U-net architecture used to solve the problem.

I trained the model using 899 training images which I resized to 256 x 256 due to GPU space and speed issue. Around 50 epochs.
I then used the best trained model to further train it on 432 x 640 size images (maintaining the aspect ratio of 540 x 800) for 30 epochs.
I used cross-entropy loss function.
Hyperparameters settled on:
Batch-size = 2
Optimization algorithm: Stochastic gradient descent with nesterov
Learning rate = 0.015
Momentum = 0.9