65 [=====>.] - ETA: 2s - loss: 0.0440

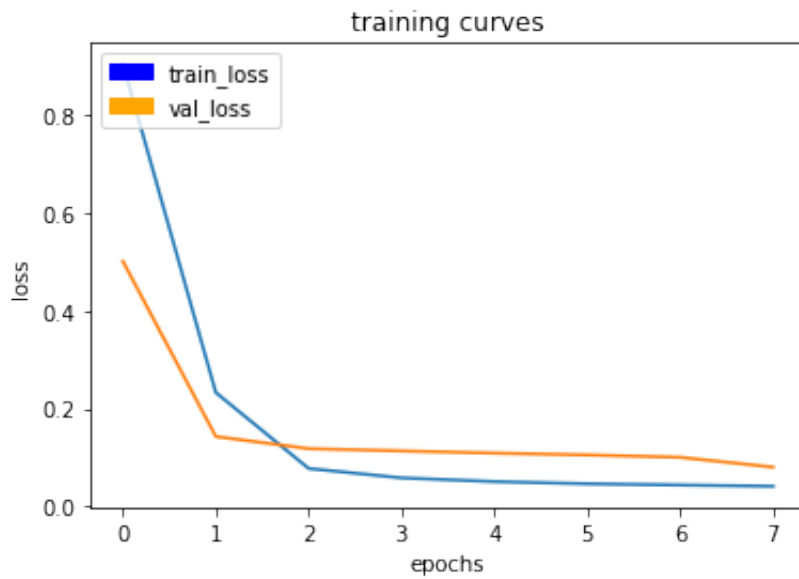


65/65 [=====] - 188s - loss: 0.0441 - val

\_loss: 0.1007

Epoch 8/75

64/65 [=====>.] - ETA: 2s - loss: 0.0416

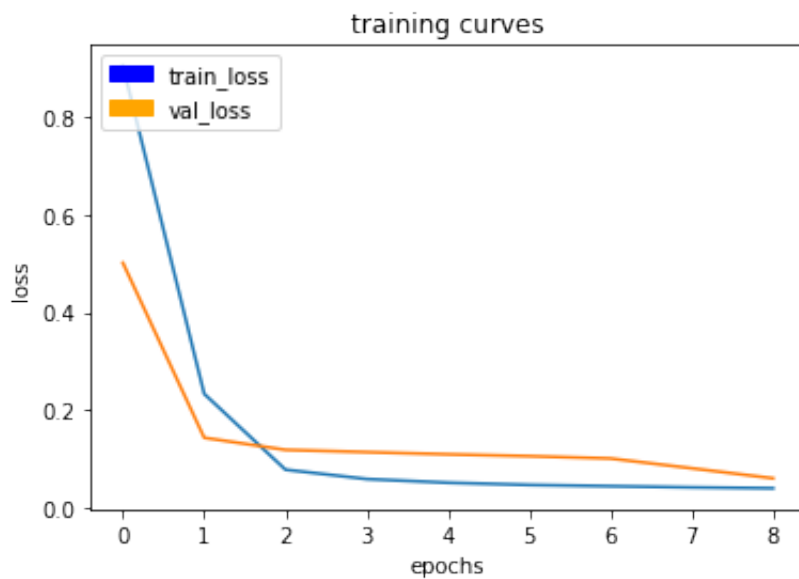


65/65 [=====] - 188s - loss: 0.0415 - val

\_loss: 0.0807

Epoch 9/75

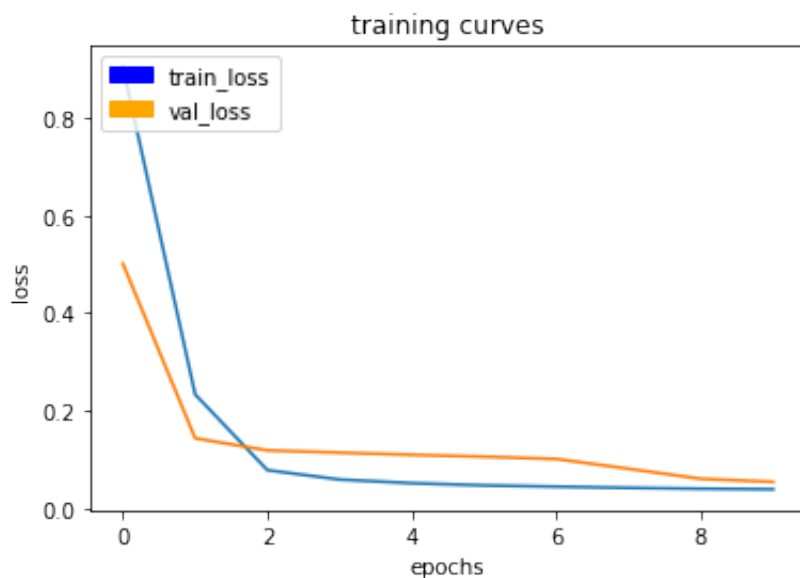
64/65 [=====>.] - ETA: 2s - loss: 0.0396



65/65 [=====] - 188s - loss: 0.0398 - val  
\_loss: 0.0601

Epoch 10/75

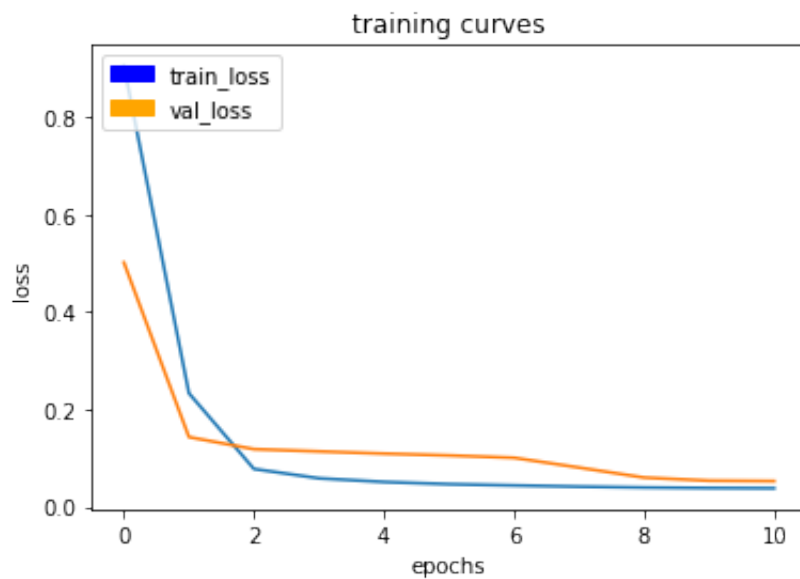
64/65 [=====>.] - ETA: 2s - loss: 0.0388



65/65 [=====] - 188s - loss: 0.0387 - val  
\_loss: 0.0538

Epoch 11/75

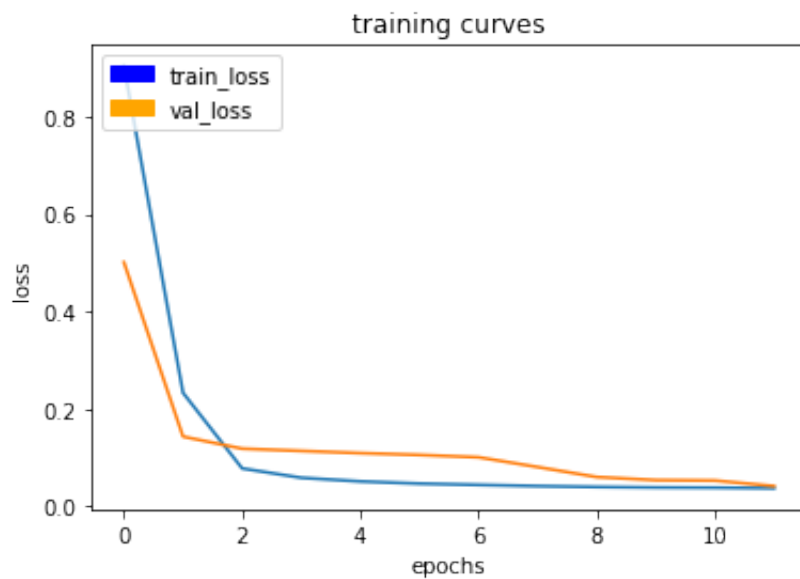
64/65 [=====>.] - ETA: 2s - loss: 0.0383



65/65 [=====] - 188s - loss: 0.0382 - val  
\_loss: 0.0529

Epoch 12/75

64/65 [=====>.] - ETA: 2s - loss: 0.0370

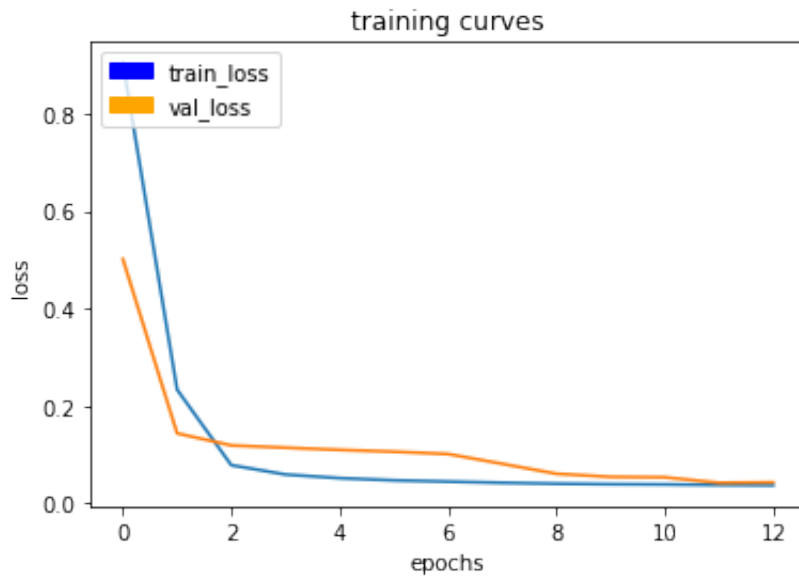


65/65 [=====] - 188s - loss: 0.0371 - val  
\_loss: 0.0415

Epoch 13/75

64/65 [-----] - ETA: 2s - loss: 0.0366

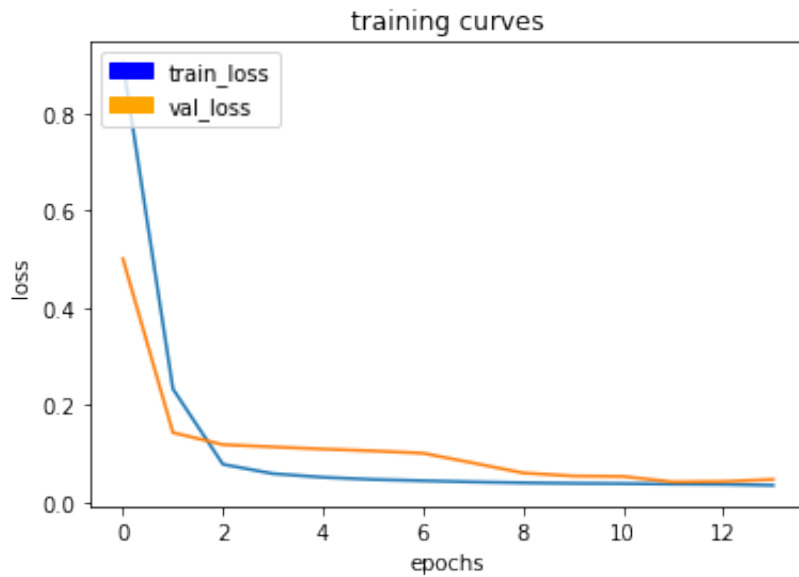
64/65 [=====>.] - ETA: 2s - loss: 0.0366



65/65 [=====] - 189s - loss: 0.0365 - val  
\_loss: 0.0424

Epoch 14/75

64/65 [=====>.] - ETA: 2s - loss: 0.0349

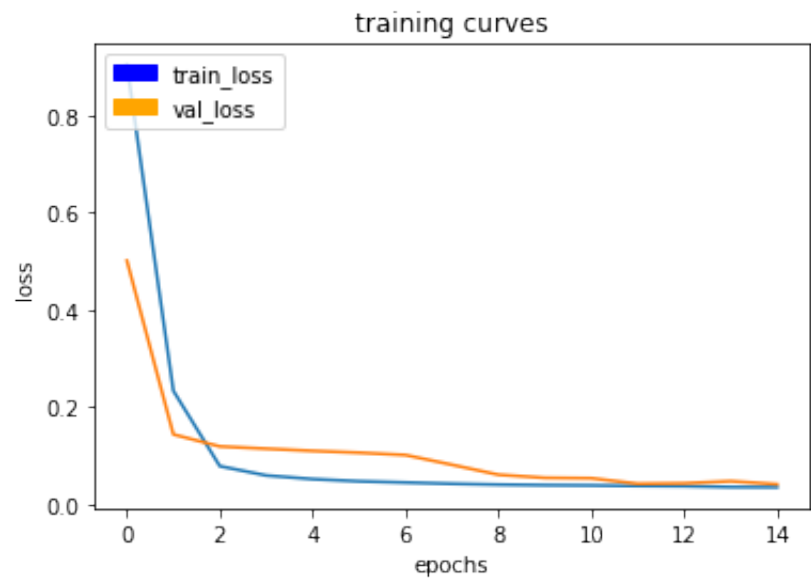


65/65 [=====] - 187s - loss: 0.0348 - val  
\_loss: 0.0468



Epoch 15/75

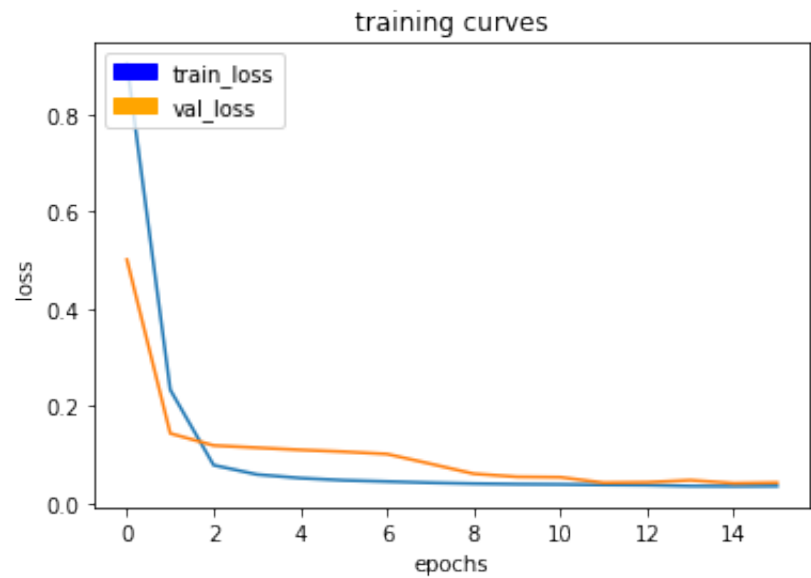
64/65 [=====>.] - ETA: 2s - loss: 0.0344



65/65 [=====] - 188s - loss: 0.0345 - val  
\_loss: 0.0405

Epoch 16/75

64/65 [=====>.] - ETA: 2s - loss: 0.0347

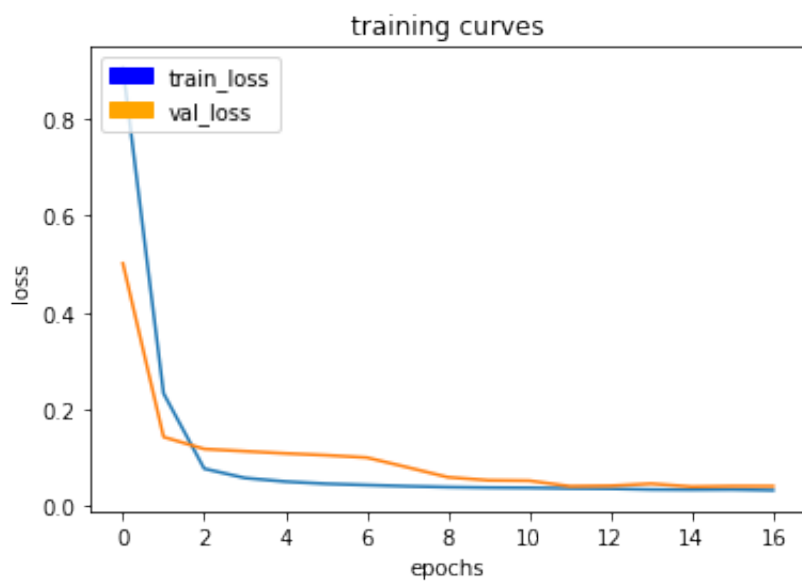


65/65 [=====] - 188s - loss: 0.0346 - val

\_loss: 0.0417

Epoch 17/75

64/65 [=====>.] - ETA: 2s - loss: 0.0336

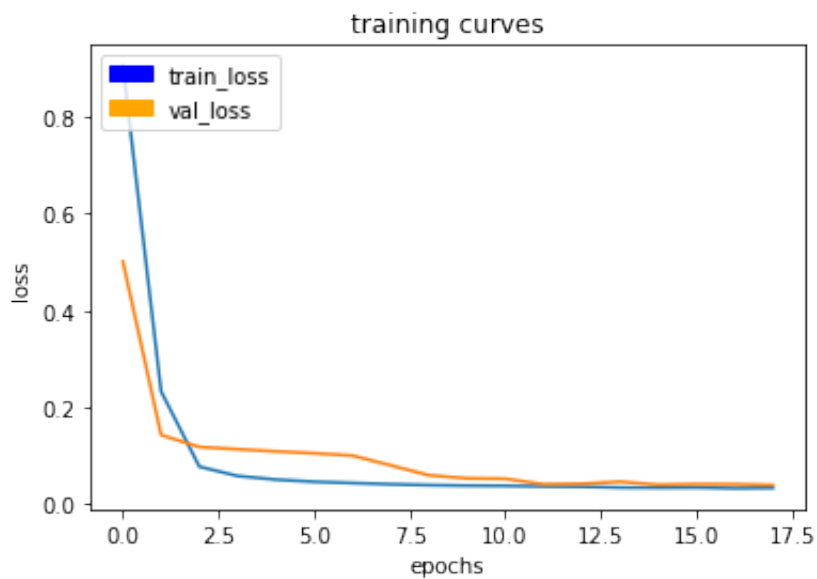


65/65 [=====] - 188s - loss: 0.0335 - val

\_loss: 0.0416

Epoch 18/75

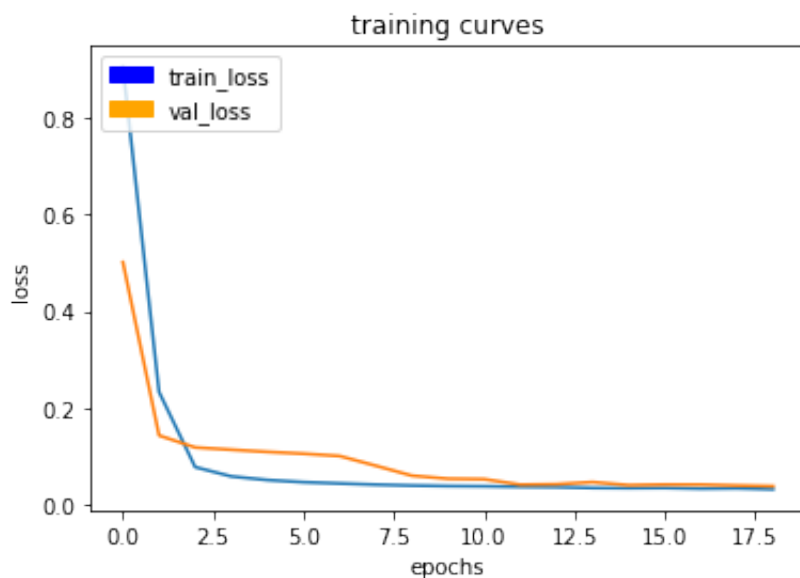
64/65 [=====>.] - ETA: 2s - loss: 0.0340



65/65 [=====] - 188s - loss: 0.0339 - val  
\_loss: 0.0398

Epoch 19/75

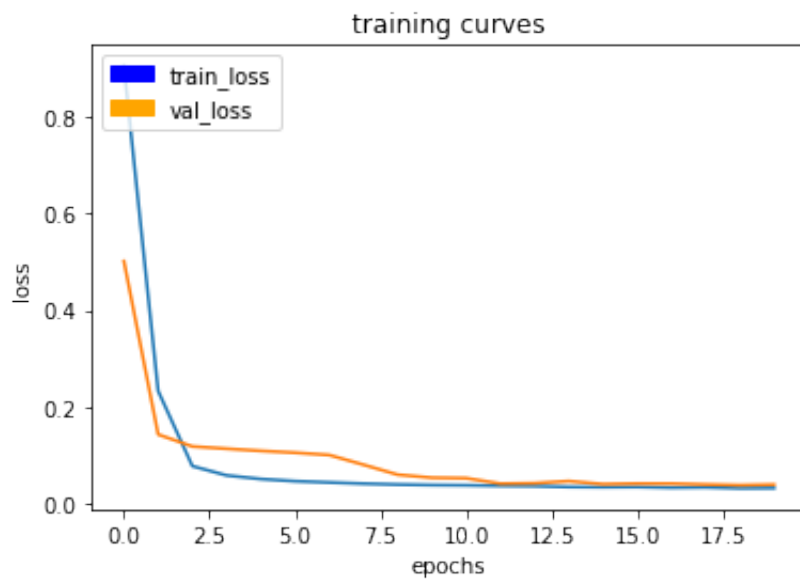
64/65 [=====>.] - ETA: 2s - loss: 0.0321



65/65 [=====] - 188s - loss: 0.0320 - val  
\_loss: 0.0384

Epoch 20/75

64/65 [=====>.] - ETA: 2s - loss: 0.0323

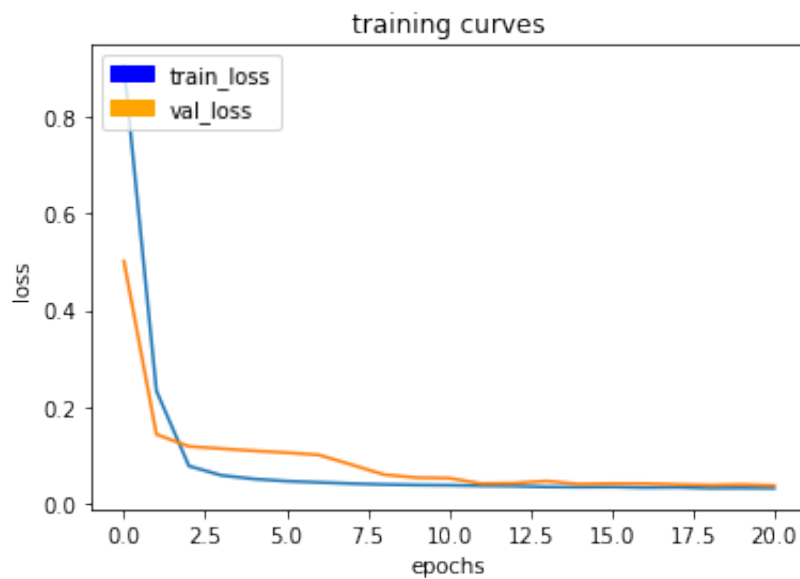


65/65 [=====] - 188s - loss: 0.0323 - val

\_loss: 0.0396

Epoch 21/75

64/65 [=====>.] - ETA: 2s - loss: 0.0320



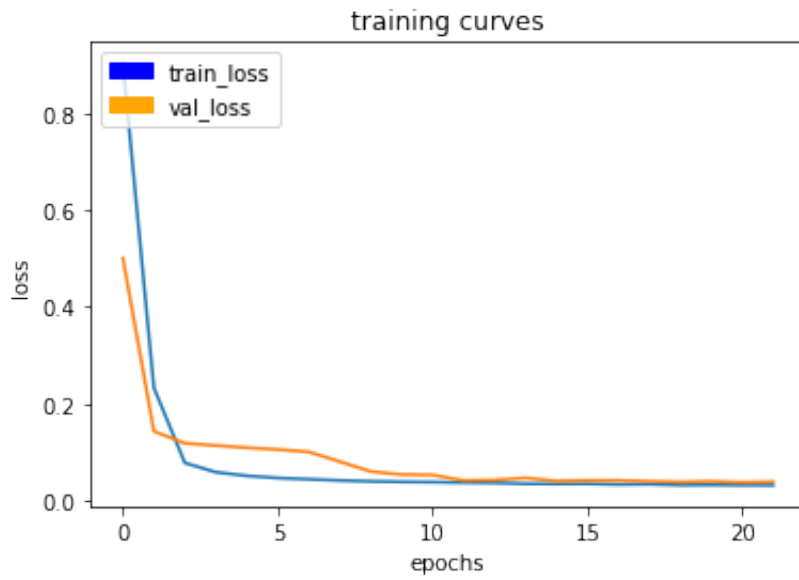
65/65 [=====] - 188s - loss: 0.0319 - val

\_loss: 0.0377

Epoch 22/75

64/65 [-----] - ETA: 2s - loss: 0.0316

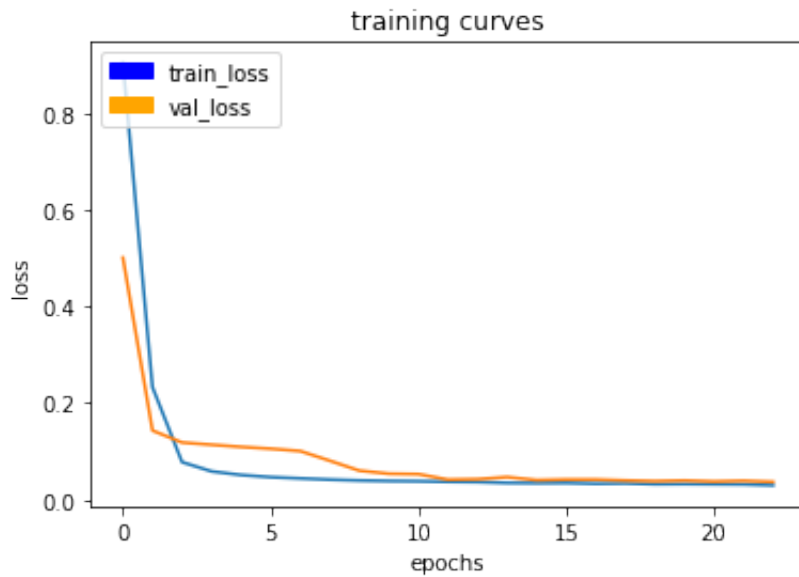
64/65 [=====>.] - ETA: 2s - loss: 0.0310



65/65 [=====] - 188s - loss: 0.0316 - val  
\_loss: 0.0390

Epoch 23/75

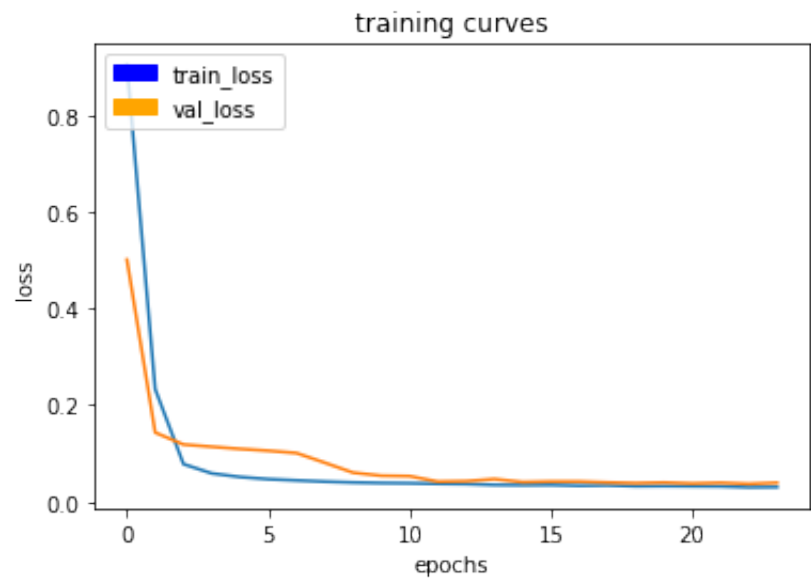
64/65 [=====>.] - ETA: 2s - loss: 0.0299



65/65 [=====] - 189s - loss: 0.0298 - val  
\_loss: 0.0368

Epoch 24/75

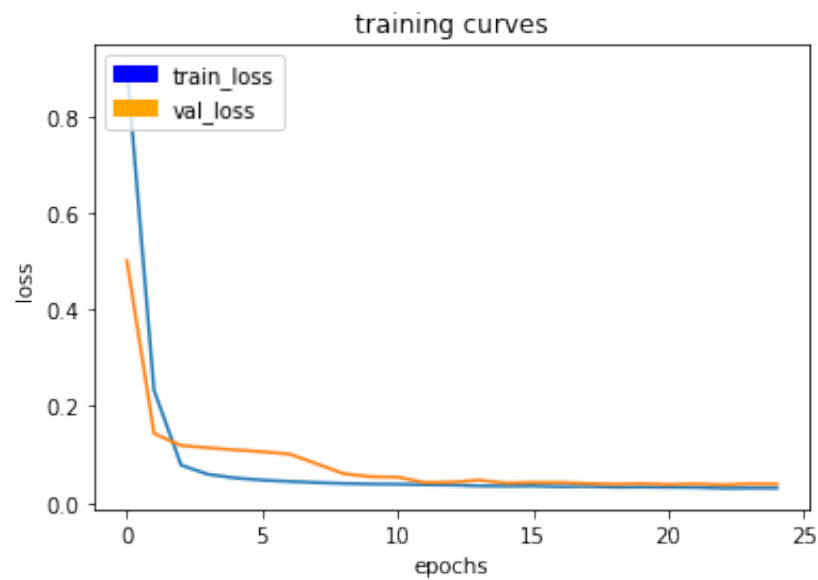
64/65 [=====>.] - ETA: 2s - loss: 0.0304



65/65 [=====] - 188s - loss: 0.0303 - val  
\_loss: 0.0391

Epoch 25/75

64/65 [=====>.] - ETA: 2s - loss: 0.0303

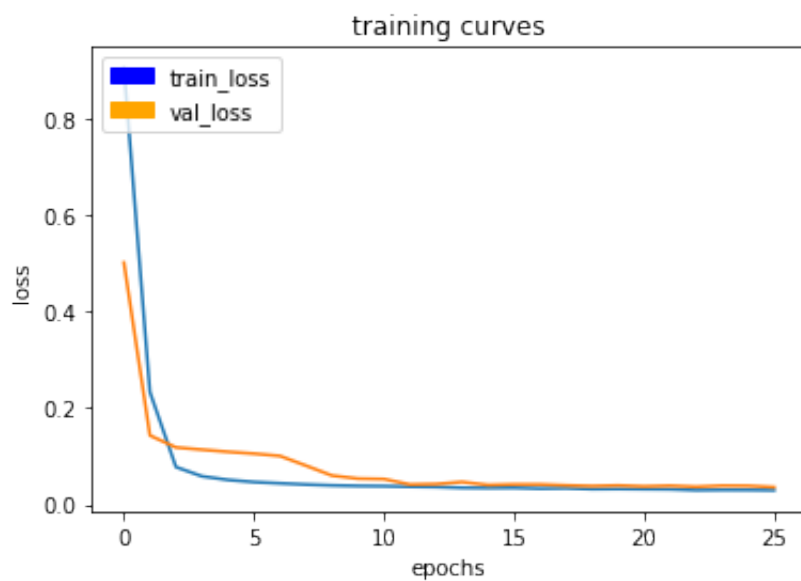


65/65 [=====] - 188s - loss: 0.0302 - val

\_loss: 0.0388

Epoch 26/75

64/65 [=====>.] - ETA: 2s - loss: 0.0298

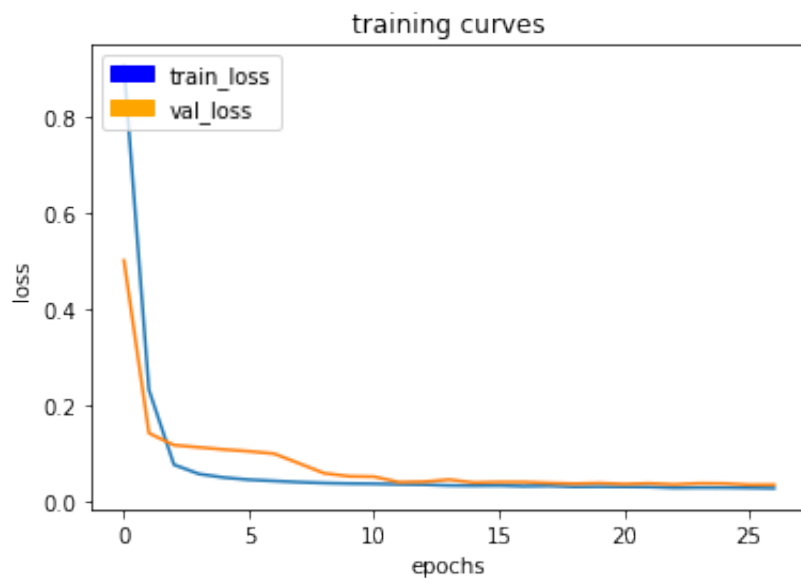


65/65 [=====] - 188s - loss: 0.0297 - val

\_loss: 0.0360

Epoch 27/75

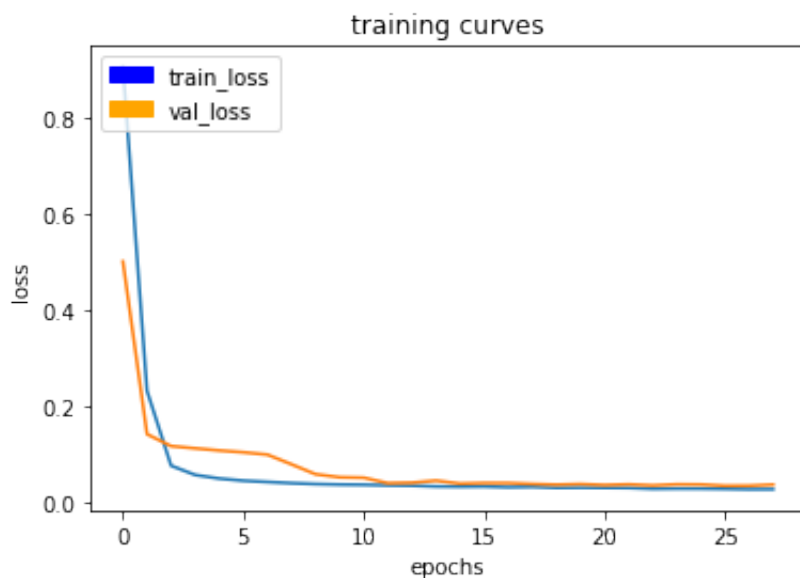
64/65 [=====>.] - ETA: 2s - loss: 0.0290



65/65 [=====] - 188s - loss: 0.0289 - val  
\_loss: 0.0362

Epoch 28/75

64/65 [=====>.] - ETA: 2s - loss: 0.0290

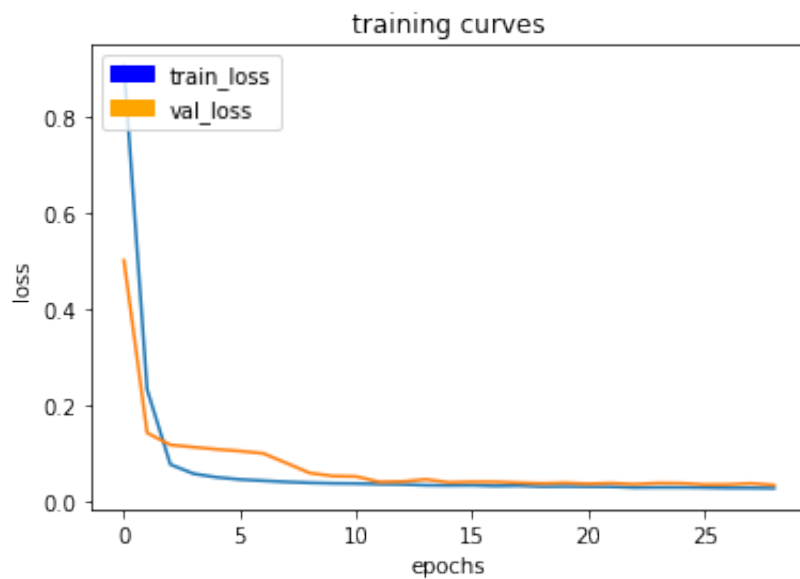


65/65 [=====] - 188s - loss: 0.0290 - val  
\_loss: 0.0385

Epoch 29/75

64/65 [=====>.] - ETA: 2s - loss: 0.0286

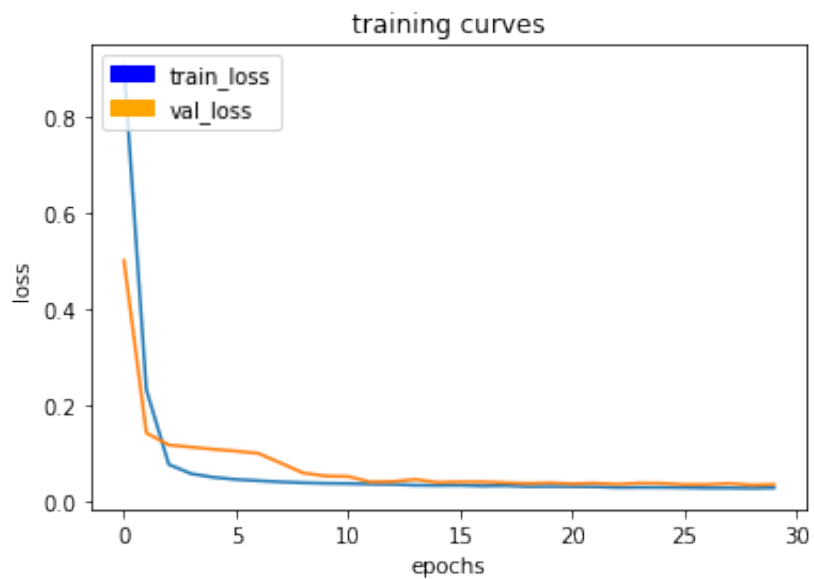




65/65 [=====] - 188s - loss: 0.0285 - val  
\_loss: 0.0349

Epoch 30/75

64/65 [=====>.] - ETA: 2s - loss: 0.0294

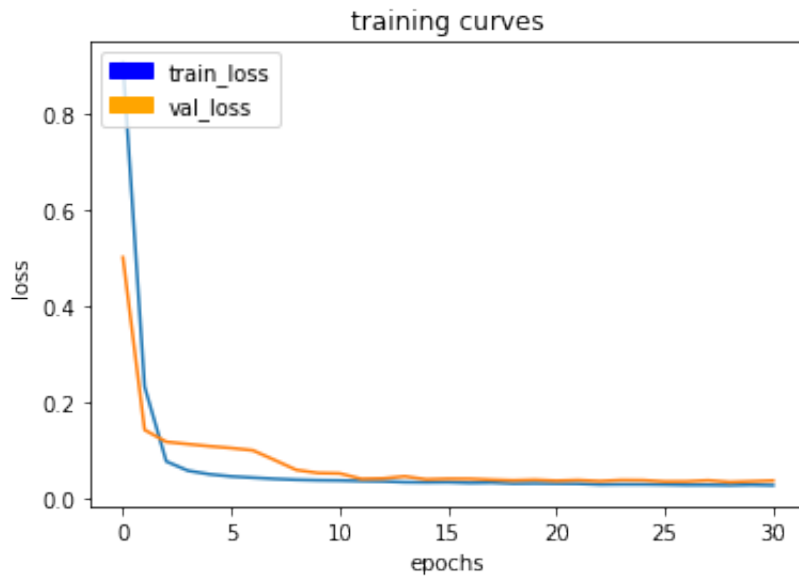


65/65 [=====] - 188s - loss: 0.0293 - val  
\_loss: 0.0364

Epoch 31/75

64/65 [=====>.] - ETA: 2s - loss: 0.0294

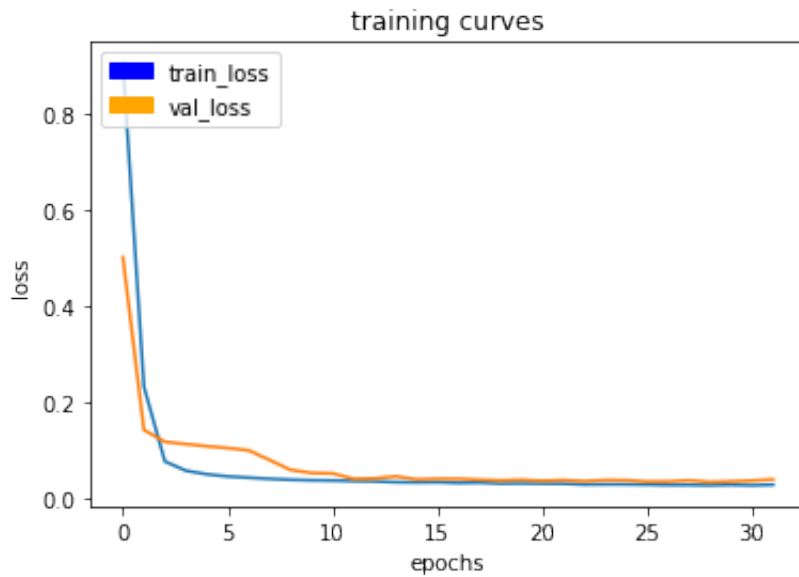
64/65 [=====>.] - ETA: 2s - loss: 0.0264



65/65 [=====] - 188s - loss: 0.0283 - val  
\_loss: 0.0381

Epoch 32/75

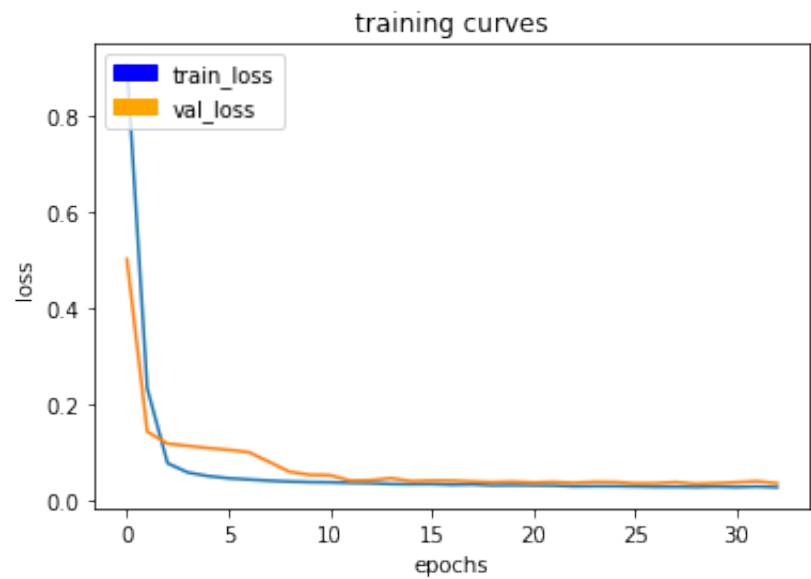
64/65 [=====>.] - ETA: 2s - loss: 0.0294



65/65 [=====] - 188s - loss: 0.0295 - val  
\_loss: 0.0404

Epoch 33/75

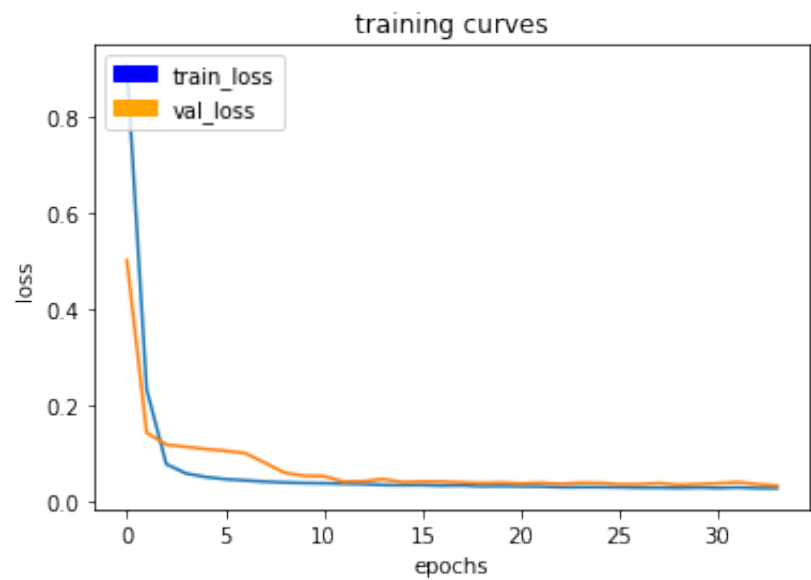
64/65 [=====>.] - ETA: 2s - loss: 0.0275



65/65 [=====] - 188s - loss: 0.0280 - val  
\_loss: 0.0362

Epoch 34/75

64/65 [=====>.] - ETA: 2s - loss: 0.0278

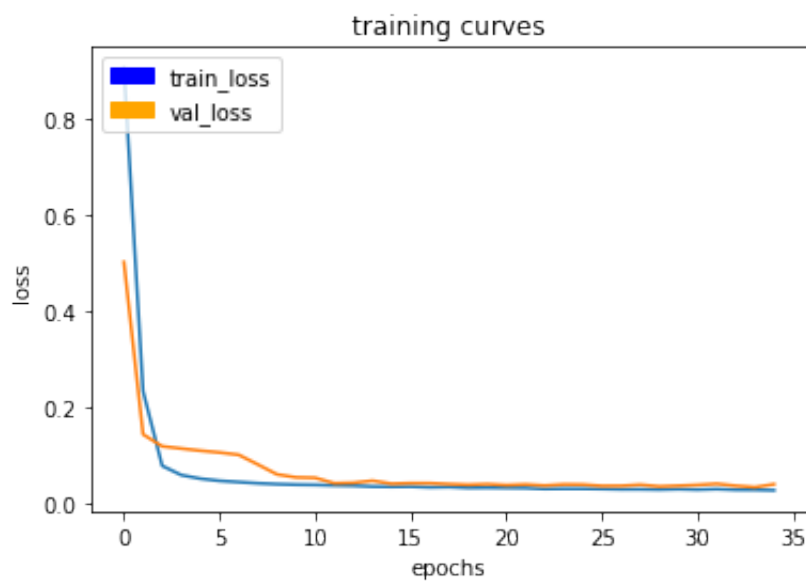


65/65 [=====] - 189s - loss: 0.0278 - val

\_loss: 0.0333

Epoch 35/75

64/65 [=====>.] - ETA: 2s - loss: 0.0271

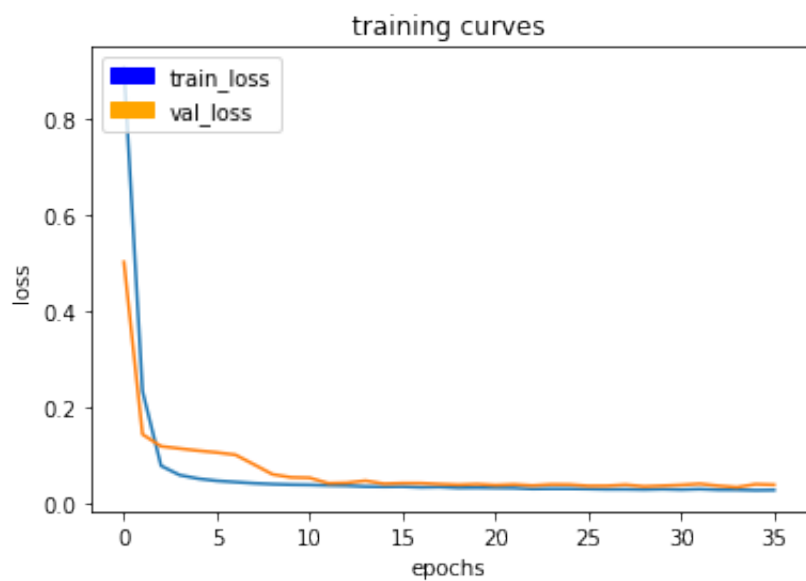


65/65 [=====] - 188s - loss: 0.0270 - val

\_loss: 0.0396

Epoch 36/75

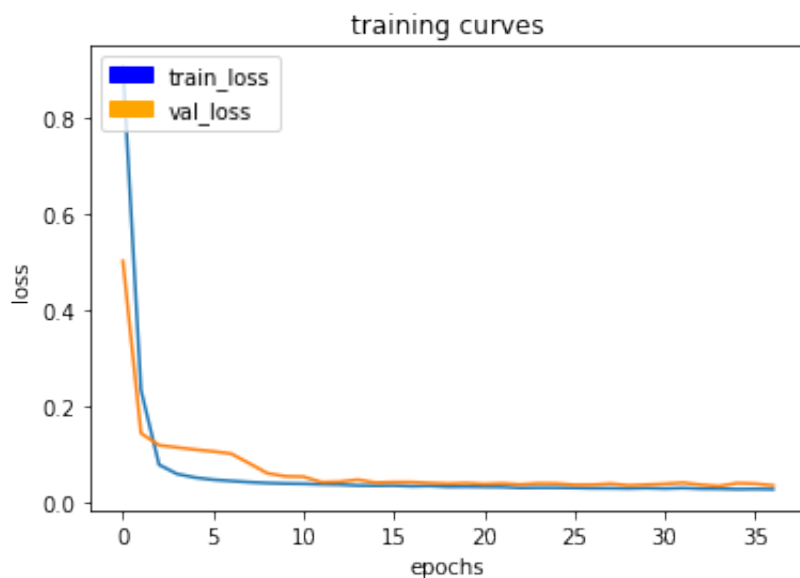
64/65 [=====>.] - ETA: 2s - loss: 0.0274



65/65 [=====] - 188s - loss: 0.0274 - val  
\_loss: 0.0384

Epoch 37/75

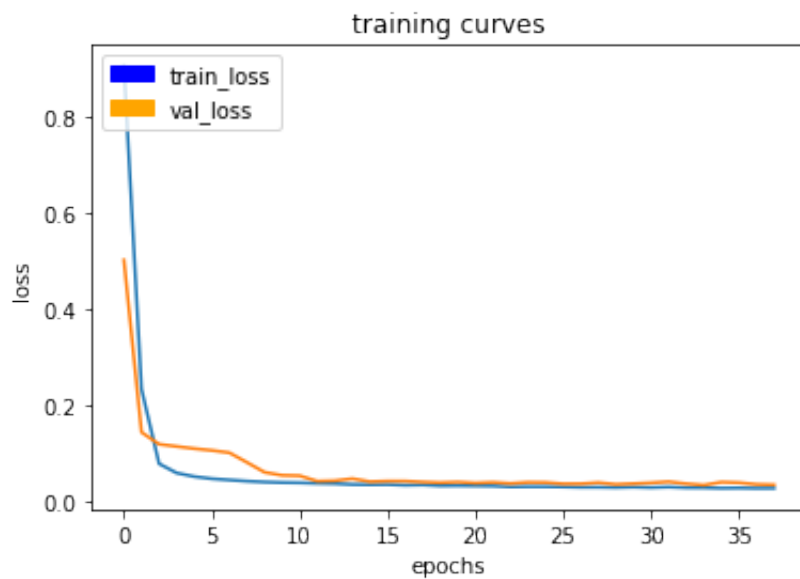
64/65 [=====>.] - ETA: 2s - loss: 0.0268



65/65 [=====] - 188s - loss: 0.0269 - val  
\_loss: 0.0349

Epoch 38/75

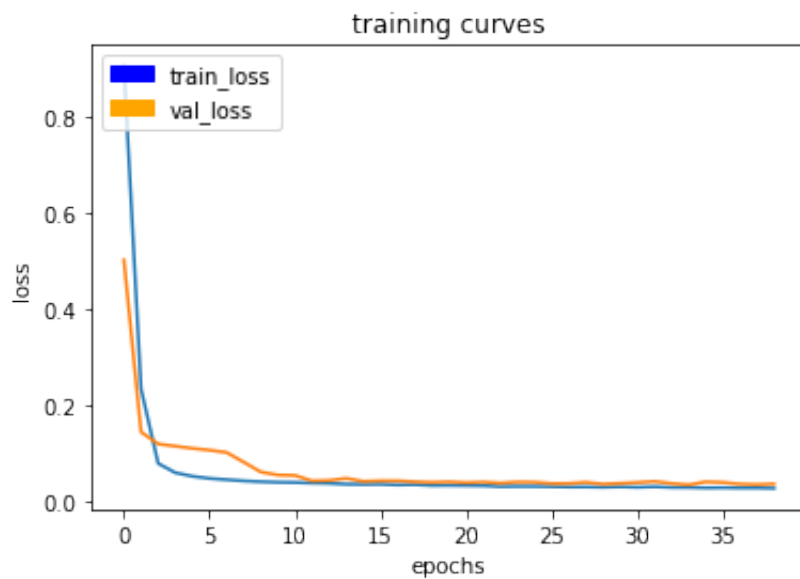
64/65 [=====>.] - ETA: 2s - loss: 0.0269



65/65 [=====] - 188s - loss: 0.0269 - val\_loss: 0.0340

Epoch 39/75

64/65 [=====>.] - ETA: 2s - loss: 0.0263

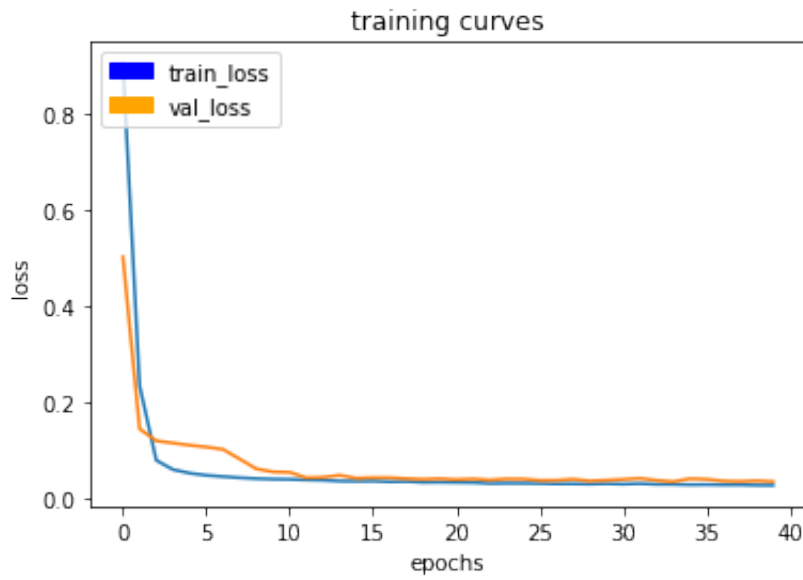


65/65 [=====] - 188s - loss: 0.0263 - val\_loss: 0.0353

Epoch 40/75

64/65 [=====>.] - ETA: 2s - loss: 0.0260

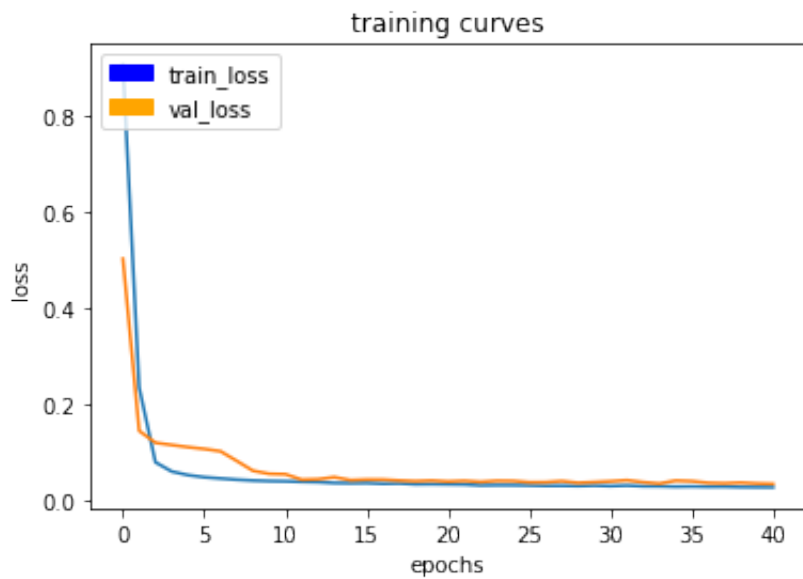
64/65 [=====>.] - ETA: 2s - loss: 0.0260



65/65 [=====] - 188s - loss: 0.0260 - val  
\_loss: 0.0336

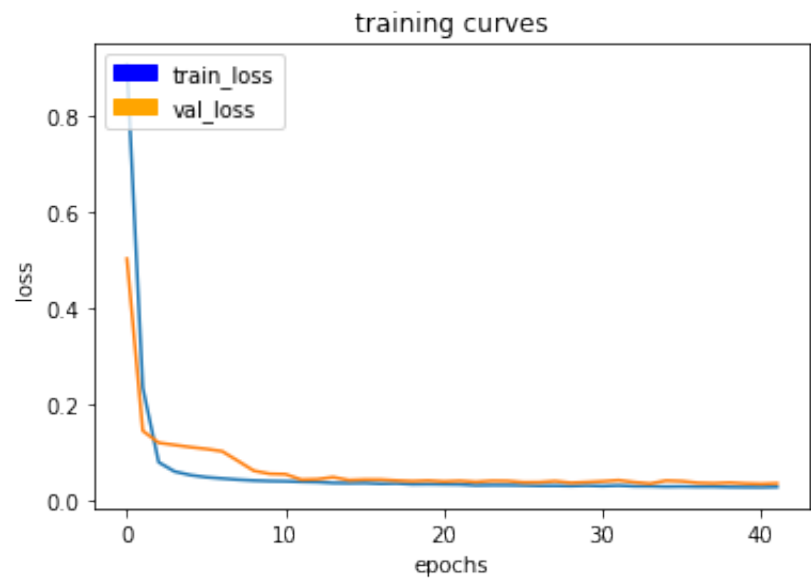
Epoch 41/75

64/65 [=====>.] - ETA: 2s - loss: 0.0259

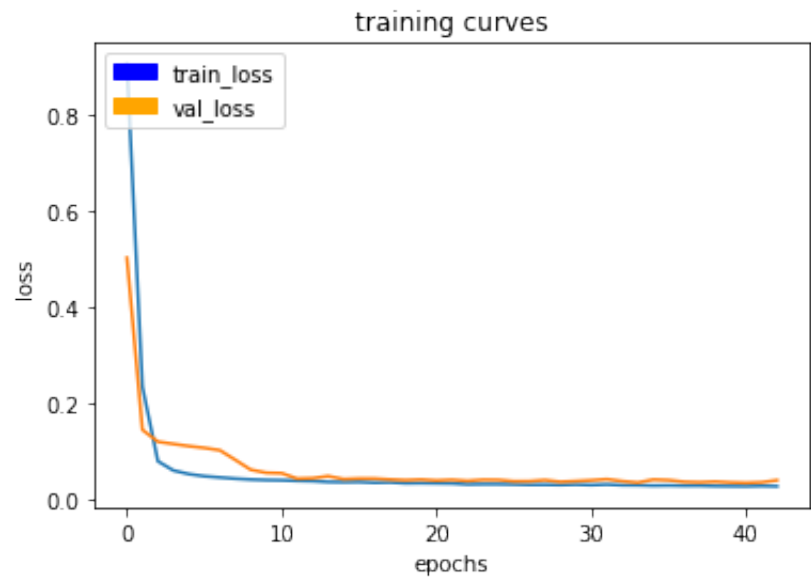


65/65 [=====] - 188s - loss: 0.0258 - val  
\_loss: 0.0327

Epoch 42/75  
64/65 [=====>.] - ETA: 2s - loss: 0.0263



65/65 [=====] - 188s - loss: 0.0264 - val  
\_loss: 0.0339  
Epoch 43/75  
64/65 [=====>.] - ETA: 2s - loss: 0.0257



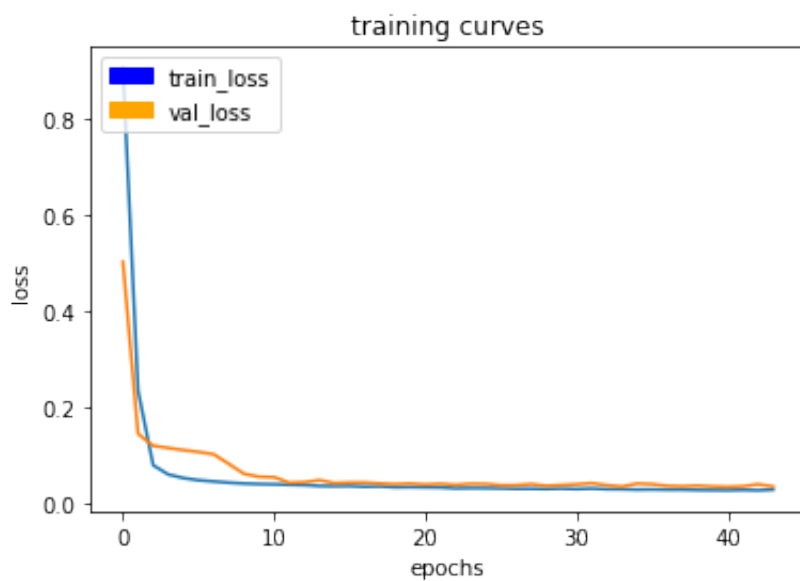
65/65 [=====] - 188s - loss: 0.0258 - val



\_loss: 0.0382

Epoch 44/75

64/65 [=====>.] - ETA: 2s - loss: 0.0269

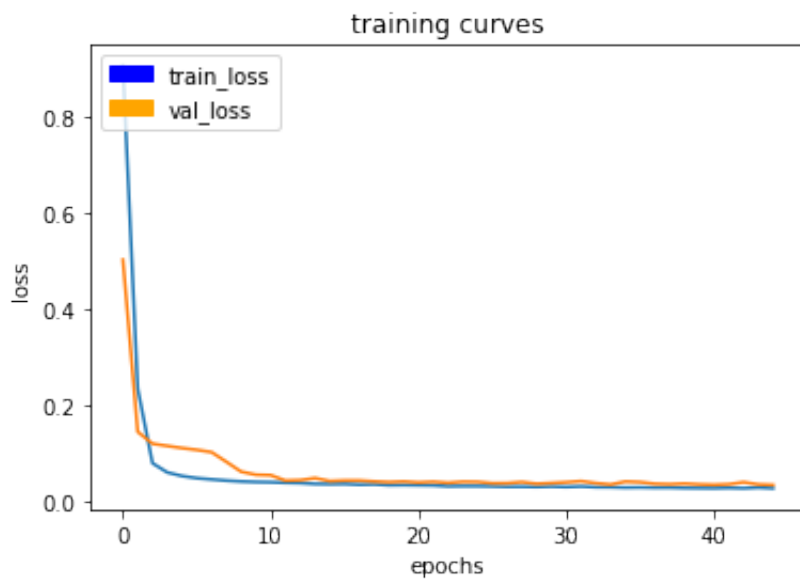


65/65 [=====] - 188s - loss: 0.0270 - val

\_loss: 0.0335

Epoch 45/75

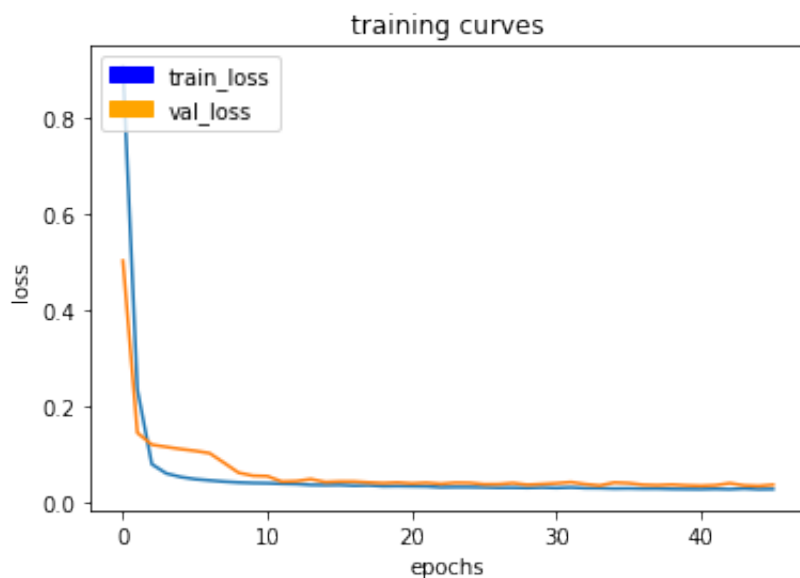
64/65 [=====>.] - ETA: 2s - loss: 0.0255



65/65 [=====] - 188s - loss: 0.0257 - val  
\_loss: 0.0324

Epoch 46/75

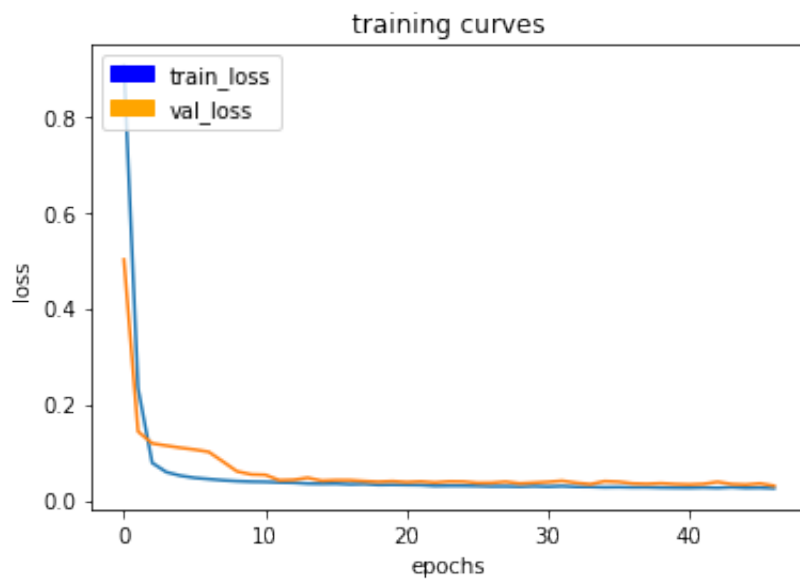
64/65 [=====>.] - ETA: 2s - loss: 0.0259



65/65 [=====] - 188s - loss: 0.0259 - val  
\_loss: 0.0349

Epoch 47/75

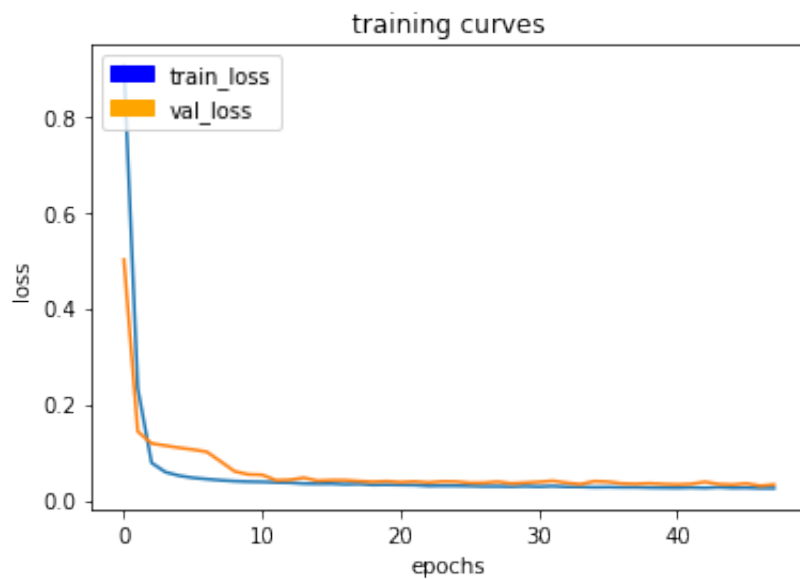
64/65 [=====>.] - ETA: 2s - loss: 0.0248



65/65 [=====] - 188s - loss: 0.0250 - val\_loss: 0.0301

Epoch 48/75

64/65 [=====>.] - ETA: 2s - loss: 0.0250

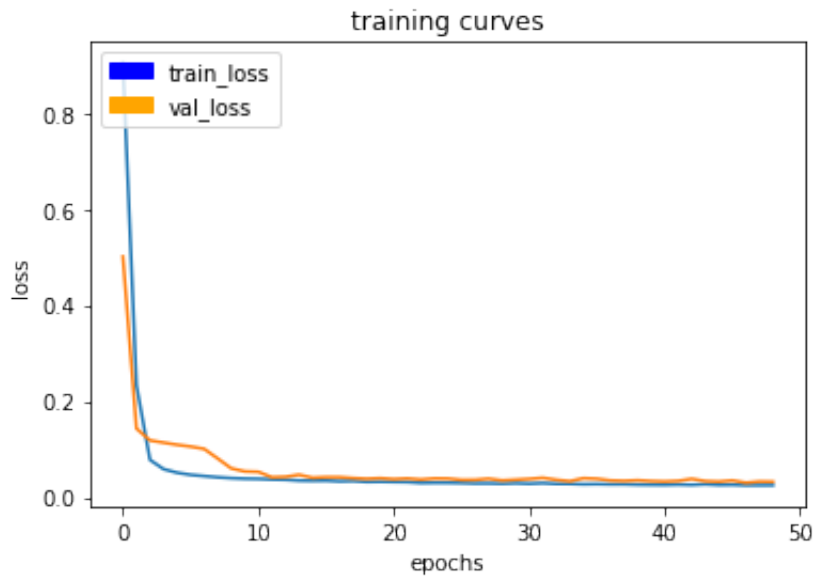


65/65 [=====] - 188s - loss: 0.0250 - val\_loss: 0.0326

Epoch 49/75

64/65 [=====>.] - ETA: 2s - loss: 0.0251

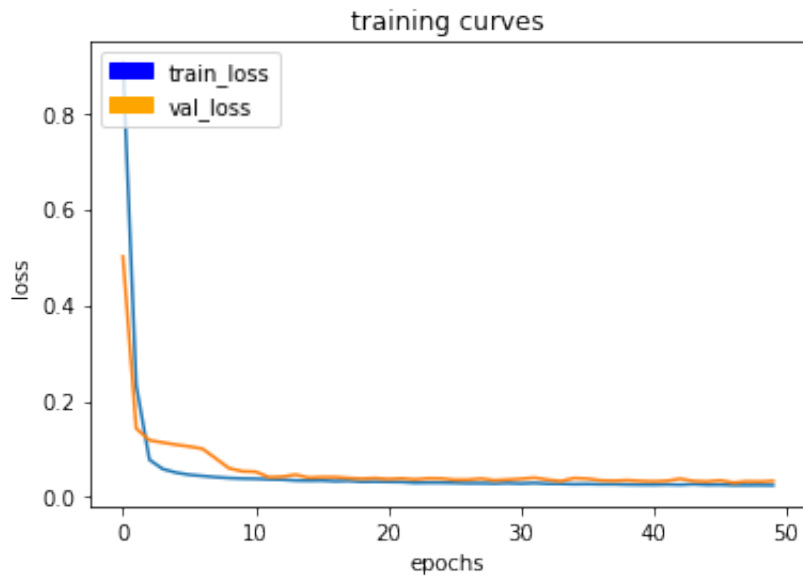
64/65 [=====>.] - ETA: 2s - loss: 0.0251



65/65 [=====] - 188s - loss: 0.0251 - val  
\_loss: 0.0322

Epoch 50/75

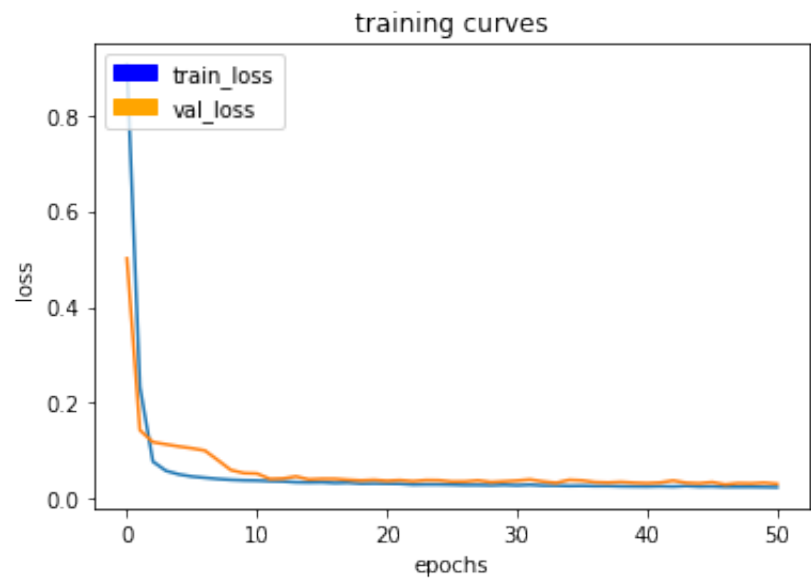
64/65 [=====>.] - ETA: 2s - loss: 0.0247



65/65 [=====] - 188s - loss: 0.0248 - val  
\_loss: 0.0336

Epoch 51/75

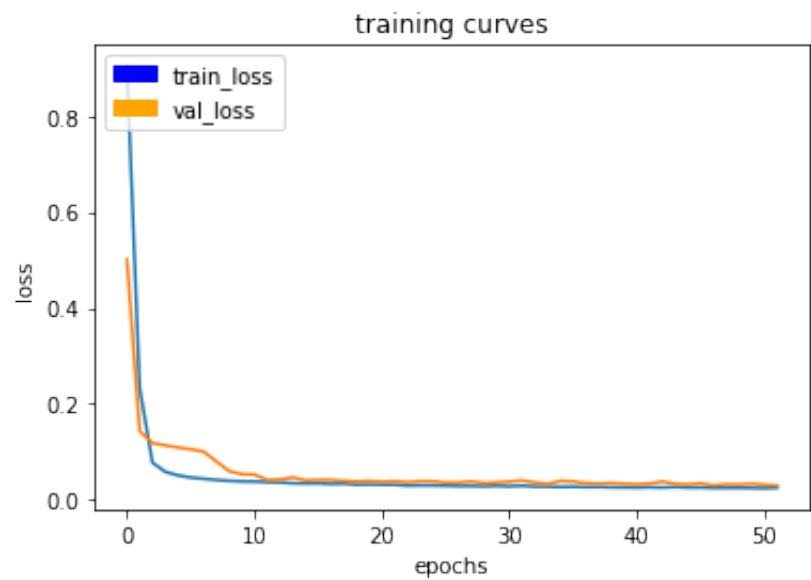
64/65 [=====>.] - ETA: 2s - loss: 0.0241



65/65 [=====] - 188s - loss: 0.0245 - val  
\_loss: 0.0314

Epoch 52/75

64/65 [=====>.] - ETA: 2s - loss: 0.0253

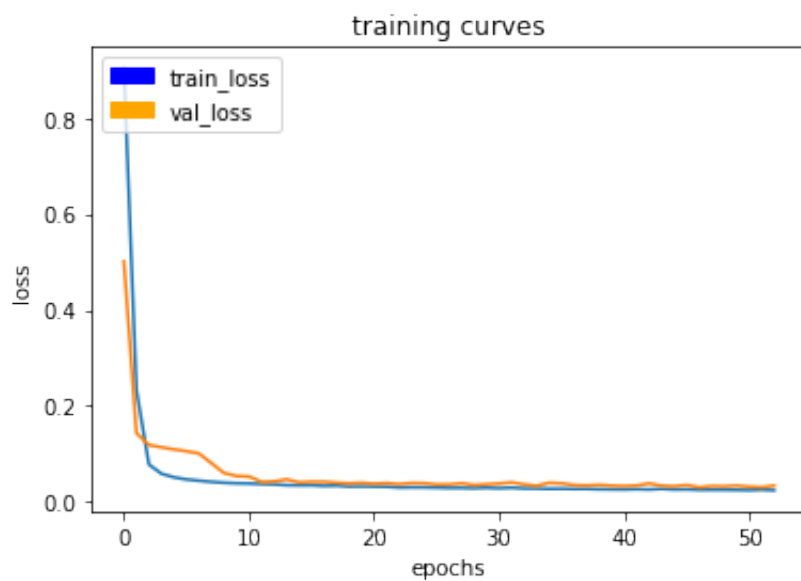


65/65 [=====] - 188s - loss: 0.0252 - val

\_loss: 0.0301

Epoch 53/75

64/65 [=====>.] - ETA: 2s - loss: 0.0241

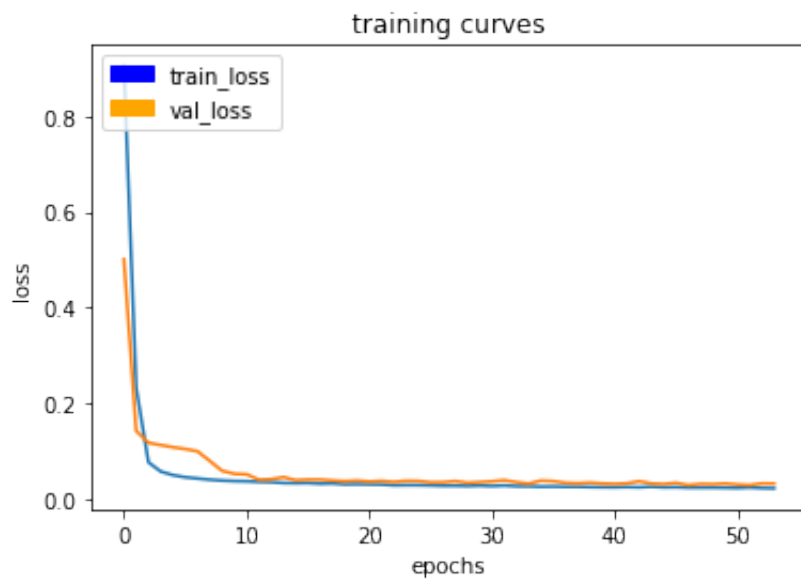


65/65 [=====] - 189s - loss: 0.0241 - val

\_loss: 0.0337

Epoch 54/75

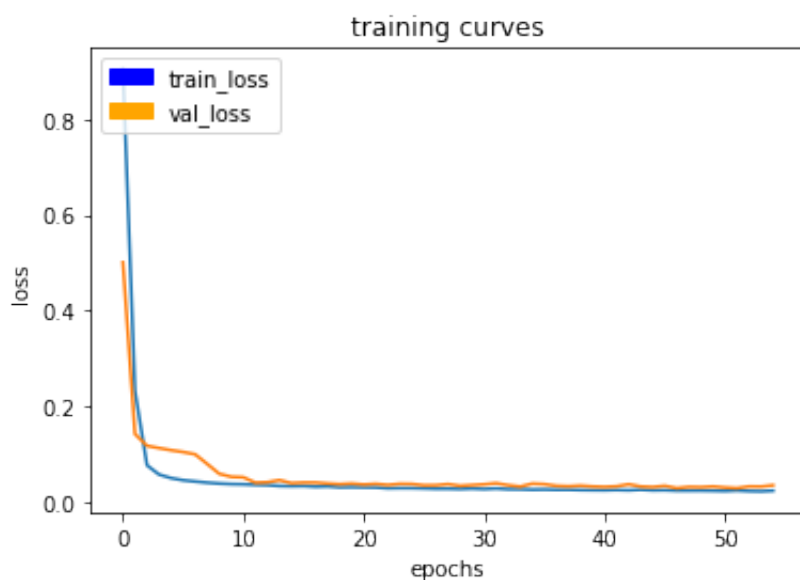
64/65 [=====>.] - ETA: 2s - loss: 0.0237



65/65 [=====] - 188s - loss: 0.0237 - val  
\_loss: 0.0334

Epoch 55/75

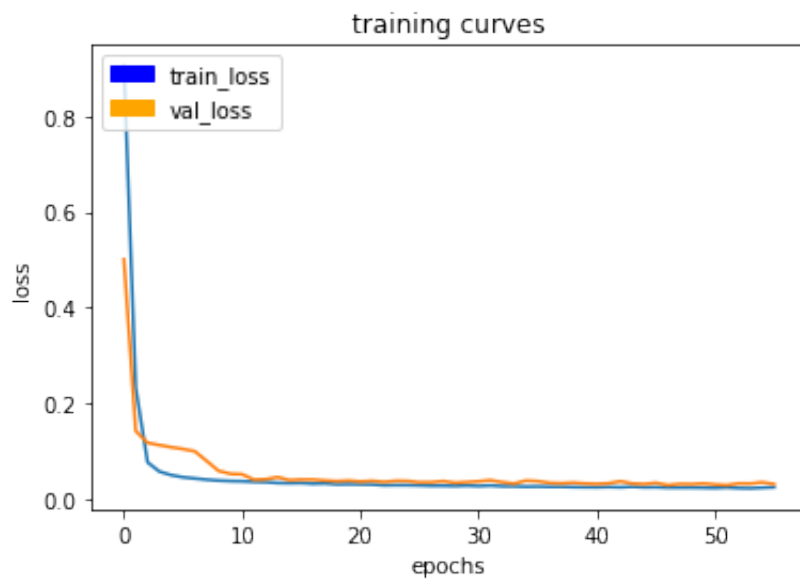
64/65 [=====>.] - ETA: 2s - loss: 0.0250



65/65 [=====] - 188s - loss: 0.0249 - val  
\_loss: 0.0362

Epoch 56/75

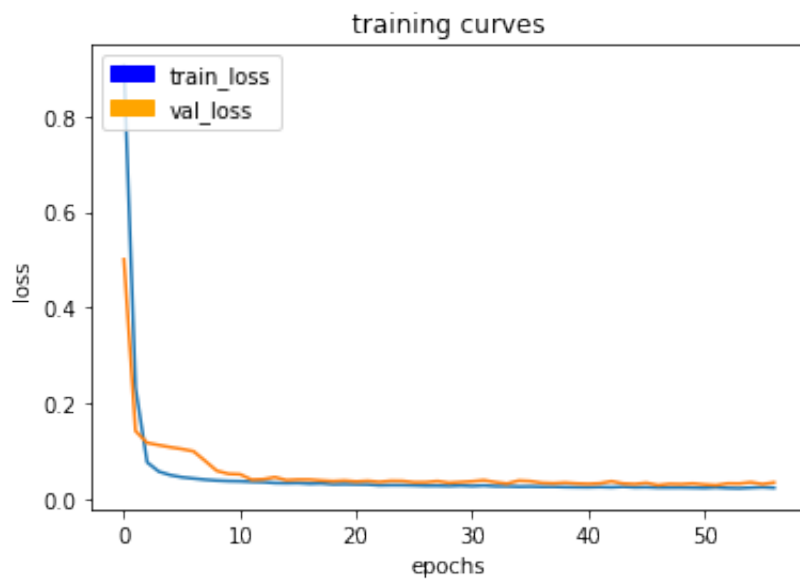
64/65 [=====>.] - ETA: 2s - loss: 0.0258



65/65 [=====] - 188s - loss: 0.0257 - val\_loss: 0.0323

Epoch 57/75

64/65 [=====>.] - ETA: 2s - loss: 0.0246



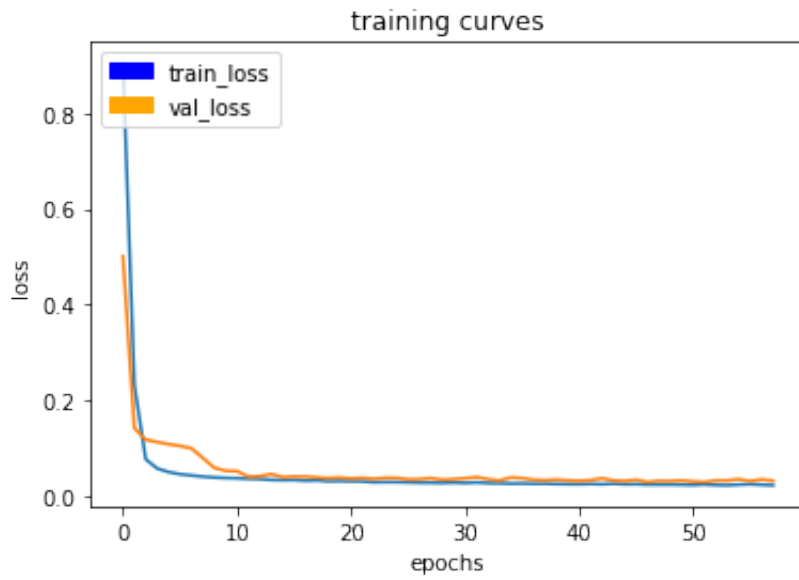
65/65 [=====] - 187s - loss: 0.0246 - val\_loss: 0.0357

Epoch 58/75

64/65 [=====>.] - ETA: 2s - loss: 0.0226



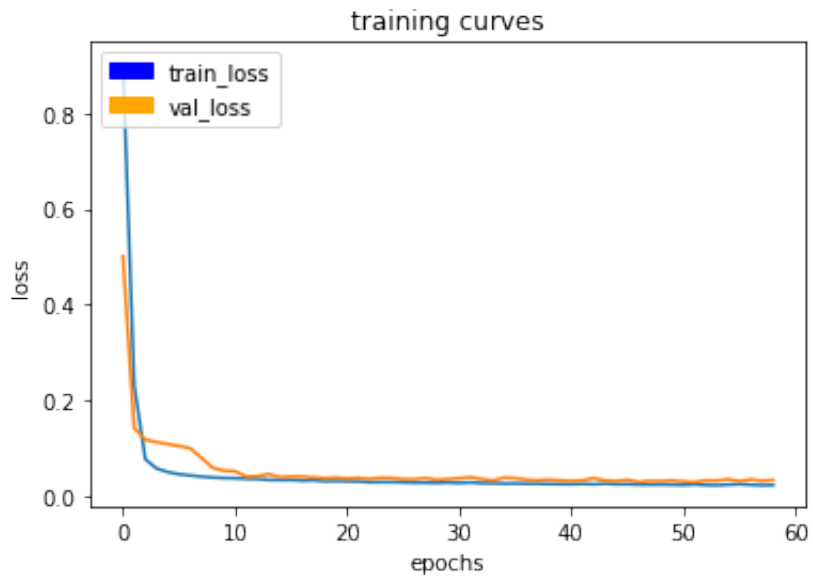
64/65 [=====>.] - ETA: 2s - loss: 0.0230



65/65 [=====] - 188s - loss: 0.0236 - val  
\_loss: 0.0328

Epoch 59/75

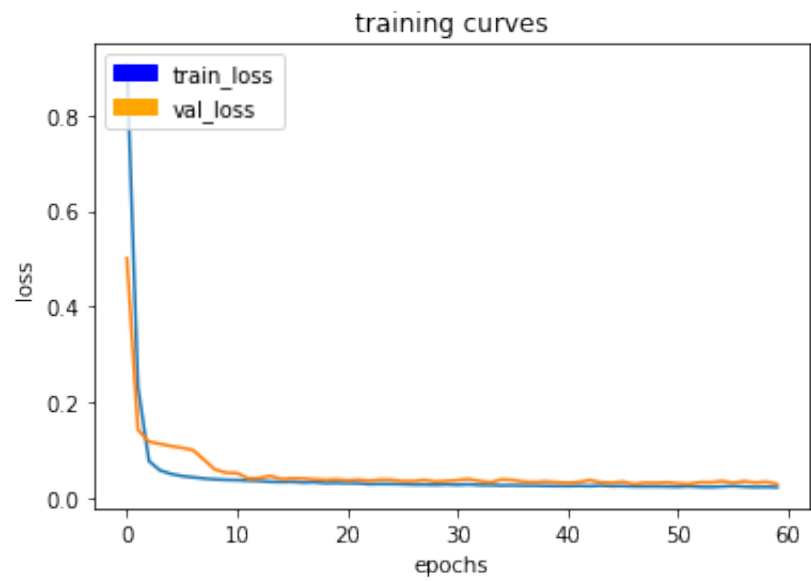
64/65 [=====>.] - ETA: 2s - loss: 0.0240



65/65 [=====] - 187s - loss: 0.0240 - val  
\_loss: 0.0346

Epoch 60/75

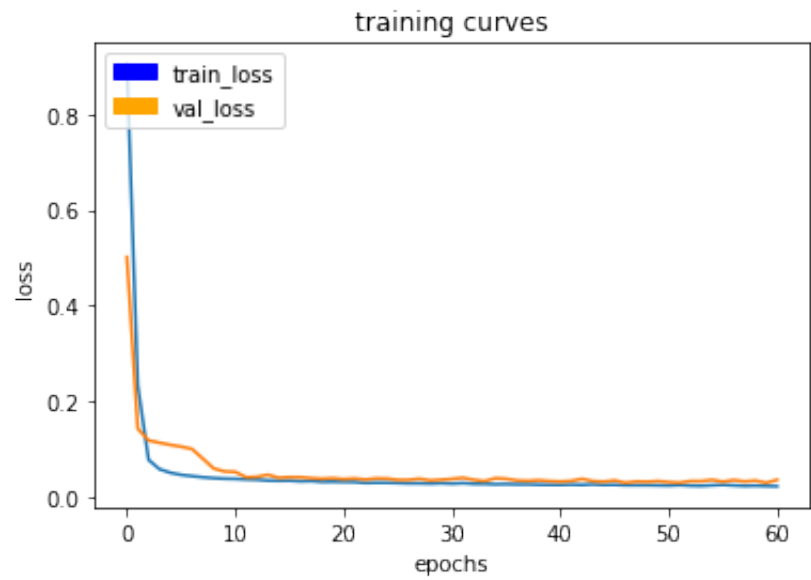
64/65 [=====>.] - ETA: 2s - loss: 0.0232



65/65 [=====] - 188s - loss: 0.0233 - val  
\_loss: 0.0300

Epoch 61/75

64/65 [=====>.] - ETA: 2s - loss: 0.0234

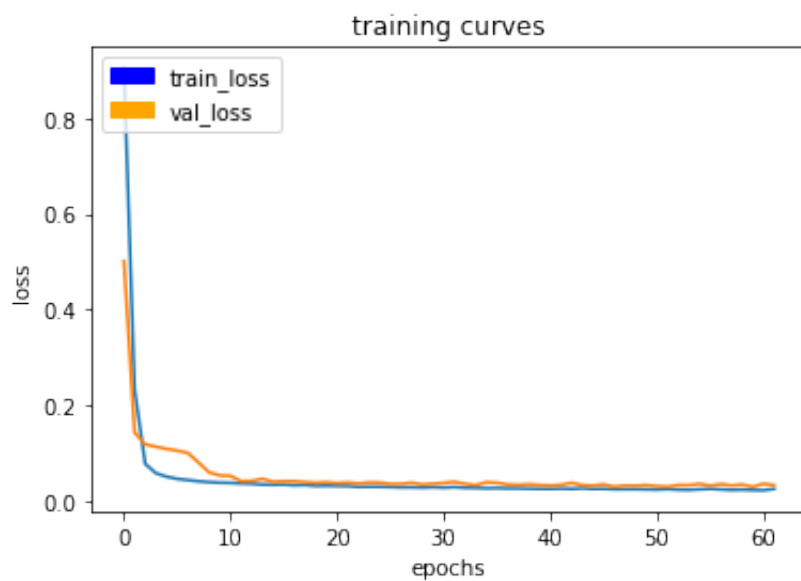


65/65 [=====] - 188s - loss: 0.0234 - val

\_loss: 0.0363

Epoch 62/75

64/65 [=====>.] - ETA: 2s - loss: 0.0259

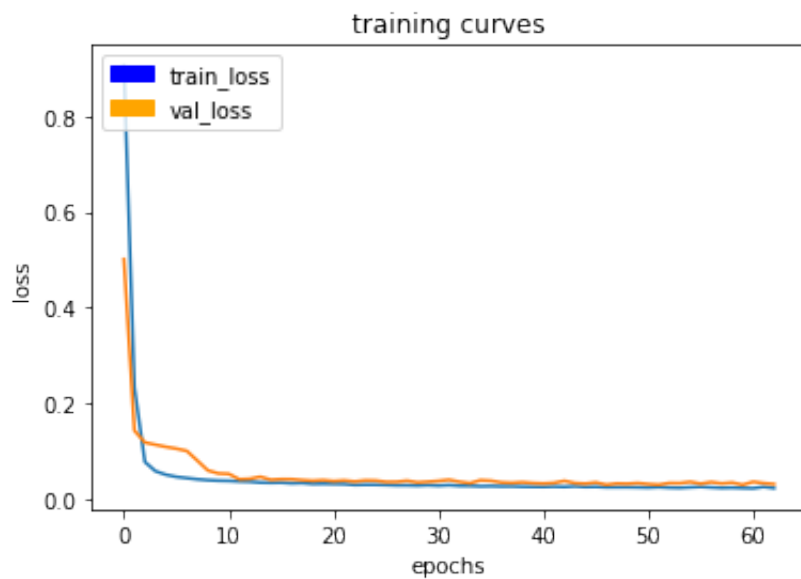


65/65 [=====] - 188s - loss: 0.0258 - val

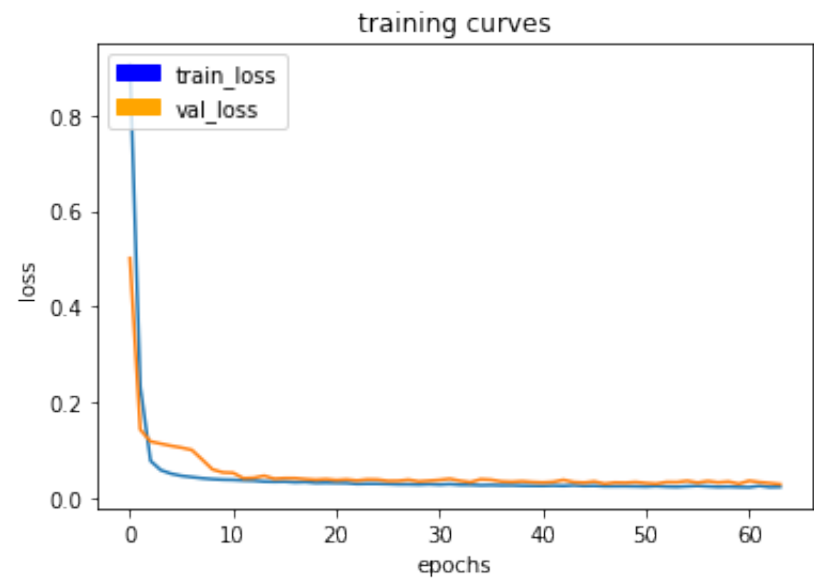
\_loss: 0.0334

Epoch 63/75

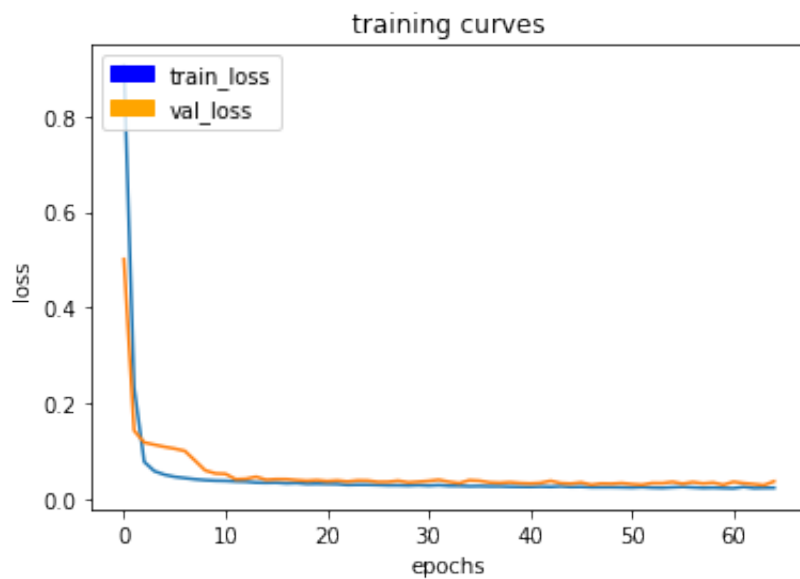
64/65 [=====>.] - ETA: 2s - loss: 0.0231



65/65 [=====] - 188s - loss: 0.0231 - val  
\_loss: 0.0314  
Epoch 64/75  
64/65 [=====>.] - ETA: 2s - loss: 0.0236



65/65 [=====] - 188s - loss: 0.0235 - val  
\_loss: 0.0293  
Epoch 65/75  
64/65 [=====>.] - ETA: 2s - loss: 0.0237

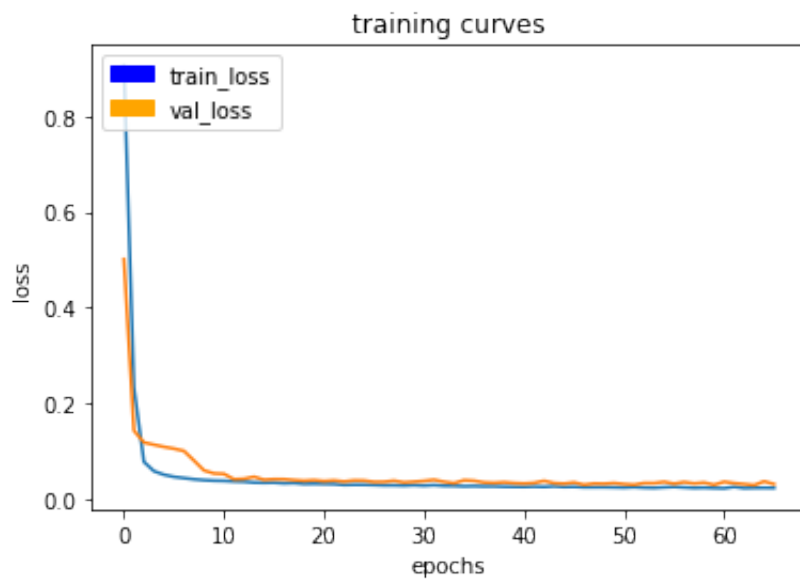


65/65 [=====] - 188s - loss: 0.0237 - val

\_loss: 0.0372

Epoch 66/75

64/65 [=====>.] - ETA: 2s - loss: 0.0236



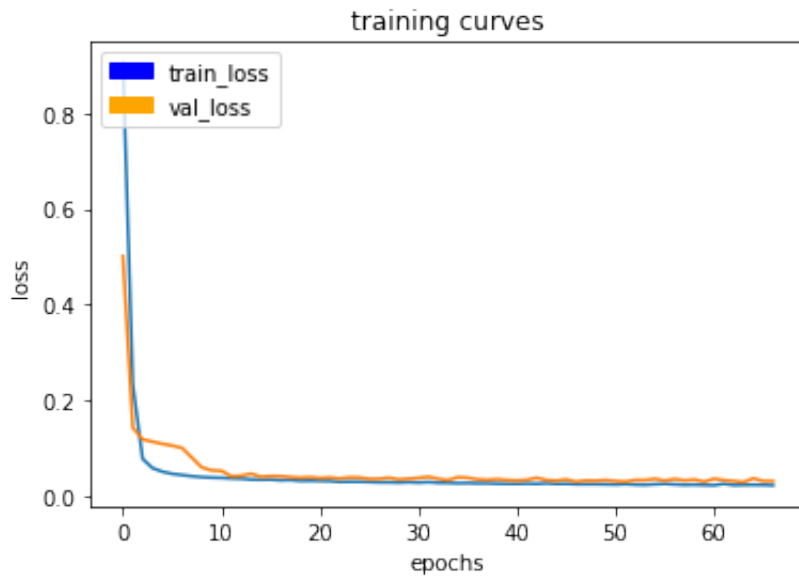
65/65 [=====] - 188s - loss: 0.0236 - val

\_loss: 0.0314

Epoch 67/75

64/65 [=====>.] - ETA: 2s - loss: 0.0236

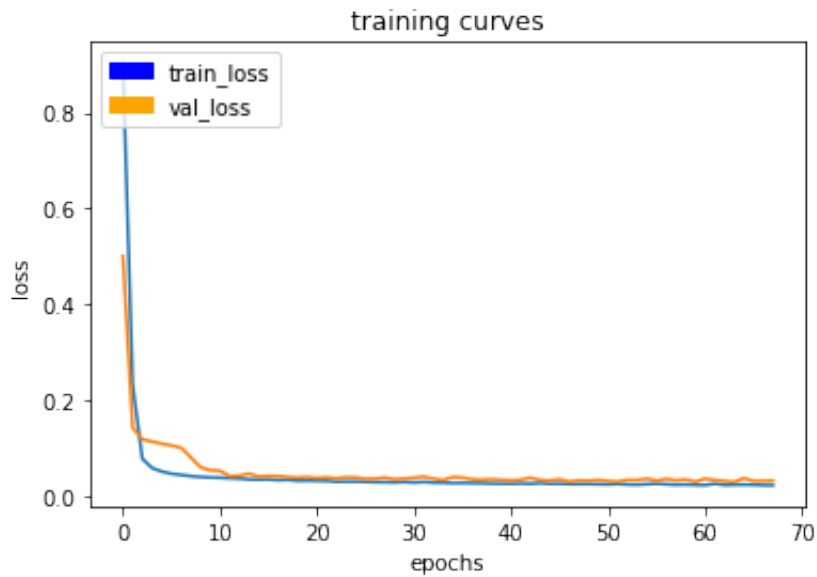
64/65 [=====>.] - ETA: 2s - loss: 0.0220



65/65 [=====] - 188s - loss: 0.0227 - val  
\_loss: 0.0314

Epoch 68/75

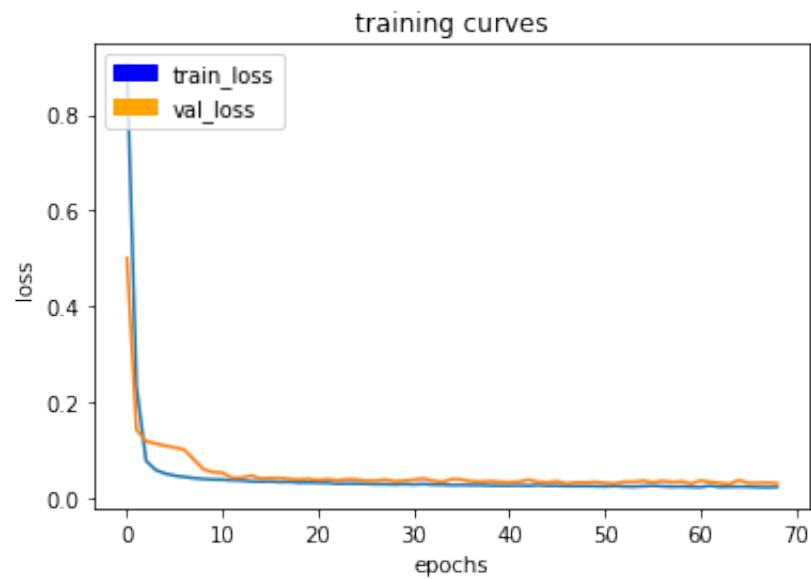
64/65 [=====>.] - ETA: 2s - loss: 0.0224



65/65 [=====] - 188s - loss: 0.0225 - val  
\_loss: 0.0320

Epoch 69/75

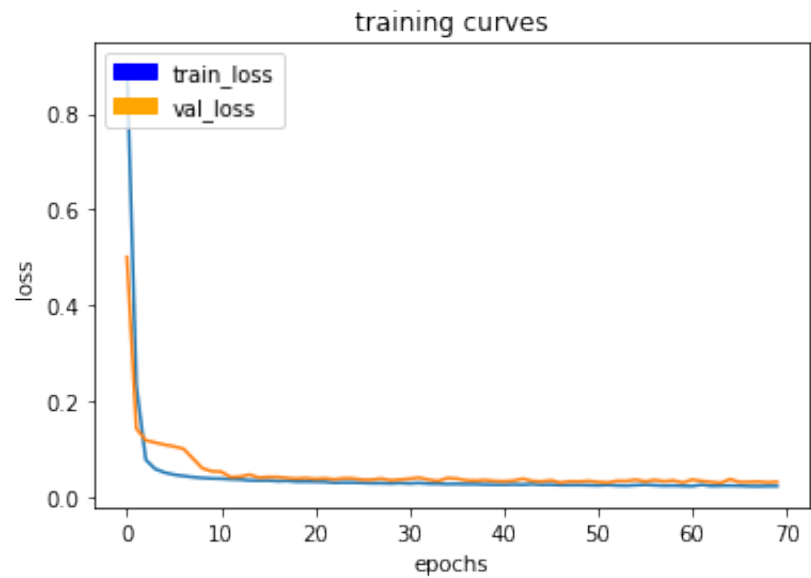
64/65 [=====>.] - ETA: 2s - loss: 0.0229



65/65 [=====] - 188s - loss: 0.0229 - val  
\_loss: 0.0306

Epoch 70/75

64/65 [=====>.] - ETA: 2s - loss: 0.0229

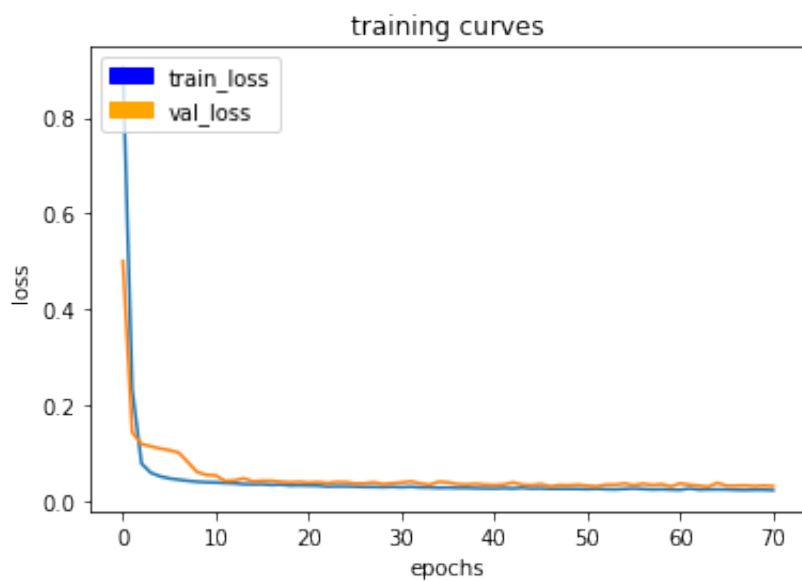


65/65 [=====] - 188s - loss: 0.0229 - val

\_loss: 0.0317

Epoch 71/75

64/65 [=====>.] - ETA: 2s - loss: 0.0219

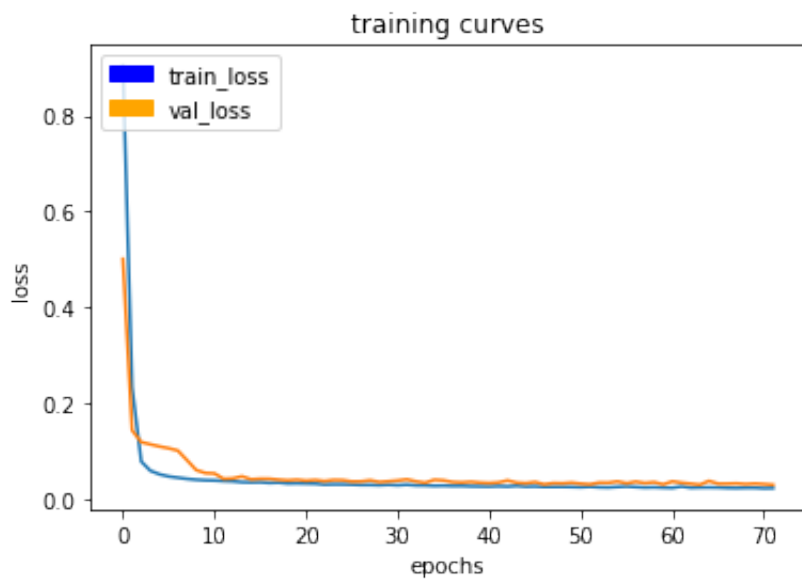


65/65 [=====] - 188s - loss: 0.0219 - val

\_loss: 0.0305

Epoch 72/75

64/65 [=====>.] - ETA: 2s - loss: 0.0223

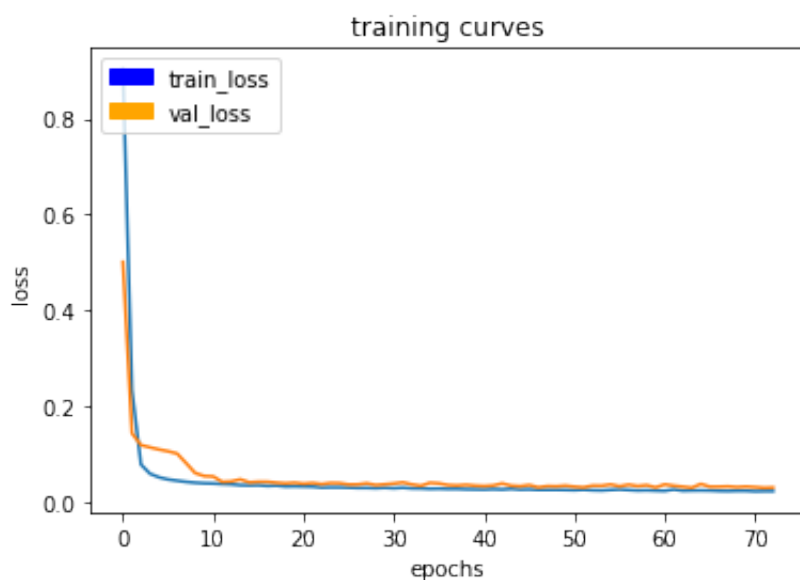




65/65 [=====] - 188s - loss: 0.0223 - val  
\_loss: 0.0291

Epoch 73/75

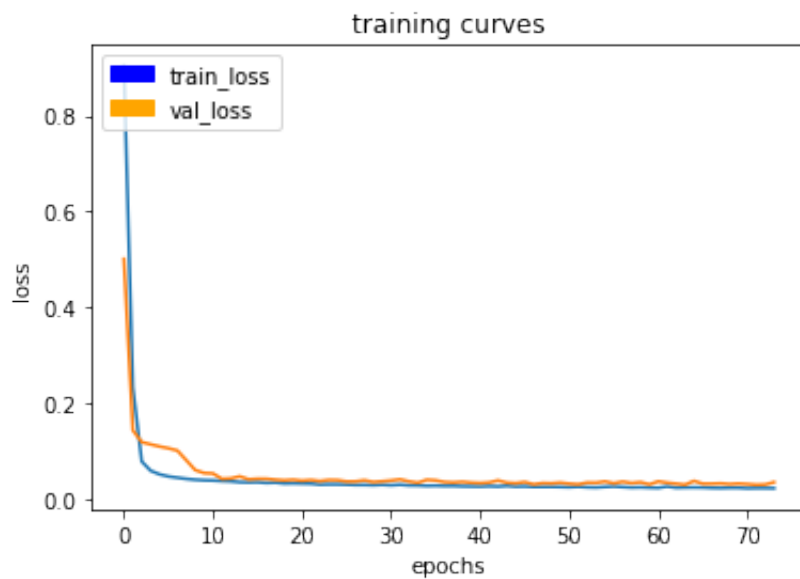
64/65 [=====>.] - ETA: 2s - loss: 0.0223



65/65 [=====] - 188s - loss: 0.0223 - val  
\_loss: 0.0297

Epoch 74/75

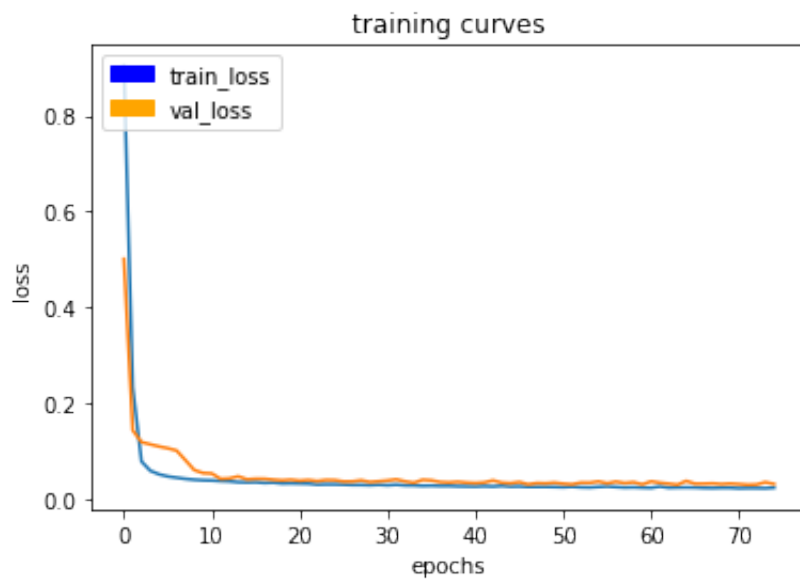
64/65 [=====>.] - ETA: 2s - loss: 0.0222



65/65 [=====] - 188s - loss: 0.0221 - val  
\_loss: 0.0346

Epoch 75/75

64/65 [=====>.] - ETA: 2s - loss: 0.0232



65/65 [=====] - 187s - loss: 0.0231 - val  
\_loss: 0.0308

**Scores for while the quad is following behind the target:**

number of validation samples intersection over the union evaluated on  
542

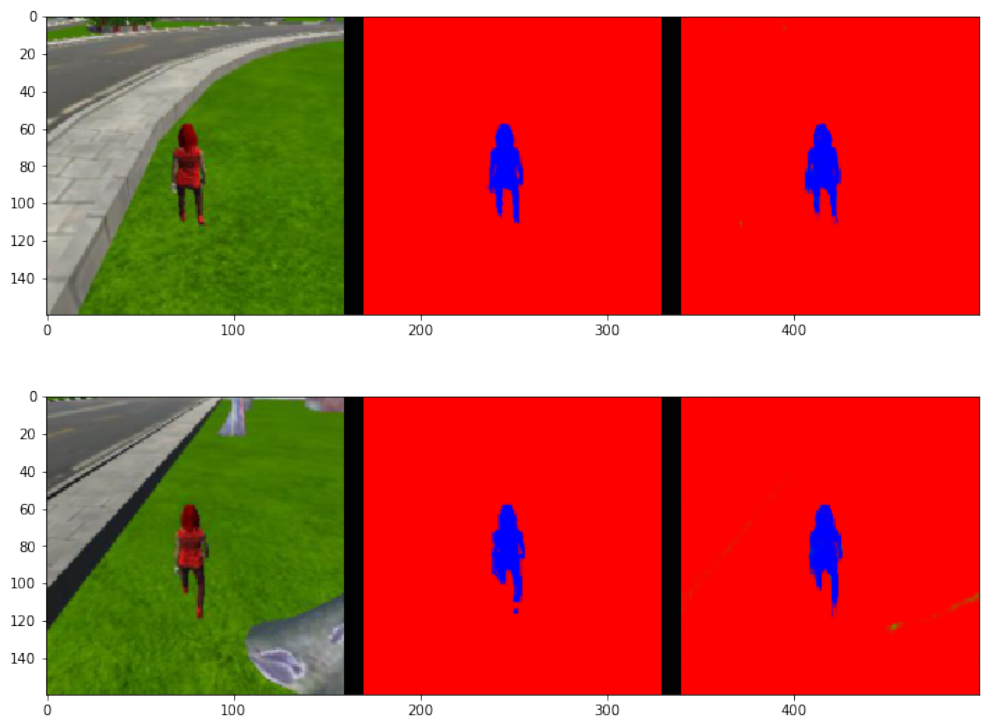
average intersection over union for background is 0.994662030287152  
9

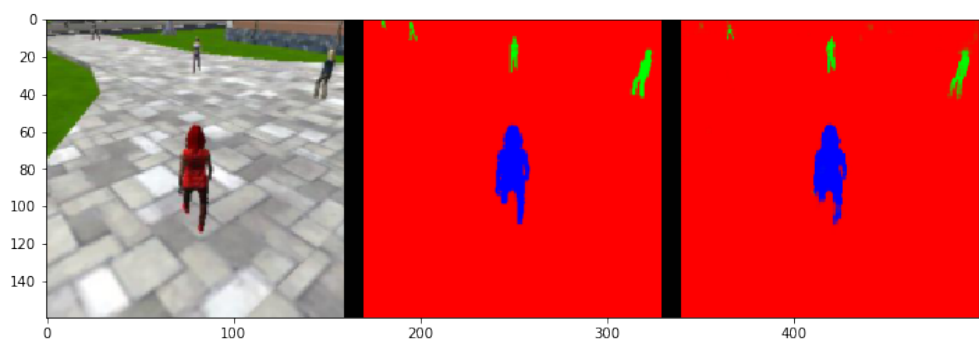
average intersection over union for other people is 0.314549275958394  
5

average intersection over union for the hero is 0.8717430706478739

number true positives: 539, number false positives: 0, number false neg  
atives: 0

**Images while following the target:**

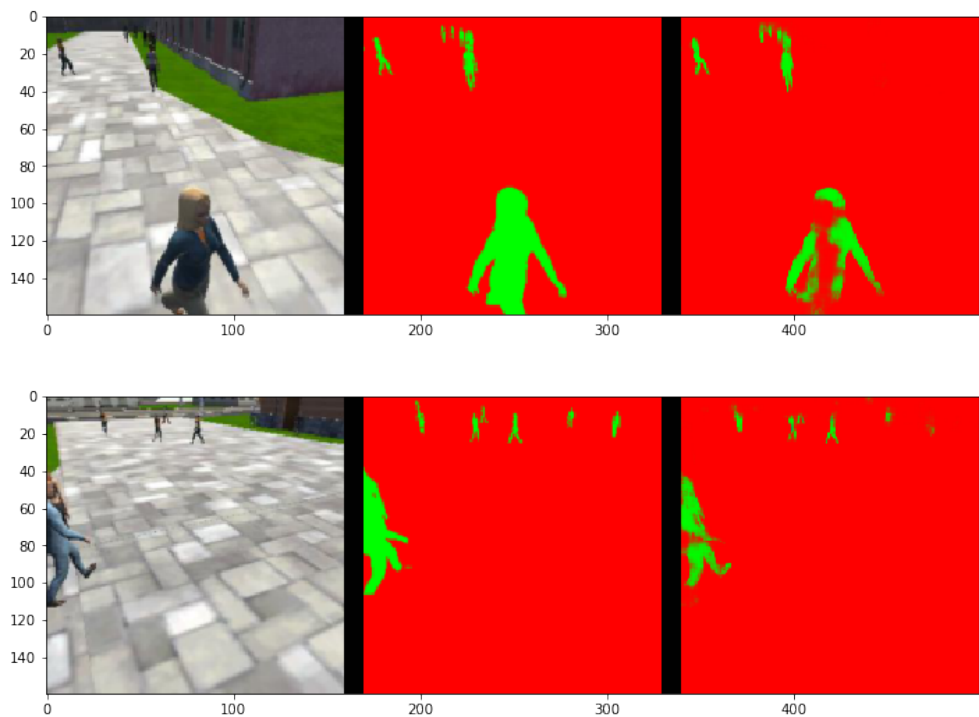


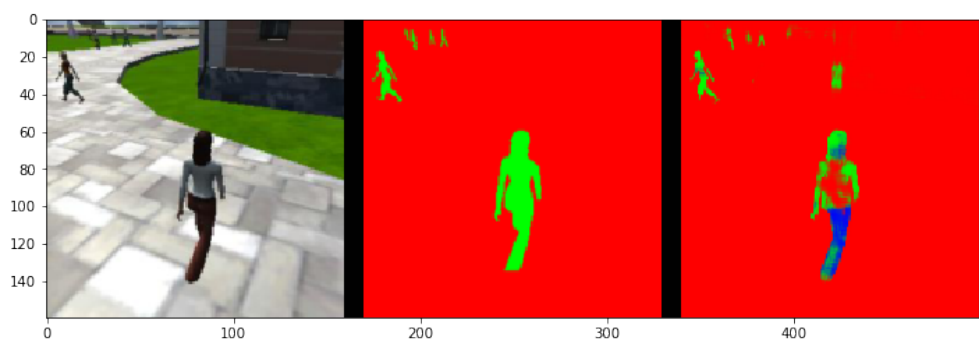


### Scores for images while the quad is on patrol and the target is not visible:

number of validation samples intersection over the union evaluated on 270  
 average intersection over union for background is 0.9786364625355646  
 average intersection over union for other people is 0.5545149349387023  
 average intersection over union for the hero is 0.0  
 number true positives: 0, number false positives: 77, number false negatives: 0

### Images while at patrol without target:

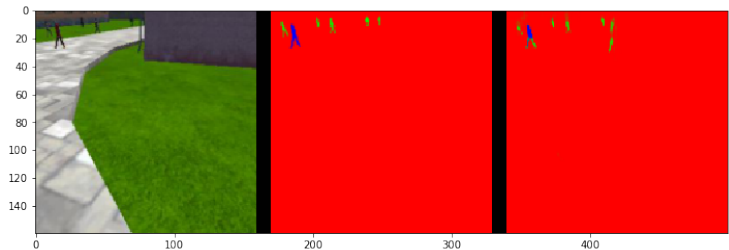


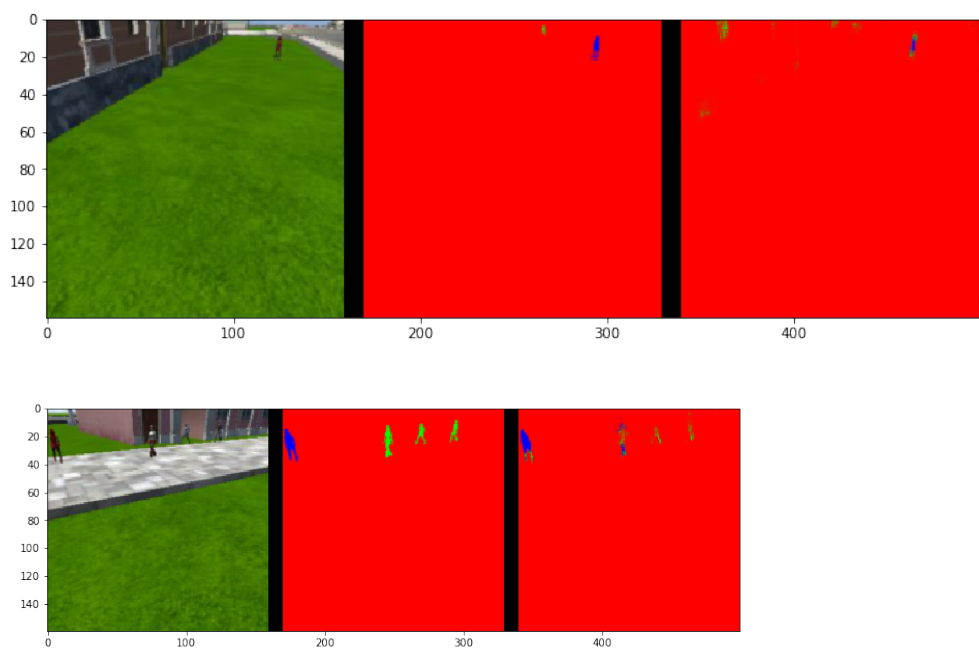


**This score measures how well the neural network can detect the target from far away:**

number of validation samples intersection over the union evaulated on 322  
 average intersection over union for background is 0.9955648497191975  
 average intersection over union for other people is 0.3972070855020659  
 average intersection over union for the hero is 0.2524583626080155  
 number true positives: 164, number false positives: 1, number false negatives: 137

**Images while at patrol with target:**





**Sum all the true positives, etc from the three datasets to get a weight for the score:**

0.7657952069716776

**Final IoU:**

0.562100716628

**Final score:**

0.430454034629