



LAMPIRAN

Lampiran 1. Dokumentasi Mengakuisi Data



Lampiran 2. Summary Arsitektur Model *DeepLabv3+*

1) Tanpa *Regularization Dropout*

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
input_layer_6 (InputLayer)	(None, 256, 256, 3)	0	-
block1_conv1 (Conv2D)	(None, 127, 127, 32)	864	input_layer_6
block1_conv1_bn (BatchNormalization)	(None, 127, 127, 32)	128	block1_conv1
block1_conv1_act (Activation)	(None, 127, 127, 32)	0	block1_conv1_bn
block1_conv2 (Conv2D)	(None, 125, 125, 64)	18,432	block1_conv1_act
block1_conv2_bn (BatchNormalization)	(None, 125, 125, 64)	256	block1_conv2
block1_conv2_act (Activation)	(None, 125, 125, 64)	0	block1_conv2_bn
block2_sepconv1 (SeparableConv2D)	(None, 125, 125, 128)	8,768	block1_conv2_act
block2_sepconv1_bn (BatchNormalization)	(None, 125, 125, 128)	512	block2_sepconv1
block2_sepconv2_act (Activation)	(None, 125, 125, 128)	0	block2_sepconv1_bn
block2_sepconv2 (SeparableConv2D)	(None, 125, 125, 128)	17,536	block2_sepconv2_act
block2_sepconv2_bn (BatchNormalization)	(None, 125, 125, 128)	512	block2_sepconv2
conv2d_74 (Conv2D)	(None, 63, 63, 128)	8,192	block2_sepconv2_bn

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block2_pool (MaxPooling2D)	(None, 63, 63, 128)	0	block2_sepconv2_bn
batch_normalization_69 (BatchNormalization)	(None, 63, 63, 128)	512	conv2d_74
add_72 (Add)	(None, 63, 63, 128)	0	batch_normalization_69, block2_pool
block3_sepconv1_act (Activation)	(None, 63, 63, 128)	0	add_72
block3_sepconv1 (SeparableConv2D)	(None, 63, 63, 256)	33,92	block3_sepconv1_act
block3_sepconv1_bn (BatchNormalization)	(None, 63, 63, 256)	1,024	block3_sepconv1
block3_sepconv2_act (Activation)	(None, 63, 63, 256)	0	block3_sepconv1_bn
block3_sepconv2 (SeparableConv2D)	(None, 63, 63, 256)	67,84	block3_sepconv2_act
block3_sepconv2_bn (BatchNormalization)	(None, 63, 63, 256)	1,024	block3_sepconv2
conv2d_75 (Conv2D)	(None, 32, 32, 256)	32,768	add_72
block3_pool (MaxPooling2D)	(None, 32, 32, 256)	0	block3_sepconv2_bn
batch_normalization_70 (BatchNormalization)	(None, 32, 32, 256)	1,024	conv2d_75
add_73 (Add)	(None, 32, 32, 256)	0	batch_normalization_70, block3_pool
block4_sepconv1_act (Activation)	(None, 32, 32, 256)	0	add_73
block4_sepconv1 (SeparableConv2D)	(None, 32, 32, 728)	188,672	block4_sepconv1_act
block4_sepconv1_bn (BatchNormalization)	(None, 32, 32, 728)	2,912	block4_sepconv1
block4_sepconv2_act (Activation)	(None, 32, 32, 728)	0	block4_sepconv1_bn
block4_sepconv2 (SeparableConv2D)	(None, 32, 32, 728)	536,536	block4_sepconv2_act
block4_sepconv2_bn (BatchNormalization)	(None, 32, 32, 728)	2,912	block4_sepconv2
conv2d_76 (Conv2D)	(None, 16, 16, 728)	186,368	add_73
block4_pool (MaxPooling2D)	(None, 16, 16, 728)	0	block4_sepconv2_bn
batch_normalization_71 (BatchNormalization)	(None, 16, 16, 728)	2,912	conv2d_76

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
add_74 (Add)	(None, 16, 16, 728)	0	batch_normalization_71, block4_pool
block5_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_74
block5_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block5_sepconv1_act
block5_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block5_sepconv1
block5_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block5_sepconv1_bn
block5_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block5_sepconv2_act
block5_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block5_sepconv2
block5_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block5_sepconv2_bn
block5_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block5_sepconv3_act
block5_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block5_sepconv3
add_75 (Add)	(None, 16, 16, 728)	0	add_74, block5_sepconv3_bn
block6_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_75
block6_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block6_sepconv1_act
block6_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block6_sepconv1
block6_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block6_sepconv1_bn
block6_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block6_sepconv2_act
block6_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block6_sepconv2
block6_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block6_sepconv2_bn
block6_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block6_sepconv3_act
block6_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block6_sepconv3
add_76 (Add)	(None, 16, 16, 728)	0	add_75, block6_sepconv3_bn
block7_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_76

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block7_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block7_sepconv1_act
block7_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block7_sepconv1
block7_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block7_sepconv1_bn
block7_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block7_sepconv2_act
block7_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block7_sepconv2
block7_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block7_sepconv2_bn
block7_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block7_sepconv3_act
block7_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block7_sepconv3
add_77 (Add)	(None, 16, 16, 728)	0	add_76, block7_sepconv3_bn
block8_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_77
block8_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block8_sepconv1_act
block8_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block8_sepconv1
block8_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block8_sepconv1_bn
block8_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block8_sepconv2_act
block8_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block8_sepconv2
block8_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block8_sepconv2_bn
block8_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block8_sepconv3_act
block8_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block8_sepconv3
add_78 (Add)	(None, 16, 16, 728)	0	add_77, block8_sepconv3_bn
block9_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_78
block9_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block9_sepconv1_act
block9_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block9_sepconv1

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block9_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block9_sepconv1_bn
block9_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block9_sepconv2_act
block9_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block9_sepconv2
block9_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block9_sepconv2_bn
block9_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block9_sepconv3_act
block9_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block9_sepconv3
add_79 (Add)	(None, 16, 16, 728)	0	add_78, block9_sepconv3_bn
block10_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_79
block10_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block10_sepconv1_act
block10_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block10_sepconv1
block10_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block10_sepconv1_bn
block10_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block10_sepconv2_act
block10_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block10_sepconv2
block10_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block10_sepconv2_bn
block10_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block10_sepconv3_act
block10_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block10_sepconv3
add_80 (Add)	(None, 16, 16, 728)	0	add_79, block10_sepconv3_bn
block11_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_80
block11_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block11_sepconv1_act
block11_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block11_sepconv1
block11_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block11_sepconv1_bn
block11_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block11_sepconv2_act

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block11_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block11_sepconv2
block11_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block11_sepconv2_bn
block11_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block11_sepconv3_act
block11_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block11_sepconv3
add_81 (Add)	(None, 16, 16, 728)	0	add_80, block11_sepconv3_bn
block12_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_81
block12_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block12_sepconv1_act
block12_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block12_sepconv1
block12_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block12_sepconv1_bn
block12_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block12_sepconv2_act
block12_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block12_sepconv2
block12_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block12_sepconv2_bn
block12_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block12_sepconv3_act
block12_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block12_sepconv3
add_82 (Add)	(None, 16, 16, 728)	0	add_81, block12_sepconv3_bn
block13_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_82
block13_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block13_sepconv1_act
block13_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block13_sepconv1
block13_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block13_sepconv1_bn
block13_sepconv2 (SeparableConv2D)	(None, 16, 16, 1024)	752,024	block13_sepconv2_act
block13_sepconv2_bn (BatchNormalization)	(None, 16, 16, 1024)	4,096	block13_sepconv2
average_pooling2d_5 (AveragePooling2D)	(None, 1, 1, 1024)	0	block13_sepconv2_bn

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
conv2d_78 (Conv2D)	(None, 1, 1, 256)	262,144	average_pooling2d_5
batch_normalization_73 (BatchNormalization)	(None, 1, 1, 256)	1,024	conv2d_78
conv2d_79 (Conv2D)	(None, 16, 16, 256)	262,144	block13_sepconv2_bn
conv2d_80 (Conv2D)	(None, 16, 16, 256)	2,359,296	block13_sepconv2_bn
conv2d_81 (Conv2D)	(None, 16, 16, 256)	2,359,296	block13_sepconv2_bn
conv2d_82 (Conv2D)	(None, 16, 16, 256)	2,359,296	block13_sepconv2_bn
activation_50 (Activation)	(None, 1, 1, 256)	0	batch_normalization_73
batch_normalization_74 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_79
batch_normalization_75 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_80
batch_normalization_76 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_81
batch_normalization_77 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_82
up_sampling2d_10 (UpSampling2D)	(None, 16, 16, 256)	0	activation_50
activation_51 (Activation)	(None, 16, 16, 256)	0	batch_normalization_74
activation_52 (Activation)	(None, 16, 16, 256)	0	batch_normalization_75
activation_53 (Activation)	(None, 16, 16, 256)	0	batch_normalization_76
activation_54 (Activation)	(None, 16, 16, 256)	0	batch_normalization_77
concatenate_10 (Concatenate)	(None, 16, 16, 1280)	0	activation_51, activation_52, activation_53, activation_54, up_sampling2d_10
conv2d_83 (Conv2D)	(None, 16, 16, 256)	327,68	concatenate_10
conv2d_84 (Conv2D)	(None, 125, 125, 48)	6,144	block2_sepconv2_bn
batch_normalization_78 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_83
batch_normalization_79 (BatchNormalization)	(None, 125, 125, 48)	192	conv2d_84

Layer (type)	Output Shape	Param #	Connected to
activation_55 (Activation)	(None, 16, 16, 256)	0	batch_normalization_78
activation_56 (Activation)	(None, 125, 125, 48)	0	batch_normalization_79
up_sampling2d_11 (UpSampling2D)	(None, 64, 64, 256)	0	activation_55
resizing_10 (Resizing)	(None, 64, 64, 48)	0	activation_56
concatenate_11 (Concatenate)	(None, 64, 64, 304)	0	resizing_10, up_sampling2d_11
conv2d_85 (Conv2D)	(None, 64, 64, 256)	700,416	concatenate_11
batch_normalization_80 (BatchNormalization)	(None, 64, 64, 256)	1,024	conv2d_85
activation_57 (Activation)	(None, 64, 64, 256)	0	batch_normalization_80
conv2d_86 (Conv2D)	(None, 64, 64, 256)	589,824	activation_57
batch_normalization_81 (BatchNormalization)	(None, 64, 64, 256)	1,024	conv2d_86
activation_58 (Activation)	(None, 64, 64, 256)	0	batch_normalization_81
resizing_11 (Resizing)	(None, 256, 256, 256)	0	activation_58
conv2d_87 (Conv2D)	(None, 256, 256, 1)	257	resizing_11
activation_59 (Activation)	(None, 256, 256, 1)	0	conv2d_87
Total Parameters : 24.590.825 (93.81 MB) Trainable Parameters : 24.541.321 (93.62 MB) Non-trainable Parameters : 49.504 (193.38 KB)			

2) Dengan Regularization Dropout

Layer (type)	Output Shape	Param #	Connected to
input_layer_4 (InputLayer)	(None, 256, 256, 3)	0	-
block1_conv1 (Conv2D)	(None, 127, 127, 32)	864	input_layer_4
block1_conv1_bn (BatchNormalization)	(None, 127, 127, 32)	128	block1_conv1
block1_conv1_act (Activation)	(None, 127, 127, 32)	0	block1_conv1_bn

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block1_conv2 (Conv2D)	(None, 125, 125, 64)	18,432	block1_conv1_act
block1_conv2_bn (BatchNormalization)	(None, 125, 125, 64)	256	block1_conv2
block1_conv2_act (Activation)	(None, 125, 125, 64)	0	block1_conv2_bn
block2_sepconv1 (SeparableConv2D)	(None, 125, 125, 128)	8,768	block1_conv2_act
block2_sepconv1_bn (BatchNormalization)	(None, 125, 125, 128)	512	block2_sepconv1
block2_sepconv2_act (Activation)	(None, 125, 125, 128)	0	block2_sepconv1_bn
block2_sepconv2 (SeparableConv2D)	(None, 125, 125, 128)	17,536	block2_sepconv2_act
block2_sepconv2_bn (BatchNormalization)	(None, 125, 125, 128)	512	block2_sepconv2
conv2d_56 (Conv2D)	(None, 63, 63, 128)	8,192	block1_conv2_act
block2_pool (MaxPooling2D)	(None, 63, 63, 128)	0	block2_sepconv2_bn
batch_normalization_52 (BatchNormalization)	(None, 63, 63, 128)	512	conv2d_56
add_48 (Add)	(None, 63, 63, 128)	0	batch_normalization_52, block2_pool
block3_sepconv1_act (Activation)	(None, 63, 63, 128)	0	add_48
block3_sepconv1 (SeparableConv2D)	(None, 63, 63, 256)	33,92	block3_sepconv1_act
block3_sepconv1_bn (BatchNormalization)	(None, 63, 63, 256)	1,024	block3_sepconv1
block3_sepconv2_act (Activation)	(None, 63, 63, 256)	0	block3_sepconv1_bn
block3_sepconv2 (SeparableConv2D)	(None, 63, 63, 256)	67,84	block3_sepconv2_act
block3_sepconv2_bn (BatchNormalization)	(None, 63, 63, 256)	1,024	block3_sepconv2
conv2d_57 (Conv2D)	(None, 32, 32, 256)	32,768	add_48
block3_pool (MaxPooling2D)	(None, 32, 32, 256)	0	block3_sepconv2_bn
batch_normalization_53 (BatchNormalization)	(None, 32, 32, 256)	1,024	conv2d_57
add_49 (Add)	(None, 32, 32, 256)	0	batch_normalization_53, block3_pool

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block4_sepconv1_act (Activation)	(None, 32, 32, 256)	0	add_49
block4_sepconv1 (SeparableConv2D)	(None, 32, 32, 728)	188,672	block4_sepconv1_act
block4_sepconv1_bn (BatchNormalization)	(None, 32, 32, 728)	2,912	block4_sepconv1
block4_sepconv2_act (Activation)	(None, 32, 32, 728)	0	block4_sepconv1_bn
block4_sepconv2 (SeparableConv2D)	(None, 32, 32, 728)	536,536	block4_sepconv2_act
block4_sepconv2_bn (BatchNormalization)	(None, 32, 32, 728)	2,912	block4_sepconv2
conv2d_58 (Conv2D)	(None, 16, 16, 728)	186,368	add_49
block4_pool (MaxPooling2D)	(None, 16, 16, 728)	0	block4_sepconv2_bn
batch_normalization_54 (BatchNormalization)	(None, 16, 16, 728)	2,912	conv2d_58
add_50 (Add)	(None, 16, 16, 728)	0	batch_normalization_54, block4_pool
block5_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_50
block5_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block5_sepconv1_act
block5_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block5_sepconv1
block5_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block5_sepconv1_bn
block5_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block5_sepconv2_act
block5_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block5_sepconv2
block5_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block5_sepconv2_bn
block5_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block5_sepconv3_act
block5_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block5_sepconv3
add_51 (Add)	(None, 16, 16, 728)	0	add_50, block5_sepconv3_bn
block6_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_51
block6_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block6_sepconv1_act

Layer (type)	Output Shape	Param #	Connected to
block6_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block6_sepconv1
block6_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block6_sepconv1_bn
block6_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block6_sepconv2_act
block6_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block6_sepconv2
block6_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block6_sepconv2_bn
block6_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block6_sepconv3_act
block6_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block6_sepconv3
add_52 (Add)	(None, 16, 16, 728)	0	add_51, block6_sepconv3_bn
block7_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_52
block7_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block7_sepconv1_act
block7_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block7_sepconv1
block7_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block7_sepconv1_bn
block7_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block7_sepconv2_act
block7_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block7_sepconv2
block7_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block7_sepconv2_bn
block7_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block7_sepconv3_act
block7_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block7_sepconv3
add_53 (Add)	(None, 16, 16, 728)	0	add_52, block7_sepconv3_bn
block8_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_53
block8_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block8_sepconv1_act
block8_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block8_sepconv1
block8_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block8_sepconv1_bn

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block8_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block8_sepconv2_act
block8_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block8_sepconv2
block8_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block8_sepconv2_bn
block8_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block8_sepconv3_act
block8_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block8_sepconv3
add_54 (Add)	(None, 16, 16, 728)	0	add_53, block8_sepconv3_bn
block9_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_54
block9_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block9_sepconv1_act
block9_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block9_sepconv1
block9_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block9_sepconv1_bn
block9_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block9_sepconv2_act
block9_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block9_sepconv2
block9_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block9_sepconv2_bn
block9_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block9_sepconv3_act
block9_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block9_sepconv3
add_55 (Add)	(None, 16, 16, 728)	0	add_54, block9_sepconv3_bn
block10_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_55
block10_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block10_sepconv1_act
block10_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block10_sepconv1
block10_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block10_sepconv1_bn
block10_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block10_sepconv2_act
block10_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block10_sepconv2

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
block10_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block10_sepconv2_bn
block10_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block10_sepconv3_act
block10_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block10_sepconv3
add_56 (Add)	(None, 16, 16, 728)	0	add_55, block10_sepconv3_bn
block11_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_56
block11_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block11_sepconv1_act
block11_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block11_sepconv1
block11_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block11_sepconv1_bn
block11_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block11_sepconv2_act
block11_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block11_sepconv2
block11_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block11_sepconv2_bn
block11_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block11_sepconv3_act
block11_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block11_sepconv3
add_57 (Add)	(None, 16, 16, 728)	0	add_56, block11_sepconv3_bn
block12_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_57
block12_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block12_sepconv1_act
block12_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block12_sepconv1
block12_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block12_sepconv1_bn
block12_sepconv2 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block12_sepconv2_act
block12_sepconv2_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block12_sepconv2
block12_sepconv3_act (Activation)	(None, 16, 16, 728)	0	block12_sepconv2_bn

Layer (type)	Output Shape	Param #	Connected to
block12_sepconv3 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block12_sepconv3_act
block12_sepconv3_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block12_sepconv3
add_58 (Add)	(None, 16, 16, 728)	0	add_57, block12_sepconv3_bn
block13_sepconv1_act (Activation)	(None, 16, 16, 728)	0	add_58
block13_sepconv1 (SeparableConv2D)	(None, 16, 16, 728)	536,536	block13_sepconv1_act
block13_sepconv1_bn (BatchNormalization)	(None, 16, 16, 728)	2,912	block13_sepconv1
block13_sepconv2_act (Activation)	(None, 16, 16, 728)	0	block13_sepconv1_bn
block13_sepconv2 (SeparableConv2D)	(None, 16, 16, 1024)	752,024	block13_sepconv2_act
block13_sepconv2_bn (BatchNormalization)	(None, 16, 16, 1024)	4,096	block13_sepconv2
average_pooling2d_4 (AveragePooling2D)	(None, 1, 1, 1024)	0	block13_sepconv2_bn
conv2d_60 (Conv2D)	(None, 1, 1, 256)	262,144	average_pooling2d_4
batch_normalization_56 (BatchNormalization)	(None, 1, 1, 256)	1,024	conv2d_60
conv2d_61 (Conv2D)	(None, 16, 16, 256)	262,144	block13_sepconv2_bn
conv2d_62 (Conv2D)	(None, 16, 16, 256)	2,359,296	block13_sepconv2_bn
conv2d_63 (Conv2D)	(None, 16, 16, 256)	2,359,296	block13_sepconv2_bn
conv2d_64 (Conv2D)	(None, 16, 16, 256)	2,359,296	block13_sepconv2_bn
activation_40 (Activation)	(None, 1, 1, 256)	0	batch_normalization_56
batch_normalization_57 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_61
batch_normalization_58 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_62
batch_normalization_59 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_63
batch_normalization_60 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_64
dropout_36 (Dropout)	(None, 1, 1, 256)	0	activation_40

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
activation_41 (Activation)	(None, 16, 16, 256)	0	batch_normalization_57
activation_42 (Activation)	(None, 16, 16, 256)	0	batch_normalization_58
activation_43 (Activation)	(None, 16, 16, 256)	0	batch_normalization_59
activation_44 (Activation)	(None, 16, 16, 256)	0	batch_normalization_60
up_sampling2d_8 (UpSampling2D)	(None, 16, 16, 256)	0	dropout_36
dropout_37 (Dropout)	(None, 16, 16, 256)	0	activation_41
dropout_38 (Dropout)	(None, 16, 16, 256)	0	activation_42
dropout_39 (Dropout)	(None, 16, 16, 256)	0	activation_43
dropout_40 (Dropout)	(None, 16, 16, 256)	0	activation_44
concatenate_8 (Concatenate)	(None, 16, 16, 1280)	0	dropout_37, dropout_38, dropout_39, dropout_40, up_sampling2d_8
conv2d_65 (Conv2D)	(None, 16, 16, 256)	327,68	concatenate_8
conv2d_66 (Conv2D)	(None, 125, 125, 48)	6,144	block2_sepconv2_bn
batch_normalization_61 (BatchNormalization)	(None, 16, 16, 256)	1,024	conv2d_65
batch_normalization_62 (BatchNormalization)	(None, 125, 125, 48)	192	conv2d_66
activation_45 (Activation)	(None, 16, 16, 256)	0	batch_normalization_61
activation_46 (Activation)	(None, 125, 125, 48)	0	batch_normalization_62
dropout_41 (Dropout)	(None, 16, 16, 256)	0	activation_45
dropout_42 (Dropout)	(None, 125, 125, 48)	0	activation_46
up_sampling2d_9 (UpSampling2D)	(None, 64, 64, 256)	0	dropout_41
resizing_8 (Resizing)	(None, 64, 64, 48)	0	dropout_42
concatenate_9 (Concatenate)	(None, 64, 64, 304)	0	resizing_8, up_sampling2d_9

<i>Layer (type)</i>	<i>Output Shape</i>	<i>Param #</i>	<i>Connected to</i>
conv2d_67 (Conv2D)	(None, 64, 64, 256)	700,416	concatenate_9
batch_normalization_63 (BatchNormalization)	(None, 64, 64, 256)	1,024	conv2d_67
activation_47 (Activation)	(None, 64, 64, 256)	0	batch_normalization_63
dropout_43 (Dropout)	(None, 64, 64, 256)	0	activation_47
conv2d_68 (Conv2D)	(None, 64, 64, 256)	589,824	dropout_43
batch_normalization_64 (BatchNormalization)	(None, 64, 64, 256)	1,024	conv2d_68
activation_48 (Activation)	(None, 64, 64, 256)	0	batch_normalization_64
dropout_44 (Dropout)	(None, 64, 64, 256)	0	activation_48
resizing_9 (Resizing)	(None, 256, 256, 256)	0	dropout_44
conv2d_69 (Conv2D)	(None, 256, 256, 1)	257	resizing_9
activation_49 (Activation)	(None, 256, 256, 1)	0	conv2d_69
Total Parameters : 24.590.825 (93.81 MB) Trainable Parameters : 24.541.321 (93.62 MB) Non-trainable Parameters : 49.504 (193.38 KB)			

Lampiran 3. Hasil Evaluasi Model Segmentasi Semantik Kategori Sampah-NonSampah

1) Dice Coefficient Loss Function tanpa Regularization Dropout

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
1	ID_001_zoomed_1_8.png	0.9971160888671875	0.7159420289855073	0.7307692307692307	0.7232796486090776	0.5665137615673134	0.012000083923339844
2	ID_002_zoomed_1_2.png	0.99749755859375	0.7429906542056075	0.5932835820895522	0.6597510373443983	0.49226006207669964	0.01500082015991211

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
3	ID_003_blur_1.png	0.997604 3701171 875	0.878787 8787878 788	0.514 18439 71631 206	0.648 76957 49440 716	0.4801 324505 032673 6	0.0132524 96719360 352
4	ID_003_rotated_30.png	0.997390 7470703 125	0.847328 2442748 091	0.423 66412 21374 0456	0.564 88549 61832 062	0.3936 170214 916251 4	0.0120000 83923339 844
5	ID_003_rotated_60.png	0.997116 0888671 875	0.052083 333	0.430 18867 92452 8303	0.546 76258 99280 576	0.3762 376239 682383 4	0.0129990 57769775 39
6	ID_003_saturation_1.5.png	0.997665 4052734 375	0.881656 8047337 278	0.528 36879 43262 412	0.660 75388 02660 754	0.4933 774836 114643 3	0.0129985 80932617 188
7	ID_004_brightness_0.8.png	0.999938 9648437 5	0.992857 1428571 429	0.978 87323 94366 197	0.985 81560 28368 794	0.9720 279720 475329	0.0119998 45504760 742
8	ID_004_rotated_30.png	0.999771 1181640 625	0.925170 0680272 109	0.971 42857 14285 714	0.947 73519 16376 306	0.9006 622517 214157	0.0110001 56402587 89
9	ID_004_zoomed_0.8.png	0.999771 1181640 625	0.060416 667	0.977 52808 98876 404	0.920 63492 06349 206	0.8529 411766 147635	0.0120015 14434814 453
10	ID_005_brightness_1.1.png	0.999908 4472656 25	0.973333 3333333 334	0.986 48648 64864 865	0.979 86577 18120 806	0.9605 263158 154432	0.0130007 26699829 102
11	ID_005_saturation_1.2.png	0.999908 4472656 25	0.973333 3333333 334	0.986 48648 64864 865	0.979 86577 18120 806	0.9605 263158 154432	0.0119998 45504760 742
12	ID_006_brightness_0.6.png	0.999771 1181640 625	0.982716 0493827 161	0.980 29556 65024 631	0.981 50431 56596 794	0.9636 803874 179951	0.0119979 38156127 93
13	ID_006_saturation_0.9.png	0.999847 4121093 75	0.985294 1176470 589	0.990 14778 32512 315	0.987 71498 77149 877	0.9757 281553 45697	0.0119996 07086181 64

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
14	ID_007_blur_0.2.png	0.999725 3417968 75	0.984415 5844155 844	0.969 30946 29156 01	0.976 80412 37113 402	0.9546 599496 335869	0.0120000 83923339 844
15	ID_007_brightness_1.1.png	0.999740 6005859 375	0.984455 9585492 227	0.971 86700 76726 342	0.978 12097 81209 781	0.9571 788413 206098	0.0120000 83923339 844
16	ID_007_noise_2.png	0.999725 3417968 75	0.984415 5844155 844	0.969 30946 29156 01	0.976 80412 37113 402	0.9546 599496 335869	0.0119931 69784545 898
17	ID_007_rotated_60.png	0.999313 3544921 875	0.951351 3513513 514	0.928 75989 44591 029	0.939 91989 31909 212	0.8866 498740 839673	0.0119979 38156127 93
18	ID_007_zoomed_1_2.png	0.999145 5078125	0.958878 5046728 971	0.937 84277 87934 186	0.948 24399 26062 847	0.9015 817223 37156	0.0119998 45504760 742
19	ID_008_rotated_15.png	0.999099 7314453 125	0.925064 5994832 042	0.922 68041 23711 341	0.923 87096 77419 354	0.8585 131894 82371	0.0119984 14993286 133
20	ID_009.png	0.955947 8759765 625	0.906854 8387096 774	0.945 40486 57453 629	0.925 72869 23413 341	0.8617 270942 10155	0.0140004 15802001 953
21	ID_009_flipped_vertical.png	0.900772 0947265 625	0.812847 9013088 611	0.854 00421 49631 191	0.832 91796 20256 417	0.7136 755899 977383	0.0129985 80932617 188
22	ID_009_saturation_1.5.png	0.954315 1855468 75	0.902232 2548281 916	0.945 08959 06678 577	0.923 16378 38115 28	0.8572 926596 76562	0.0140016 07894897 461
23	ID_010_brightness_0.6.png	0.974258 4228515 625	0.959130 4009038 844	0.974 73867 59581 882	0.966 87155 11654 852	0.9358 677057 596051	0.0130002 49862670 898
24	ID_010_rotated_60.png	0.955093 3837890 625	0.920072 2704981 502	0.951 71984 15876 83	0.935 62851 33095 65	0.8790 431959 233939	0.0139949 32174682 617

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
25	ID_010_zoomed_1_8.png	0.959182 7392578 125	0.986994 7275922 671	0.931 59609 12052 117	0.958 49560 13095 219	0.9202 991389 329908	0.0129961 96746826 172
26	ID_011_saturation_0.9.png	0.991516 1132812 5	0.955541 3059741 37	0.984 58319 56832 948	0.969 84488 55624 254	0.9414 551963 7842	0.0150005 81741333 008
27	ID_012_blur_1.png	0.996795 6542968 75	0.884297 5206611 571	0.656 44171 77914 11	0.753 52112 67605 634	0.6045 197740 85778	0.0120034 21783447 266
28	ID_012_flipped_vertical.png	0.995239 2578125	0.809523 8095238 095	0.481 78137 65182 186	0.604 06091 37055 838	0.4327 272728 304132 3	0.0120081 90155029 297
29	ID_012_noise_5.png	0.996704 1015625	0,6	0.662 57668 71165 644	0,052 08333 3	0.6000 000000 740742	0.0119993 68667602 539
30	ID_013_flipped_horizontal.png	0.998168 9453125	0.810650 8875739 645	0.830 30303 03030 303	0.820 35928 14371 258	0.6954 314721 5852	0.0120007 99179077 148
31	ID_013_saturation_1.2.png	0.999755 859375	0.996677 7408637 874	0.952 38095 23809 523	0.974 02597 40259 74	0.9493 670886 23618	0.0120007 99179077 148
32	ID_014_rotated_30.png	0.996170 0439453 125	0.892972 9729729 73	0.844 58077 70961 146	0.868 10299 52706 253	0.7669 452182 203392	0.0169990 06271362 305
33	ID_014_zoomed_1_2.png	0.996307 3730468 75	0.946255 5066079 296	0.855 77689 24302 789	0.898 74476 98744 769	0.8161 094225 063746	0.0159983 63494873 047
34	ID_015_blur_1.5.png	0.998077 3925781 25	0.931520 6445115 811	0.940 99694 81180 06	0.936 23481 78137 652	0.8801 141769 857169	0.0110003 94821166 992
35	ID_015_blur_1.png	0.998489 3798828 125	0,654166 667	0.958 29094 60834 181	0.950 07564 29652 042	0.9048 991354 558213	0.0119960 30807495 117

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
36	ID_015_zoomed_1_2.png	0.996932 9833984 375	0.887150 8379888 268	0.888 14317 67337 807	0.887 64673 00167 692	0.7979 899497 690462	0.0160012 24517822 266
37	ID_016_noise_2.png	0.999282 8369140 625	0.988684 5827439 887	0.947 15447 15447 154	0.967 47404 84429 065	0.9369 973190 43298	0.0119993 68667602 539
38	ID_016_rotated_45.png	0.998596 1914062 5	0.920570 2647657 841	0.895 04950 49504 951	0.907 63052 20883 534	0.8308 823529 722643	0.0119864 94064331 055
39	ID_016_rotated_60.png	0.998031 6162109 375	0.890063 4249471 459	0.845 38152 61044 176	0.867 14727 08547 889	0.7654 545454 971902	0.0120019 91271972 656
40	ID_016_saturation_1.2.png	0.999267 578125	0.984550 5617977 528	0.949 86449 86449 865	0.966 89655 17241 379	0.9359 145527 455388	0.0120029 44946289 062
41	ID_016_zoomed_1_5.png	0.999542 2363281 25	0.458333 3333333 333	0.392 85714 28571 4285	0.423 07692 30769 231	0.2682 926847 114812	0.0119979 38156127 93
42	ID_017_blur_1.png	0.999450 6835937 5	0.982142 8571428 571	0.968 83468 83468 835	0.975 44338 33560 71	0.9520 639147 86676	0.0119981 76574707 031
43	ID_017_rotated_15.png	0.998947 1435546 875	0.971671 3881019 831	0.933 33333 33333 333	0.952 11658 57043 72	0.9086 092715 352836	0.0119979 38156127 93
44	ID_017_rotated_45.png	0.998992 9199218 75	0.968882 6025459 689	0.939 64334 70507 545	0.954 03899 72144 847	0.9121 171771 089058	0.0130021 57211303 711
45	ID_017_rotated_60.png	0.998703 0029296 875	0.960451 9774011 3	0.922 65943 01221 167	0.941 17647 05882 353	0.8888 888889 034132	0.0129978 65676879 883
46	ID_017_saturation_0.9.png	0.999481 2011718 75	0.982191 7808219 178	0.971 54471 54471 545	0.976 83923 70572 208	0.9547 270306 318606	0.0110003 94821166 992

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
47	ID_017_zoomed_1_5.png	0.998229 9804687 5	0.983299 9331997 327	0.941 77863 08381 318	0.962 09150 32679 739	0.9269 521410 625345	0.0120043 75457763 672
48	ID_018_blur_0.2.png	0.999359 1308593 75	0.985668 7898089 171	0.949 38650 30674 846	0.967 1875	0.9364 599092 380544	0.0119996 07086181 64
49	ID_018_brightness_1.5.png	0.995941 1621093 75	0.994871 7948717 949	0.595 09202 45398 773	0.744 72168 90595 01	0.5932 721713 160135	0.0120005 60760498 047
50	ID_018_rotated_30.png	0.998901 3671875	0.959871 5890850 722	0.927 13178 29457 364	0.943 21766 56151 42	0.8925 373134 48875	0.0130004 8828125
51	ID_019_blur_1.png	0.981338 5009765 625	0.967892 7203065 134	0.984 98849 76800 406	0.976 36577 96587 242	0.9538 229186 33363	0.0149996 28067016 602
52	ID_019_noise_10.png	0.977188 1103515 625	0.959757 8618746 668	0.982 92197 91788 514	0.971 20181 84269 836	0.9440 158777 713301	0.0130019 18792724 61
53	ID_019_rotated_15.png	0.965438 8427734 375	0.937871 6424031 167	0.968 24724 80948 349	0.952 81741 48526 195	0.9098 866122 93973	0.0119988 91830444 336
54	ID_021_blur_0.2.png	0.996398 9257812 5	0.962857 1428571 429	0.601 78571 42857 143	0.740 65934 06593 407	0.5881 326353 249333	0.0119979 38156127 93
55	ID_021_blur_0.5.png	0.996353 1494140 625	0.967930 0291545 19	0.592 85714 28571 429	0.735 32668 88150 609	0.5814 360771 310971	0.0109987 25891113 281
56	ID_021_brightness_1.5.png	0.996093 75	0.934285 7142857 143	0.583 92857 14285 715	0.718 68131 86813 187	0.5608 919383 257476	0.0120007 99179077 148
57	ID_021_flipped_vertical.png	0.995010 3759765 625	0.846376 8115942 029	0.515 90106 00706 714	0.641 05378 70472 008	0.4717 285945 926125 7	0.0120027 06527709 961

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
58	ID_021_noise_2.png	0.996444 7021484 375	0.968481 3753581 661	0.603 57142 85714 285	0.743 67436 74367 436	0.5919 439580 399398	0.0139994 62127685 547
59	ID_021_zoomed_1_5.png	0.995010 3759765 625	0.884036 1445783 133	0.701 31421 74432 497	0.782 14523 65089 94	0.6422 319475 227317	0.0139989 85290527 344
60	ID_023_flipped_horizontal.png	0.992614 7460937 5	0.052083 333	0.569 23076 92307 692	0.647 23032 06997 084	0.4784 482759 182707	0.0154020 78628540 039
61	ID_023_zoomed_1_5.png	0.996124 2675781 25	0.926736 4414843 007	0.846 22067 76715 899	0.884 65031 78928 247	0.7931 596091 373647	0.0119953 15551757 812
62	ID_024_blur_0.2.png	0.996322 6318359 375	0.937611 4081996 435	0.718 57923 49726 776	0.813 61175 56071 152	0.6857 887875 24669	0.0149998 66485595 703
63	ID_024_blur_1.png	0.996231 0791015 625	0.935368 0430879 713	0.711 74863 38797 814	0.808 37858 80527 541	0.6783 854167 085436	0.0120024 68109130 86
64	ID_024_zoomed_0_8.png	0.995849 609375	0.820689 6551724 138	0.519 65065 50218 34	0.636 36363 63636 364	0.4666 666667 712418	0.0120007 99179077 148
65	ID_024_zoomed_1_2.png	0.994384 765625	0.828746 1773700 305	0.464 83704 97427 101	0.595 60439 56043 956	0.4241 001565 846479 5	0.0130012 03536987 305
66	ID_025_noise_2.png	0.997497 5585937 5	0.958823 5294117 647	0.773 73417 72151 899	0.856 39229 42206 655	0.7488 514548 623505	0.0109996 79565429 688
67	ID_025_saturation_0.9.png	0.997467 0410156 25	0.956862 7450980 393	0.772 15189 87341 772	0.854 64098 07355 516	0.7461 773700 693919	0.0119984 14993286 133
68	ID_026_blur_0.2.png	0.996505 7373046 875	0.936395 7597173 145	0.819 58762 88659 794	0.874 10665 20065 97	0.7763 671875 218391	0.0130002 49862670 898

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
69	ID_026_saturation_1.2.png	0.996566 7724609 375	0.939787 4852420 307	0.820 61855 67010 309	0.876 16951 01816 18	0.7796 278158 883813	0.0119979 38156127 93
70	ID_027_blur_1.5.png	0.993850 7080078 125	0.901453 9579967 69	0.798 85468 86184 682	0.847 05882 35294 118	0.7346 938775 684863	0.0140016 07894897 461
71	ID_028_rotated_60.png	0.991333 0078125	0.818767 2493100 276	0.705 78905 63045 203	0.758 09199 31856 9	0.6104 252400 815894	0.0120003 22341918 945
72	ID_029_brightness_1.5.png	0.984786 9873046 875	0.918340 2804092 46	0.895 43691 11398 485	0.906 74399 02721 915	0.8293 976728 297502	0.0129971 50421142 578
73	ID_029_noise_5.png	0.986633 3007812 5	0.933830 5603365 844	0.902 08756 69684 094	0.917 68464 57432 813	0.8478 902587 281144	0.0130014 41955566 406
74	ID_029_rotated_45.png	0.970642 0898437 5	0.837104 0723981 901	0.739 22187 17139 852	0.785 12396 69421 488	0.6462 585034 078643	0.0129983 42514038 086
75	ID_030_brightness_0.6.png	0.995941 1621093 75	0.911914 6963375 058	0.962 79980 42094 958	0.936 66666 66666 666	0.8808 777429 520432	0.0120003 22341918 945
76	ID_030_brightness_1.1.png	0.996276 8554687 5	0.907936 5079365 079	0.979 93147 33235 438	0.942 56120 52730 696	0.8913 624220 885414	0.0119996 07086181 64
77	ID_030_noise_10.png	0.995208 7402343 75	0.892063 4920634 921	0.962 79980 42094 958	0.926 08286 25235 404	0.8623 410784 803884	0.0120000 83923339 844
78	ID_030_noise_5.png	0.995941 1621093 75	0.903313 6631865 638	0.974 05775 81987 273	0.937 35280 26377 768	0.8820 921985 867868	0.0119979 38156127 93
79	ID_031_blur_0.2.png	0.999404 9072265 625	0.962962 9629629 629	0.748 20143 88489 209	0.842 10526 31578 947	0.7272 727274 634456	0.0130016 80374145 508

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
80	ID_031_brightness_08.png	0.999374 3896484 375	0.962264 1509433 962	0.733 81294 96402 878	0.832 65306 12244 898	0.7132 867134 872121	0.0123291 015625
81	ID_031_brightness_15.png	0.998245 2392578 125	0.852941 1764705 882	0.208 63309 35251 7986	0.335 26011 56069 364	0.2013 888894 434799 6	0.0120010 37597656 25
82	ID_031_flipped_horizontal.png	0.998611 4501953 125	0.745762 7118644 068	0.590 60402 68456 376	0.659 17602 99625 468	0.4916 201120 158546 5	0.0120007 99179077 148
83	ID_031_zoomed_08.png	0.999313 3544921 875	0.870370 3703703 703	0.552 94117 64705 883	0.676 25899 28057 554	0.5108 695657 490548	0.0110096 93145751 953
84	ID_032_blur_0.2.png	0.998596 1914062 5	0.993665 1583710 407	0.928 14877 43026 204	0.959 79020 97902 098	0.9226 890756 367488	0.0120017 52853393 555
85	ID_032_noise_5.png	0.998535 15625	0.991855 2036199 095	0.926 45815 72273 88	0.958 04195 80419 58	0.9194 630872 550786	0.0149979 59136962 89
86	ID_033_blur_1.png	0.998184 2041015 625	0.989889 7058823 529	0.908 86075 94936 708	0.947 64628 24461 065	0.9005 016722 491219	0.0109982 49053955 078
87	ID_034_rotated_30.png	0.996948 2421875	0.951219 5121951 219	0.919 69407 26577 438	0.935 19118 60012 961	0.8782 714546 635257	0.0120010 37597656 25
88	ID_034_saturation_1.5.png	0.997970 5810546 875	0.983083 9297332 465	0.933 86897 40420 272	0.957 84469 09667 195	0.9190 997566 959185	0.0119988 91830444 336
89	ID_034_zoomed_12.png	0.996505 7373046 875	0.983173 0769230 769	0.913 35417 59714 158	0.946 97846 72377 866	0.8992 963940 237777	0.0119996 07086181 64
90	ID_034_zoomed_18.png	0.996582 03125	0.982802 2255943 348	0.910 92358 18096 577	0.945 49878 34549 878	0.8966 312874 990019	0.0120005 60760498 047

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
91	ID_035_brightness_1.1.png	0.998840 33203125	0.956661 316211878	0.924 03100 77519 38	0.940 06309 14826 499	0.8869 047619 215915	0.0119981 76574707 031
92	ID_035_saturation_0.6.png	0.998794 5556640625	0.963934 4262295082	0.911 62790 69767 442	0.937 05179 28286 852	0.8815 592204 075623	0.0170013 90457153 32
93	ID_035_zoomed_1_2.png	0.998397 8271484375	0.940038 6847195358	0.867 85714 28571 429	0.902 50696 37883 009	0.8223 350254 107725	0.0119984 14993286 133
94	ID_037_blur_1.png	0.999893 1884765625	0.994782 6086956522	0.999 12663 75545 852	0.996 94989 10675 382	0.9939 183318 858456	0.0120019 91271972 656
95	ID_038_brightness_1.1.png	0.999954 2236328125	0.998196 5734896303	0.999 09747 29241 877	0.998 64682 00270 636	0.9972 972972 975408	0.0123364 92538452 148
96	ID_039_noise_10.png	0.999191 2841796875	0.934640 522875817	0.768 81720 43010 753	0.843 65781 71091 446	0.7295 918368 726573	0.0129909 51538085 938
97	ID_039_noise_5.png	0.999313 3544921875	0.966887 4172185431	0.784 94623 65591 398	0.866 46884 27299 704	0.7643 979058 825142	0.0120019 91271972 656
98	ID_040_blur_1.png	0.999389 6484375	0.979797 9797979798	0.923 80952 38095 239	0.950 98039 21568 627	0.9065 420560 966023	0.0119996 07086181 64
99	ID_041_blur_0.2.png	0.999008 1787109375	0.950413 2231404959	0.880 10204 08163 265	0.913 90728 47682 119	0.8414 634146 728138	0.0110008 71658325 195
100	ID_041_blur_1.5.png	0.998840 33203125	0.948863 6363636364	0.852 04081 63265 306	0.897 84946 23655 914	0.8146 341463 866746	0.0109984 87472534 18
101	ID_041_blur_1.png	0.998931 884765625	0.954802 2598870056	0.862 24489 79591 837	0.906 16621 98391 421	0.8284 313725 910708	0.0112893 58139038 086

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
102	ID_041_brightness_1.1.png	0.999008 1787109 375	0.950413 2231404 959	0.880 10204 08163 265	0.913 90728 47682 119	0.8414 634146 728138	0.0109982 49053955 078
103	ID_041_saturation_1.5.png	0.999008 1787109 375	0.955431 7548746 518	0,607 63888 9	0.913 44873 50199 734	0.8406 862745 488514	0.0119988 91830444 336
104	ID_042_blur_1.png	0.998397 8271484 375	0.975524 4755244 755	0.908 79478 82736 156	0.940 97807 75716 695	0.8885 350318 589665	0.0120010 37597656 25
105	ID_042_noise_2.png	0.998443 6035156 25	0.974507 5318655 851	0.913 13789 35939 196	0.942 82511 21076 233	0.8918 345705 310886	0.0120022 29690551 758
106	ID_042_zoomed_1_5.png	0.998260 4980468 75	0.571428 5714285 714	0.068 96551 72413 7931	0.123 07692 30769 2308	0.0655 737712 577264 1	0.0119946 00296020 508
107	ID_043_brightness_0.8.png	0.998626 7089843 75	0.891891 8918918 919	0.445 94594 59459 4594	0.594 59459 45945 946	0.4230 769234 467455	0.0129997 73025512 695
108	ID_043_brightness_1.1.png	0.998611 4501953 125	0.913043 4782608 695	0.425 67567 56756 7566	0.580 64516 12903 226	0.4090 909094 746163	0.0120010 37597656 25
109	ID_043_flipped_vertical.png	0.998245 2392578 125	0.754716 9811320 755	0.281 69014 08450 7044	0.410 25641 02564 1024	0.2580 645166 077003 6	0.0180029 86907958 984
110	ID_043_noise_5.png	0.998565 6738281 25	0,607638 889	0.425 67567 56756 7566	0.572 72727 27272 728	0.4012 738857 316727	0.0130007 26699829 102
111	ID_043_rotated_15.png	0.998306 2744140 625	0.704225 3521126 76	0.357 14285 71428 5715	0.473 93364 92890 9953	0.3105 590066 394044	0.0120043 75457763 672
112	ID_043_saturation_1.5.png	0.998626 7089843 75	0.891891 8918918 919	0.445 94594 59459 4594	0.594 59459 45945 946	0.4230 769234 467455	0.0130023 95629882 812

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
113	ID_044_brightness_0.8.png	0.998504638671875	0.9825949367088608	0.8771186440677966	0.926865671641791	0.8636995827727817	0.011998653411865234
114	ID_044_flipped_vertical.png	0.9949951171875	0.8946280991735537	0.6098591549295774	0.7252931323283082	0.5689881735126165	0.012000083923339844
115	ID_045_rotated_30.png	0.99951171875	0.642361111	0.560606060606	0.6981132075471698	0.5362318847300988	0.012000799179077148
116	ID_047_blur_1.5.png	0.9990234375	0.9806560134566863	0.9660314830157415	0.9732888146911519	0.9479674796790271	0.01599907875061035
117	ID_048.png	0.9979095458984375	0.9409282700421941	0.975625	0.9579625652040503	0.9193168433498635	0.01199793815612793
118	ID_048_blur_1.5.png	0.9976043701171875	0.9328134373125375	0.971875	0.9519436792164064	0.9082943925287211	0.012999773025512695
119	ID_048_flipped_horizontal.png	0.9912261962890625	0.7962308598351001	0.8551549652118912	0.824641659042391	0.7016087182303264	0.01200103759765625
120	ID_048_noise_2.png	0.997894287109375	0.9387755102040817	6,788194444	0.9577464788732394	0.9189189189236828	0.01300191879272461
121	ID_048_rotated_30.png	0.99505615234375	0.8665511265164645	0.9416195856873822	0.9025270758122743	0.8223684210623702	0.012011289596557617
122	ID_048_saturation_1.2.png	0.9979248046875	0.93937575030012	0.978125	0.9583588487446417	0.9200470311628426	0.011998176574707031
123	ID_049_blur_0.2.png	0.998931884765625	0.9611344537815126	0.9651898734177216	0.9631578947368421	0.9289340101594991	0.012008905410766602

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
124	ID_049_blur_1.5.png	0.998519 8974609 375	0.956055 7341907 824	0.940 92827 00421 941	0.948 43168 52737 905	0.9019 211324 669443	0.0129978 65676879 883
125	ID_049_noise_10.png	0.998535 15625	0.945606 6945606 695	0.953 58649 78902 954	0.949 57983 19327 731	0.9040 000000 096	0.0119893 55087280 273
126	ID_049_noise_2.png	0.998962 4023437 5	0.963157 8947368 421	0.965 18987 34177 216	0.964 17281 34878 82	0.9308 240081 453892	0.0110025 40588378 906
127	ID_049_rotated_30.png	0.994094 8486328 125	0.865359 4771241 83	0.699 78858 35095 138	0.773 81648 15897 136	0.6310 772164 317371	0.0119974 61318969 727
128	ID_050_rotated_45.png	0.998016 3574218 75	0.930926 2166405 023	0.873 34315 16936 672	0.901 21580 54711 246	0.8201 936376 45893	0.0110015 86914062 5
129	ID_050_zoomed_1_5.png	0.997604 3701171 875	0.967930 0291545 19	0.694 56066 94560 67	0.808 76979 29354 446	0.6789 366053 826306	0.0109817 98171997 07
130	ID_051_brightness_1_5.png	0.998458 8623046 875	0.986966 8246445 498	0.983 18087 93154 323	0.985 07021 43385 07	0.9705 796679 297821	0.0129983 42514038 086
131	ID_051_flipped_vertical.png	0.961074 8291015 625	0.872645 7399103 139	0.287 69958 60437 611	0.432 73293 30664 8875	0.2761 066969 558426	0.0149958 13369750 977
132	ID_051_noise_10.png	0.997909 5458984 375	0.980212 6402835 204	0.979 34493 95101 8	0.979 77859 77859 779	0.9603 587962 974434	0.0129978 65676879 883
133	ID_051_noise_5.png	0.998672 4853515 625	0.989620 4033214 709	0.984 65624 07789 908	0.987 13208 10530 987	0.9745 911214 960692	0.0129978 65676879 883
134	ID_051_rotated_60.png	0.978103 6376953 125	0.975894 2457231 726	0.471 98194 81007 8975	0.636 24841 57160 964	0.4665 427509 491992	0.0120012 76016235 352

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
135	ID_052_rotated_15.png	0.953414 9169921 875	0.719675 9259259 259	0.627 95394 86972 329	0.670 69356 05652 034	0.5045 439792 35564	0.0130090 71350097 656
136	ID_053_zoomed_1_8.png	0.995635 9863281 25	0.737642 5855513 308	0.472 01946 47201 946	0.575 66765 57863 502	0.4041 666667 907986	0.0120010 37597656 25
137	ID_054_noise_5.png	0.968383 7890625	0.794033 1491712 708	0.759 13796 74624 974	0.776 19356 23244 761	0.6342 453662 906576	0.0149986 74392700 195
138	ID_055.png	0.975433 3496093 75	0.854573 0934887 256	0.765 02608 30120 209	0.807 32407 85064 624	0.6769 014649 874192	0.0129997 73025512 695
139	ID_055_blur_0.5.png	0.975234 9853515 625	0.854452 9262086 514	0.761 62395 10092 991	0.805 37234 68041 731	0.6741 618149 031487	0.0139994 62127685 547
140	ID_055_rotated_60.png	0.953399 6582031 25	0.659713 4958532 295	0.606 93641 61849 711	0.632 22543 35260 116	0.4622 292657 252644 6	0.0170032 97805786 133
141	ID_055_saturation_0.6.png	0.974472 0458984 375	0.850409 8360655 737	0.753 00521 66024 042	0.798 74894 74317 334	0.6649 309032 712811	0.0130000 11444091 797
142	ID_056_saturation_0.6.png	0.971252 4414062 5	0.838682 9571339 822	0.785 64500 48496 605	0.811 29807 69230 769	0.6825 075834 229439	0.0169987 67852783 203
143	ID_057_blur_1.5.png	0.992218 0175781 25	0.805170 8217913 204	0.744 66268 14688 301	0.773 73558 11889 973	0.6309 696092 886418	0.0129978 65676879 883
144	ID_057_noise_10.png	0.990661 6210937 5	0.772151 8987341 772	0.677 19897 52348 42	0.721 56505 91446 77	0.5644 128114 18903	0.0111436 84387207 031
145	ID_057_rotated_45.png	0.991622 9248046 875	0.704918 0327868 853	0.607 77385 15901 06	0.652 75142 31499 051	0.4845 070423 019241 5	0.0119988 91830444 336

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
146	ID_058_noise_2.png	0.970367431640625	0.9482983581602696	0.946240642291418	0.9472683827522537	0.8998194480273417	0.013000726699829102
147	ID_059_blur_0.2.png	0.966156005859375	0.8764089121887287	0.8398643556895252	0.857747562852745	0.7509264458197537	0.013008594512939453
148	ID_059_blur_1.png	0.965301513671875	0.8750989184911633	0.833333333334	0.8537056098816264	0.744752497477329	0.012998580932617188
149	ID_059_zoomed_0.8.png	0.962127685546875	0.7598059037606146	0.7438638163103721	0.751750350070014	0.6022435897499641	0.013000249862670898
150	ID_060_blur_1.png	0.9657440185546875	0.828998447204969	0.757941437444543	0.79187911374803	0.6554634745295356	0.013004064559936523
151	ID_060_flipped_vertical.png	0.936737060546875	0.639743347801472	0.6024524613470766	0.6205381658429434	0.4498407643385106	0.01299738883972168
152	ID_061_blur_0.2.png	0.948760986328125	0.8741433021806854	0.8912966753723441	0.882636655948553	0.7899280575552711	0.013289213180541992
153	ID_061_blur_0.5.png	0.9486236572265625	0.8747397640527411	0.8897437707348063	0.8821779752948176	0.7891935887816856	0.015003681182861328
154	ID_061_blur_1.5.png	0.9423675537109375	0.8619704570791528	0.8732265123173573	0.8675619762263754	0.7661010651488351	0.012998342514038086
155	ID_061_flipped_horizontal.png	0.9019012451171875	0.7583224115334207	0.8084957730734298	0.782605755249721	0.642853174825605	0.013993978500366211
156	ID_061_noise_5.png	0.9458770751953125	0.8674231940215887	0.8848732970988918	0.8760613578391977	0.7794565690494345	0.01300048828125

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
157	ID_062_blur_1.png	0.9699249267578125	0.8476624058833829	0.8147088522383036	0.8308590062644813	0.7106576629519868	0.012998104095458984
158	ID_062_zoomed_1_8.png	0.9398345947265625	0.7944405837387074	0.6987775061124695	0.7435447154471545	0.59177968734246	0.01699995994567871
159	ID_063_brightness_1_5.png	0.97564697265625	0.8316997370308391	0.795927705330588	0.8134206219312602	0.6855172413855071	0.013000011444091797
160	ID_064_blur_1.5.png	0.96563720703125	0.8507577210819106	0.7505500084616686	0.797518431936702	0.6632271571756658	0.013001203536987305
161	ID_064_rotated_15.png	0.953460693359375	0.7823336968375136	0.63610569249867	0.7016823161189358	0.5404550248675538	0.013000726699829102
162	ID_066_noise_2.png	0.96990966796875	0.8417934031206794	0.7844653046199154	0.8121189024390244	0.6836701957060688	0.013996601104736328
163	ID_066_zoomed_1_5.png	0.9600830078125	0.7372600926538716	0.7010698552548773	0.7187096774193549	0.560926485405154	0.016994476318359375
164	ID_067_blur_1.5.png	0.9644317626953125	0.8312572985597508	0.7447253705318222	0.7856157454244459	0.6469251741949875	0.012998580932617188
165	ID_067_blur_1.png	0.96710205078125	0.8484907497565726	0.7597210113339146	0.8016559337626495	0.6689697528071707	0.013000011444091797
166	ID_067_noise_5.png	0.96795654296875	0.8514794043705279	0.7677419354838709	0.8074454428754814	0.6770721205647074	0.01999831199645996
167	ID_068_noise_10.png	0.9697418212890625	0.7852499439587537	0.7736307420494699	0.7793970408276782	0.6385344513372487	0.013000011444091797

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
168	ID_068_saturation_1.2.png	0.9727630615234375	0.8105048675571654	0.7906360424028268	0.8004471771939631	0.6672879776390067	0.011999368667602539
169	ID_069_brightness_0.8.png	0.9538421630859375	0.8077023158990372	0.5758812615955473	0.6723708437127695	0.5064447707700042	0.012999534606933594
170	ID_069_flipped_horizontal.png	0.92218017578125	0.5437714890240677	0.37856748296814585	0.4463742943986105	0.2873113471312561	0.014000177383422852
171	ID_069_saturation_0.6.png	0.952728271484375	0.8030142781597038	0.5634508348794063	0.662232882686437	0.49502852486560667	0.013003826141357422
172	ID_069_saturation_1.2.png	0.9541168212890625	0.8076426542731733	0.5803339517625232	0.6753751484400302	0.5098614507007357	0.019002199172973633
173	ID_069_saturation_1.5.png	0.9537811279296875	0.8067030397505845	0.5760667903525046	0.6721506656564563	0.5061949788147018	0.014999628067016602
174	ID_070_blur_1.png	0.9550018310546875	0.8708045977011494	0.7295839753466872	0.7939635296583526	0.6583246437300622	0.01500248908996582
175	ID_071_noise_2.png	0.9717559814453125	0.8622283073763478	0.8280736357659435	0.8448059025739918	0.7313107853138147	0.011995553970336914
176	ID_071_noise_5.png	0.970672607421875	0.8587931034482759	0.8187047994740303	0.8382699427802087	0.7215703317438568	0.013000965118408203
177	ID_071_rotated_30.png	0.9484100341796875	0.7216392793506237	0.6485765124555161	0.6831599662637053	0.5187873612365672	0.01200103759765625
178	ID_071_saturation_1.2.png	0.9717254638671875	0.8597177350790682	0.8310322156476002	0.8451316339323025	0.7317991026236532	0.011986494064331055

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
179	ID_072_noise_10.png	0.946197509765625	0.7918463347706781	0.6211562115621156	0.6961916250215405	0.5339677504687553	0.013003349304199219
180	ID_072_noise_2.png	0.952423095703125	0.8278466305189776	0.6572878228782287	0.7327733973260199	0.5782496956637596	0.01299905776977539
181	ID_072_saturation_1.5.png	0.9517669677734375	0.8188060270837307	0.6600553505535055	0.7309100195794671	0.5759323853021743	0.01399850845336914
182	ID_073_rotated_15.png	0.9261322021484375	0.830352988100777	0.845128552097429	0.8376756194883144	0.7206900530826178	0.01499795913696289
183	ID_073_rotated_60.png	0.9160308837890625	0.8277804166383932	0.8044711158005803	0.8159593324637971	0.6891311716207822	0.01197671890258789
184	ID_074_brightness_1.1.png	0.980072021484375	0.9674409563611625	0.9690420560747663	0.9682408443169107	0.938436881305089	0.0169985294342041
185	ID_074_noise_5.png	0.9787750244140625	0.9644052179816692	0.9680198598130841	0.9662091582655168	0.9346273145975438	0.01500248908996582
186	ID_074_rotated_45.png	0.9570465087890625	0.9226993256644189	0.9367732192298012	0.9296830115154997	0.8686053024651391	0.016001462936401367
187	ID_074_rotated_60.png	0.9449462890625	0.9064098705988565	0.9120823660038356	0.9092372710807003	0.8335793357941256	0.014002084732055664
188	ID_074_saturation_1.2.png	0.9799652099609375	0.9672481656057146	0.9688960280373832	0.9680713955693894	0.9381185785656607	0.013998270034790039
189	ID_074_zoomed_1.5.png	0.9382781982421875	0.9656476109771202	0.9083049756277016	0.9360989557826891	0.8798740830936362	0.015998363494873047

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
190	ID_075_blur_1.5.png	0.986053466796875	0.9873282231890063	0.981229840093336	0.9842695855707008	0.9690263987259174	0.013000965118408203
191	ID_075_blur_1.png	0.987396240234375	0.9890163028460901	0.9825681147484729	0.9857816641994009	0.9719619823490429	0.011998653411865234
192	ID_075_noise_10.png	0.9857025146484375	0.9863098727542329	0.9814700432365658	0.9838840061230457	0.9682792240767518	0.014999628067016602
193	ID_075_rotated_45.png	0.9831085205078125	0.9769710215314877	0.9781983223244316	0.9775842867267389	0.9561514695399027	0.01300191879272461
194	ID_076_brightness_1.1.png	0.982452392578125	0.8113496932515337	0.5392456676860347	0.647887323943662	0.4791666666902552	0.015997886657714844
195	ID_076_rotated_45.png	0.982635498046875	0.6962142197599261	0.48240563019833654	0.5699168556311414	0.39852008459838684	0.012998819351196289
196	ID_076_zoomed_1_8.png	0.99139404296875	0.5924657534246576	0.27993527508090615	0.3802197802197802	0.23473541394372655	0.015000581741333008
197	ID_077.png	0.9984130859375	0.9404761904761905	0.626984126984127	0.7523809523809524	0.6030534352660101	0.015999317169189453
198	ID_077_rotated_60.png	0.99835205078125	0.8294117647058824	0.6409090909090909	0.7230769230769231	0.5662650604151546	0.01600050926208496
199	ID_077_zoomed_1_5.png	0.999847412109375	0	0	0	9999999,9	0.01299905776977539
200	ID_078_brightness_1.5.png	0.996612548828125	0.8657718120805369	0.38972809667673713	3,732638889	0.3675213677015608	0.010999917984008789

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
201	ID_078_noise_10.png	0.996704 1015625	0.870967 7419354 839	0.407 85498 48942 598	0.555 55555 55555 556	0.3846 153847 907078 4	0.0119993 68667602 539
202	ID_079.png	0.996154 7851562 5	0.927125 5060728 745	0.835 76642 33576 643	0.879 07869 48176 583	0.7842 465753 609377	0.0120024 68109130 86
203	ID_079_brightness_0.8.png	0.996093 75	0.924242 4242424 242	0.834 85401 45985 401	0.877 27708 53307 766	0.7813 834329 819483	0.0120010 37597656 25
204	ID_079_rotated_15.png	0.994674 6826171 875	0.903499 4697773 064	0.767 56756 75675 676	0.830 00487 09206 04	0.7094 088260 025471	0.0150029 65927124 023
205	ID_079_zoomed_1.8.png	0.988906 8603515 625	0.918513 6897001 304	0.855 23520 48558 421	0.885 74571 74288 857	0.7949 224259 578301	0.0130009 65118408 203
206	ID_080.png	0.996139 5263671 875	0.919273 4611503 531	0.840 40590 40590 406	0.878 07228 91566 265	0.7826 460481 286386	0.0130000 11444091 797
207	ID_080_rotated_30.png	0.994003 2958984 375	0.855332 6293558 606	0.759 84990 61913 696	0.804 76900 14903 129	0.6733 167082 565821	0.0119976 99737548 828
208	ID_081_blur_1.png	0.999679 5654296 875	0.888888 8888888 888	0.005 55555 6	0.842 10526 31578 947	0.7272 727276 269186	0.0119991 30249023 438
209	ID_081_rotated_45.png	0.999572 7539062 5	0.00625	0.710 52631 57894 737	0.794 11764 70588 235	0.6585 365857 822725	0.0110006 33239746 094
210	ID_082_blur_1.5.png	0.993270 8740234 375	0.839869 2810457 516	0.599 76662 77712 952	0.699 79577 94417 972	0.5382 198953 36312	0.0120024 68109130 86
211	ID_082_brightness_0.6.png	0.993713 3789062 5	0.853736 0890302 067	0.626 60443 40723 453	0.722 74562 58411 844	0.5658 587987 812583	0.0110044 47937011 719

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
21 2	ID_082_zoomed_1_5.png	0.990859 9853515 625	0.704063 6042402 827	0.751 17813 38360 037	0.726 85818 51345 189	0.5709 169054 748626	0.0129983 42514038 086
21 3	ID_083_blur_0.5.png	0.986419 6777343 75	0.991537 0164335 09	0.992 22471 66402 015	0.991 88074 73361 553	0.9838 922773 424359	0.0140013 69476318 36
21 4	ID_083_blur_1.png	0.986053 4667968 75	0.991443 6356338 825	0.991 87793 17016 19	0.991 66073 61179 54	0.9834 594085 92451	0.0129985 80932617 188
21 5	ID_083_saturation_0.9.png	0.986206 0546875	0.991033 1881390 221	0.992 48024 23844 202	0.991 75618 74190 666	0.9836 471843 852614	0.0132753 84902954 102
21 6	ID_083_zoomed_0_8.png	0.977996 8261718 75	0.976871 8373881 472	0.981 81191 27661 409	0.979 33564 52953 483	0.9595 080310 009	0.0139982 70034790 039
21 7	ID_083_zoomed_1_5.png	0.992660 5224609 375	0.997757 1038208 211	0.994 66208 98154 563	0.996 20719 29285 045	0.9924 430479 183151	0.0139863 49105834 961
21 8	ID_084_blur_1.5.png	0.998046 875	0.840490 7975460 123	0.573 22175 73221 757	0.681 59203 98009 95	0.5169 811322 577429	0.0140025 61569213 867
21 9	ID_084_saturation_0.6.png	0.998062 1337890 625	0.833333 3333333 334	0.585 77405 85774 058	0.687 96068 79606 88	0.5243 445694 665375	0.0120000 83923339 844
22 0	ID_084_saturation_0.9.png	0.998092 6513671 875	0.835294 1176470 589	0.594 14225 94142 259	0.694 37652 81173 594	0.5318 352061 67852	0.0110039 71099853 516
22 1	ID_086_blur_1.5.png	0.999908 4472656 25	0,005555 556	0.952 38095 23809 523	0.869 56521 73913 043	0.7692 307701 183432	0.0119879 24575805 664
22 2	ID_087_brightness_0.8.png	0.998931 8847656 25	0.910596 0264900 662	0.864 77987 42138 365	0.887 09677 41935 484	0.7971 014493 341735	0.0110042 09518432 617

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
223	ID_087_brightness_1.5.png	0.9989013671875	0,063194444	0.8584905660377359	0.883495145631068	0.7913043478865784	0.012001991271972656
224	ID_087_noise_5.png	0.998931884765625	0.9133333333333333	0.8616352201257862	0.8867313915857605	0.7965116279661304	0.011999845504760742
225	ID_087_zoomed_1_2.png	0.998260498046875	0.8881118881118881	0.8523489932885906	0.8698630136986302	0.7696969697434956	0.012000799179077148
226	ID_087_zoomed_1_8.png	0,041666667	0	0	0	0,041666667	0.016010522842407227
227	ID_088_blur_1.5.png	0.9880218505859375	0.8770226537216829	0.26620825147347743	0.4084400904295403	0.25662878794918287	0.012997627258300781
228	ID_088_saturation_0.9.png	0.9884185791015625	0.8797653958944281	0.29469548133595286	0.44150110375275936	0.28328611904784834	0.011995553970336914
229	ID_089_rotated_15.png	0.9974822998046875	0.8775510204081632	0.3598326359832636	0.5103857566765578	0.34262948233361373	0.01299738883972168
230	ID_090_zoomed_1_5.png	0.9993896484375	0.8504672897196262	0.7913043478260869	0.8198198198198198	0.6946564887827049	0.01130366325378418
231	ID_090_zoomed_1_8.png	0.9992828369140625	0.935064935064935	0.631578947368421	0.7539267015706806	0.6050420171386202	0.0110015869140625
232	ID_091_saturation_0.9.png	0.99993896484375	0	0	0	249999993,8	0.011998891830444336
233	ID_092_saturation_0.9.png	0.99896240234375	0.9217391304347826	0.8091603053435115	0.8617886178861789	0.7571428572295917	0.011999845504760742
234	ID_093_blur_0.5.png	0.9992218017578125	0.9513888888888888	0.93197278	0.94158075	0.8896103896342835	0.011998891830444336

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
				91156463	60137457		
235	ID_093_blur_1.5.png	0.9990081787109375	0.9311926605504587	0.9206349206349206	0.9258836944127709	0.8619957537447992	0.01299905776977539
236	ID_093_brightness_1.5.png	0.998748779296875	0.9243498817966903	0.8866213151927438	0.9050925925925926	0.82663847783792	0.011996984481811523
237	ID_093_rotated_30.png	0.997711181640625	0.8804347826086957	0.7534883720930232	0.8120300751879699	0.6835443038642312	0.010999917984008789
238	ID_094_brightness_0.8.png	0.9984283447265625	0.925531914893617	0.47540983606557374	0.628158844765343	0.4578947371274238	0.019999980926513672
239	ID_094_rotated_45.png	0.9981842041015625	0.052083333	0.37735849056603776	0.50209205	0.33519553109765615	0.012004852294921875
240	ID_094_rotated_60.png	0.9981842041015625	0.7671232876712328	0.35443037974683544	0.4848484848486	0.3200000038857146	0.01100015640258789
241	ID_094_saturation_0.6.png	0.9984588623046875	0.9456521739130435	0.47540983606557374	0.6327272727272727	0.4627659577325713	0.012000083923339844
242	ID_095_brightness_1.1.png	0.9983062744140625	0.00625	0.2517482518	0.39344262295081966	0.24489795969734834	0.012001276016235352
243	ID_095_flipped_vertical.png	0.998199462890625	0.00486111	0.208955223880597	0.3218390804597701	0.191780822471383	0.011999130249023438
244	ID_095_rotated_60.png	0.998687744140625	0.041666667	0.1134020618556701	0.2037037037037037	0.1134020627696886	0.01200103759765625
245	ID_095_zoomed_1_2.png	0.9981689453125	0.7894736842105263	0.11450381	0.001388889	0.111111117	0.014998912811279297

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
				679389313		6954733	
246	ID_095_zoomed_1_5.png	0.99853515625	0.8928571428571429	0.211864406779661	0.34246575	0.20661157090362683	0.01299738883972168
247	ID_095_zoomed_1_8.png	0.998443603515625	0.001388889	0.03225806451612903	0.055555555	0.02857142949659864	0.011998414993286133
Average		0.9867832322834957	0.8759733036359841	0.7496093496981545	0.793816982970303	0.698897691851265	0.012925261910627728

Lampiran 4. Hasil Evaluasi Model Segmentasi Semantik Kategori Sungai-NonSungai

1) Jaccard Loss dengan Regularization Dropout

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
1	ID_001_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.01199960708618164
2	ID_002_zoomed_1_2.png	1.0	1.0	1.0	1.0	1.0	0.015013933181762695
3	ID_003_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.012000322341918945
4	ID_003_rotated_30.png	0.9995574951171875	0.9995308552869	0.999945845442894	0.9997383072994216	0.9994767515291495	0.012999773025512695
5	ID_003_rotated_60.png	0.999664306640625	0.9997473061025576	0.9998555878477173	0.9998014440433213	0.9996029669199263	0.014002561569213867
6	ID_003_saturation_1.5.png	1.0	1.0	1.0	1.0	1.0	0.01200246810913086

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
7	ID_004_brightness_0.8.png	0.999359 1308593 75	0.999663 4796207 218	0.999 50519 54477 981	0.999 58433 12681 855	0.9991 690079 537826	0.0150005 81741333 008
8	ID_004_rotated_30.png	0.997390 7470703 125	0.997016 2448889 38	0.999 20258 71616 533	0.998 10821 87385 912	0.9962 235816 346896	0.0120000 83923339 844
9	ID_004_zoomed_0.8.png	0.998855 5908203 125	0.999315 7289042 331	0.998 35311 66490 585	0.998 83419 08507 298	0.9976 710967 581739	0.0120000 83923339 844
10	ID_005_brightness_1.1.png	0.999298 0957031 25	0.999665 6505064 412	0.999 42977 36791 395	0.999 54769 81770 27	0.9990 958053 229565	0.0180006 02722167 97
11	ID_005_saturation_1.2.png	0.999282 8369140 625	0.999685 2995554 856	0.999 39044 77259 767	0.999 53785 18962 822	0.9990 761307 569849	0.0139961 24267578 125
12	ID_006_brightness_0.6.png	0.998947 1435546 875	0.999228 6087266 11	0.999 40651 64493 857	0.999 31755 46698 052	0.9986 360401 676314	0.0129988 19351196 289
13	ID_006_saturation_0.9.png	0.998886 1083984 375	0.999208 7981644 118	0.999 34716 80943 243	0.999 27797 83393 502	0.9985 569985 570014	0.0122768 87893676 758
14	ID_007_blur_0.2.png	0.999404 9072265 625	0.999700 8734495 274	0.999 52148 34014 555	0.999 61117 03771 647	0.9992 226430 137547	0.0129973 88839721 68
15	ID_007_brightness_1.1.png	0.999420 1660156 25	0.999700 8794145 213	0.999 54142 15930 615	0.999 62114 41446 831	0.9992 425752 441714	0.0140001 77383422 852
16	ID_007_noise_2.png	0.999389 6484375	0.999700 8674842 955	0.999 50154 52098 495	0.999 60119 64107 677	0.9992 027107 833382	0.0139985 08453369 14
17	ID_007_rotated_60.png	0.997314 453125	0.997926 7449896 337	0.998 14926 30499 254	0.998 03799 16168 732	0.9960 836671 117133	0.0159974 09820556 64

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
18	ID_007_zoomed_1_2.png	0.997924 8046875	0.998042 9069355 651	0.999 42139 35084 084	0.998 73167 45626 142	0.9974 665623 486505	0.0132737 15972900 39
19	ID_008_rotated_15.png	0.997436 5234375	0.998367 1565197 108	0.998 07084 86146 149	0.998 21898 05784 073	0.9964 442939 383753	0.0130040 64559936 523
20	ID_009.png	0.999099 7314453 125	0.999632 5137807 333	0.999 33522 27003 953	0.999 48384 61336 576	0.9989 682248 220643	0.0130002 49862670 898
21	ID_009_flipped_vertical.png	0.993362 4267578 125	0.992926 7826419 422	0.999 51016 40950 281	0.996 20759 70114 12	0.9924 438499 887224	0.0130000 11444091 797
22	ID_009_saturation_1.5.png	0.999023 4375	0.999492 6166981 595	0.999 38770 51187 852	0.999 44015 81553 212	0.9988 809428 056882	0.0170001 98364257 812
23	ID_010_brightness_0.5.png	0.998840 3320312 5	0.999233 1671862 237	0.999 49975 82164 713	0.999 36644 49223 895	0.9987 336921 20568	0.0129847 52655029 297
24	ID_010_rotated_60.png	0.996170 0439453 125	0.997679 7261316 089	0.997 54692 22431 399	0.997 61331 97676 077	0.9952 380048 948087	0.0140006 54220581 055
25	ID_010_zoomed_1_8.png	0.992538 4521484 375	1.0 NDIA	0.992 53845 21484 375	0.996 25525 52782 521	0.9925 384521 484489	0.0190010 07080078 125
26	ID_011_saturation_0.9.png	0.999588 0126953 125	0.999776 9564109 1	0.999 79288 47961 508	0.999 78492 05400 884	0.9995 699335 786311	0.0139997 00546264 648
27	ID_012_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.0120007 99179077 148
28	ID_012_flipped_vertical.png	1.0	1.0	1.0	1.0	1.0	0.0110018 25332641 602
29	ID_012_noise_5.png	1.0	1.0	1.0	1.0	1.0	0.0119962 69226074 219

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
30	ID_013_flipped_horizontal.png	1.0	1.0	1.0	1.0	1.0	0.013998746871948242
31	ID_013_saturation_1.2.png	1.0	1.0	1.0	1.0	1.0	0.013014793395996094
32	ID_014_rotated_30.png	0.99957275390625	0.9995669198982262	0.9999277939238587	0.9997473243452993	0.9994947763483165	0.01299738883972168
33	ID_014_zoomed_1_2.png	1.0	1.0	1.0	1.0	1.0	0.011003732681274414
34	ID_015_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.01200413703918457
35	ID_015_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.011995077133178711
36	ID_015_zoomed_1_2.png	1.0	1.0	1.0	1.0	1.0	0.011996030807495117
37	ID_016_noise_2.png	1.0	1.0	1.0	1.0	1.0	0.011998414993286133
38	ID_016_rotated_45.png	0.9998779296875	0.9998528573267855	1.0	0.9999264232502529	0.9998528573267857	0.012360095977783203
39	ID_016_rotated_60.png	0.9996490478515625	0.9997112226112695	0.9998736393667527	0.9997924243928413	0.9995849349430647	0.011999130249023438
40	ID_016_saturation_1.2.png	1.0	1.0	1.0	1.0	1.0	0.011999368667602539
41	ID_016_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.012000083923339844
42	ID_017_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.01199960708618164
43	ID_017_rotated_15.png	0.9995269775390625	0.9995588509764664	0.99991513	0.99973696	0.9994740592446821	0.013997554779052734

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
				3410279	0450731		
44	ID_017_rotated_45.png	0.9998779296875	0.9998528573267855	1.0	0.9999264232502529	0.9998528573267857	0.01599860191345215
45	ID_017_rotated_60.png	0.99957275390625	0.9996390478081179	0.9998555878477173	0.9997473061025576	0.9994947398812648	0.013001203536987305
46	ID_017_saturation_0.9.png	1.0	1.0	1.0	1.0	1.0	0.012000560760498047
47	ID_017_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.012002706527709961
48	ID_018_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.01199650764465332
49	ID_018_brightness_1.5.png	1.0	1.0	1.0	1.0	1.0	0.012998819351196289
50	ID_018_rotated_30.png	0.9994964599609375	0.999566880820039	0.9998375363286821	0.9997021902553042	0.9994045578390873	0.011998891830444336
51	ID_019_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.011000394821166992
52	ID_019_noise_10.png	1.0	1.0	1.0	1.0	1.0	0.012999773025512695
53	ID_019_rotated_15.png	0.998931884765625	0.9990332428765265	0.9997793468667255	0.9994061556211612	0.9988130161260258	0.013002634048461914
54	ID_021_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.011000394821166992
55	ID_021_blur_0.5.png	1.0	1.0	1.0	1.0	1.0	0.010996818542480469
56	ID_021_brightness_1.5.png	1.0	1.0	1.0	1.0	1.0	0.011998891830444336

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
57	ID_021_flipped_vertical.png	1.0	1.0	1.0	1.0	1.0	0.012003898620605469
58	ID_021_noise_2.png	1.0	1.0	1.0	1.0	1.0	0.010409355163574219
59	ID_021_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.012000560760498047
60	ID_023_flipped_horizontal.png	1.0	1.0	1.0	1.0	1.0	0.011995077133178711
61	ID_023_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.01100015640258789
62	ID_024_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.011999130249023438
63	ID_024_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.012006044387817383
64	ID_024_zoomed_0_8.png	1.0	1.0	1.0	1.0	1.0	0.012998580932617188
65	ID_024_zoomed_1_2.png	1.0	1.0	1.0	1.0	1.0	0.012004852294921875
66	ID_025_noise_2.png	1.0	1.0	1.0	1.0	1.0	0.010994911193847656
67	ID_025_saturation_0.9.png	1.0	1.0	1.0	1.0	1.0	0.012003421783447266
68	ID_026_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.011997699737548828
69	ID_026_saturation_1.2.png	1.0	1.0	1.0	1.0	1.0	0.010999917984008789
70	ID_027_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.012190818786621094
71	ID_028_rotated_60.png	0.9995880126953125	0.9996390543223245	0.99987363	0.99975633	0.9995127848855053	0.014003992080688477

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
				93667527	308365		
72	ID_029_brightness_1.5.png	0.998382568359375	0.9991254349565508	0.9989023868435251	0.9990138984501461	0.9980297397769553	0.011999130249023438
73	ID_029_noise_5.png	0.9984893798828125	0.9991998511350949	0.9989581976819898	0.9990790097959867	0.9981597144769162	0.013004064559936523
74	ID_029_rotated_45.png	0.9914703369140625	0.9888355865678151	0.998964643683225	0.9938743082570818	0.9878232077896882	0.012127161026000977
75	ID_030_brightness_0.6.png	1.0	1.0	1.0	1.0	1.0	0.011999845504760742
76	ID_030_brightness_1.1.png	1.0	1.0	1.0	1.0	1.0	0.010999917984008789
77	ID_030_noise_10.png	1.0	1.0	1.0	1.0	1.0	0.012003183364868164
78	ID_030_noise_5.png	1.0	1.0	1.0	1.0	1.0	0.010999679565429688
79	ID_031_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.01199960708618164
80	ID_031_brightness_0.8.png	1.0	1.0	1.0	1.0	1.0	0.012000560760498047
81	ID_031_brightness_1.5.png	1.0	1.0	1.0	1.0	1.0	0.011002063751220703
82	ID_031_flipped_horizontal.png	1.0	1.0	1.0	1.0	1.0	0.011999845504760742
83	ID_031_zoomed_0.8.png	1.0	1.0	1.0	1.0	1.0	0.012999534606933594
84	ID_032_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.01199650764465332

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
85	ID_032_noise_5.png	1.0	1.0	1.0	1.0	1.0	0.012999534606933594
86	ID_033_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.011997699737548828
87	ID_034_rotated_30.png	0.9995880126953125	0.9996029884144801	0.9999097424048233	0.9997563418794163	0.9995128024684684	0.013002872467041016
88	ID_034_saturation_1.5.png	1.0	1.0	1.0	1.0	1.0	0.011996984481811523
89	ID_034_zoomed_1_2.png	1.0	1.0	1.0	1.0	1.0	0.011998653411865234
90	ID_034_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.010998964309692383
91	ID_035_brightness_1.1.png	0.9991302490234375	0.9994659278668825	0.999582707394425	0.9995243142196667	0.9990490807780871	0.01399993896484375
92	ID_035_saturation_0.6.png	0.999114990234375	0.9994992655895313	0.9995326322817559	0.9995159486571749	0.999032365699034	0.01799774169921875
93	ID_035_zoomed_1_2.png	0.998443603515625	0.9990153259747478	0.9993645043928634	0.9991898846777012	0.9983810808666005	0.013004064559936523
94	ID_037_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.011000394821166992
95	ID_038_brightness_1.1.png	1.0	1.0	1.0	1.0	1.0	0.013004541397094727
96	ID_039_noise_10.png	1.0	1.0	1.0	1.0	1.0	0.011998414993286133
97	ID_039_noise_5.png	1.0	1.0	1.0	1.0	1.0	0.012003898620605469

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
98	ID_040_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.01099848747253418
99	ID_041_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.011998891830444336
100	ID_041_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.013002157211303711
101	ID_041_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.011999130249023438
102	ID_041_brightness_1.1.png	1.0	1.0	1.0	1.0	1.0	0.011000871658325195
103	ID_041_saturation_1.5.png	1.0	1.0	1.0	1.0	1.0	0.013998270034790039
104	ID_042_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.011999845504760742
105	ID_042_noise_2.png	1.0	1.0	1.0	1.0	1.0	0.012001514434814453
106	ID_042_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.011997461318969727
107	ID_043_brightness_0.8.png	1.0	1.0	1.0	1.0	1.0	0.011000633239746094
108	ID_043_brightness_1.1.png	1.0	1.0	1.0	1.0	1.0	0.011003255844116211
109	ID_043_flipped_vertical.png	1.0	1.0	1.0	1.0	1.0	0.01200103759765625
110	ID_043_noise_5.png	1.0	1.0	1.0	1.0	1.0	0.011001110076904297
111	ID_043_rotated_15.png	0.9994659423828125	0.9995418681598371	0.9998642134564465	0.999703014823803	0.9994062059956239	0.012998104095458984

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
112	ID_043_saturation_1.5.png	1.0	1.0	1.0	1.0	1.0	0.01200723648071289
113	ID_044_brightness_0.8.png	1.0	1.0	1.0	1.0	1.0	0.010990142822265625
114	ID_044_flipped_vertical.png	1.0	1.0	1.0	1.0	1.0	0.011000633239746094
115	ID_045_rotated_30.png	0.999267578125	0.9996750022569287	0.9994584544289402	0.9995667166146125	0.9991338085355966	0.012999773025512695
116	ID_047_blur_1.5.png	0.9997711181640625	0.9998775166500804	0.9998928254279328	0.9998851709804102	0.9997703683292003	0.012999534606933594
117	ID_048.png	1.0	1.0	1.0	1.0	1.0	0.011999130249023438
118	ID_048_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.011000871658325195
119	ID_048_flipped_horizontal.png	1.0	1.0	1.0	1.0	1.0	0.011999368667602539
120	ID_048_noise_2.png	1.0	1.0	1.0	1.0	1.0	0.01200103759765625
121	ID_048_rotated_30.png	0.99951171875	0.999548858612289	0.9998736393667527	0.9997112226112695	0.9994226119591508	0.014000892639160156
122	ID_048_saturation_1.2.png	1.0	1.0	1.0	1.0	1.0	0.010998725891113281
123	ID_049_blur_0.2.png	1.0	1.0	1.0	1.0	1.0	0.011000394821166992
124	ID_049_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.012000083923339844
125	ID_049_noise_10.png	1.0	1.0	1.0	1.0	1.0	0.011996030807495117

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
126	ID_049_noise_2.png	1.0	1.0	1.0	1.0	1.0	0.01099848747253418
127	ID_049_rotated_30.png	0.9995269775390625	0.9995128112594731	0.9999277939238587	0.9997202595269679	0.9994406755196314	0.013001441955566406
128	ID_050_rotated_45.png	0.9998779296875	0.9998528573267855	1.0	0.9999264232502529	0.9998528573267857	0.012999296188354492
129	ID_050_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.010999917984008789
130	ID_051_brightness_1_5.png	1.0	1.0	1.0	1.0	1.0	0.012000322341918945
131	ID_051_flipped_vertical.png	1.0	1.0	1.0	1.0	1.0	0.011001348495483398
132	ID_051_noise_10.png	1.0	1.0	1.0	1.0	1.0	0.011999368667602539
133	ID_051_noise_5.png	1.0	1.0	1.0	1.0	1.0	0.013000965118408203
134	ID_051_rotated_60.png	0.9978485107421875	0.9987543777304401	0.9987002906294564	0.9987273334476627	0.9974579021382515	0.013002634048461914
135	ID_052_rotated_15.png	0.997161865234375	0.9971344880285278	0.9969440376902018	0.9970392537646048	0.9940959878110903	0.012994766235351562
136	ID_053_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.012234687805175781
137	ID_054_noise_5.png	0.999053955078125	0.999672710610722	0.9993129396368395	0.9994927927485725	0.9989860997547032	0.013002395629882812
138	ID_055.png	0.9989471435546875	0.9994188749418875	0.9985774422993178	0.9989979814408736	0.9979979689540172	0.0139923095703125

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
139	ID_055_blur_0.5.png	0.998870849609375	0.9993317256007206	0.9985193787196981	0.9989253870058958	0.9978530811187251	0.012996912002563477
140	ID_055_rotated_60.png	0.9963226318359375	0.9979202182066144	0.9938877381235356	0.9958998962214396	0.991833276855331	0.011999130249023438
141	ID_055_saturation_0.6.png	0.9987945556640625	0.9994767746061276	0.9982290608215997	0.9988525280694874	0.9977076865043737	0.013998746871948242
142	ID_056_saturation_0.6.png	0.99981689453125	0.9999386277157236	0.9998772629640994	0.9999079443984167	0.9998159057437411	0.014999151229858398
143	ID_057_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.012000560760498047
144	ID_057_noise_10.png	1.0	1.0	1.0	1.0	1.0	0.012000560760498047
145	ID_057_rotated_45.png	0.9998626708984375	0.9998528546203649	0.9999816044590791	0.9999172253952487	0.999834464492634	0.014000177383422852
146	ID_058_noise_2.png	1.0	1.0	1.0	1.0	1.0	0.011998414993286133
147	ID_059_blur_0.2.png	0.9997100830078125	0.9998164435946463	0.9998929172403243	0.9998546789552182	0.999709400140712	0.013999462127685547
148	ID_059_blur_1.png	0.99969482421875	0.9998011502692119	0.9998929172403243	0.9998470316491518	0.9996941100897792	0.012998342514038086
149	ID_059_zoomed_0.8.png	0.998382568359375	0.9974529027297193	1.0	0.9987248273704978	0.9974529027297254	0.01200103759765625
150	ID_060_blur_1.png	0.9990234375	0.99906867176158	0.9991781497411172	0.9991234077523626	0.9982483509866759	0.012994527816772461

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
151	ID_060_flipped_vertical.png	0.997039794921875	0.9968547438667505	0.9978372163057464	0.9973457381310713	0.9947055291741862	0.013998746871948242
152	ID_061_blur_0.2.png	0.9992218017578125	0.9992218017578125	1.0	0.9996107494218484	0.9992218017578137	0.012998342514038086
153	ID_061_blur_0.5.png	0.9992218017578125	0.9992218017578125	1.0	0.9996107494218484	0.9992218017578137	0.014002799987792969
154	ID_061_blur_1.5.png	0.9992218017578125	0.9992218017578125	1.0	0.9996107494218484	0.9992218017578137	0.014001607894897461
155	ID_061_flipped_horizontal.png	0.9989471435546875	0.9989471435546875	1.0	0.999473294504706	0.998947143554689	0.014002323150634766
156	ID_061_noise_5.png	0.9992218017578125	0.9992218017578125	1.0	0.9996107494218484	0.9992218017578137	0.012999296188354492
157	ID_062_blur_1.png	0.9989166259765625	0.9990888256895932	0.9989509138092871	0.9990198649898535	0.9980416494276706	0.012994050979614258
158	ID_062_zoomed_1_8.png	0.9944915771484375	0.9978363691254906	0.9931141547938003	0.9954696617933112	0.9909801863928467	0.013000249862670898
159	ID_063_brightness_1.5.png	0.9984283447265625	0.99832252292552	0.9987972364409388	0.9985598232637481	0.9971237887799919	0.01399993896484375
160	ID_064_blur_1.5.png	0.999237060546875	0.999153403318659	0.9994354428950488	0.9992944032062319	0.9985898014440473	0.013000249862670898
161	ID_064_rotated_15.png	0.997344970703125	0.9974513582395723	0.9971414367387522	0.9972963734112309	0.9946073265976737	0.01199960708618164

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
162	ID_066_noise_2.png	0.99871826171875	0.9993021489706697	0.9989740853971315	0.9991380902542634	0.9982776650058471	0.013999462127685547
163	ID_066_zoomed_1_5.png	0.989349365234375	0.9883465221381448	0.9995621946307549	0.9939227192783883	0.9879188590418376	0.01400446891784668
164	ID_067_blur_1.5.png	0.9985504150390625	0.9993693547074619	0.9986988960946553	0.9990340129137221	0.9980698902885046	0.013000011444091797
165	ID_067_blur_1.png	0.9987335205078125	0.9993288863580899	0.9989835125739495	0.999156169620073	0.9983137621388845	0.015000343322753906
166	ID_067_noise_5.png	0.9987030029296875	0.9993288590604027	0.9989428530769074	0.9991358187862829	0.9982731299012672	0.013999223709106445
167	ID_068_noise_10.png	0.9982452392578125	0.9983415822341997	0.9986780030068951	0.9985097642835854	0.9970239635629703	0.012997865676879883
168	ID_068_saturation_1.2.png	0.9981689453125	0.9983155385093812	0.9985743169682202	0.9984449109711531	0.9968946510364183	0.012001276016235352
169	ID_069_brightness_0.8.png	0.9989471435546875	0.9994562830674	0.9991010954093151	0.9992786576760232	0.9985583552714083	0.013001203536987305
170	ID_069_flipped_horizontal.png	0.99163818359375	0.9903418608979795	0.9983113390455939	0.9943106312292359	0.9886856340587424	0.013000726699829102
171	ID_069_saturation_0.6.png	0.9987030029296875	0.9996442398242126	0.9985784764612425	0.9991110739272754	0.9982237268300875	0.013002634048461914
172	ID_069_saturation_1.2.png	0.9989166259765625	0.9995189391562611	0.9989965716197007	0.9992576871203488	0.9985164754800591	0.012998819351196289

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
173	ID_069_saturation_1.5.png	0.9987945556640625	0.9993308379163965	0.9990174763776235	0.9991741325778563	0.9983496281440662	0.013000726699829102
174	ID_070_blur_1.png	0.99859619140625	0.9986996417881152	0.9990428038484194	0.9988711933449486	0.9977449322254143	0.01300048828125
175	ID_071_noise_2.png	0.9966888427734375	0.9973739647360979	0.9963676199261993	0.996870538353932	0.9937606026625442	0.01300358772277832
176	ID_071_noise_5.png	0.9966278076171875	0.9972301566692634	0.9963964483394834	0.9968131281814643	0.9936465041398527	0.011002779006958008
177	ID_071_rotated_30.png	0.9944915771484375	0.9945024926586082	0.9931798806479113	0.9938407466175291	0.9877569015804526	0.013003110885620117
178	ID_071_saturation_1.2.png	0.9966888427734375	0.9972017885475263	0.996540590405904	0.9968710798379306	0.9937616788845947	0.012997627258300781
179	ID_072_noise_10.png	0.9983673095703125	0.9993315763339826	0.9986259279757247	0.9989786275426924	0.9979593393599612	0.014001131057739258
180	ID_072_noise_2.png	0.998504638671875	0.9994461315151167	0.9986831809767363	0.9990645105863036	0.9981307698176582	0.012999534606933594
181	ID_072_saturation_1.5.png	0.9984893798828125	0.9993698201122866	0.9987404339777477	0.9990550279196296	0.9981118400976539	0.013997554779052734
182	ID_073_rotated_15.png	0.9994354248046875	0.999558806061326	0.9998132935026139	0.9996860335859207	0.9993722642597819	0.014998197555541992
183	ID_073_rotated_60.png	0.999298095703125	0.9995307113333213	0.9996389696192934	0.9995848375451264	0.9991700196669268	0.013005733489990234

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
184	ID_074_brightness_1.1.png	0.9994354248046875	0.999732661167125	0.999560875957004	0.999646761181918	0.9992937718310411	0.013000011444091797
185	ID_074_noise_5.png	0.99951171875	0.9997708568045981	0.9996181530060905	0.9996944990739504	0.9993891847525256	0.015002727508544922
186	ID_074_rotated_45.png	0.9965057373046875	0.9956606732401022	0.9994178023115404	0.997535700065643	0.9950835158229312	0.013999462127685547
187	ID_074_rotated_60.png	0.9885406494140625	0.9868587847545002	0.9972458848395568	0.9920251457455055	0.984176481742938	0.014001846313476562
188	ID_074_saturation_1.2.png	0.99945068359375	0.9997708393010599	0.9995417836073085	0.9996562983330469	0.9993128328465912	0.012998104095458984
189	ID_074_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.01199960708618164
190	ID_075_blur_1.5.png	0.9994659423828125	0.9998232619418692	0.9996144702178243	0.999718855178286	0.9994378683969621	0.014000654220581055
191	ID_075_blur_1.png	0.999603271484375	0.9998072289156626	0.9997751076270642	0.9997911680133652	0.9995824232301176	0.013000965118408203
192	ID_075_noise_10.png	0.999542236328125	0.9997751004016064	0.9997429801452162	0.9997590400154215	0.9995181961262977	0.014000654220581055
193	ID_075_rotated_45.png	0.998779296875	0.998771893362556	0.999716322786845	0.9992438849192847	0.998488912394699	0.01399850845336914
194	ID_076_brightness_1.1.png	1.0	1.0	1.0	1.0	1.0	0.01299595832824707
195	ID_076_rotated_45.png	0.9998779296875	0.9998528573267855	1.0	0.99992642	0.9998528573267857	0.013995647430419922

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
					32502529		
196	ID_076_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.010998010635375977
197	ID_077.png	1.0	1.0	1.0	1.0	1.0	0.011002540588378906
198	ID_077_rotated_60.png	0.9995574951171875	0.9996570768508826	0.9998194848096468	0.9997382742344522	0.9994766854338106	0.013999462127685547
199	ID_077_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.012002229690551758
200	ID_078_brightness_1.5.png	1.0	1.0	1.0	1.0	1.0	0.010997772216796875
201	ID_078_noise_10.png	1.0	1.0	1.0	1.0	1.0	0.011998176574707031
202	ID_079.png	1.0	1.0	1.0	1.0	1.0	0.01199960708618164
203	ID_079_brightness_0.8.png	1.0	1.0	1.0	1.0	1.0	0.012001752853393555
204	ID_079_rotated_15.png	0.9996337890625	0.9996945424925333	0.9998981600923349	0.999796340925291	0.9995927647877293	0.013703107833862305
205	ID_079_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.013002634048461914
206	ID_080.png	1.0	1.0	1.0	1.0	1.0	0.012003183364868164
207	ID_080_rotated_30.png	0.9994964599609375	0.999566880820039	0.9998375363286821	0.9997021902553042	0.9994045578390873	0.013999223709106445
208	ID_081_blur_1.png	1.0	1.0	1.0	1.0	1.0	0.011998414993286133

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
209	ID_081_rotated_45.png	0.999832 1533203 125	0.999816 0750413 831	0.999 98160 44590 791	0.999 89883 28995 411	0.9997 976862 665763	0.0140001 77383422 852
210	ID_082_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.0119972 22900390 625
211	ID_082_brightness_0.6.png	1.0	1.0	1.0	1.0	1.0	0.0119996 07086181 64
212	ID_082_zoomed_1.5.png	1.0	1.0	1.0	1.0	1.0	0.0119998 45504760 742
213	ID_083_blur_0.5.png	0.999664 3066406 25	0.999844 2798809 606	0.999 77508 65051 903	0.999 80968 19959 168	0.9996 194364 199352	0.0119996 07086181 64
214	ID_083_blur_1.png	0.999649 0478515 625	0.999775 0981782 952	0.999 82698 96193 772	0.999 80104 32255 219	0.9996 021656 028927	0.0130004 8828125
215	ID_083_saturation_0.9.png	0.999649 0478515 625	0.999930 7778835 338	0.999 67128 02768 166	0.999 80101 22420 73	0.9996 021036 606471	0.0130057 33489990 234
216	ID_083_zoomed_0.8.png	0.998596 1914062 5	0.998420 3072230 09	0.999 07336 74915 513	0.998 74673 06015 693	0.9974 965986 394626	0.0119967 46063232 422
217	ID_083_zoomed_1.5.png	0.999114 9902343 75	0.999921 5981434 441	0.999 16956 53536 398	0.999 54544 02959 341	0.9990 912936 531576	0.0130009 65118408 203
218	ID_084_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.0130014 41955566 406
219	ID_084_saturation_0.6.png	1.0	1.0	1.0	1.0	1.0	0.0120017 52853393 555
220	ID_084_saturation_0.9.png	1.0	1.0	1.0	1.0	1.0	0.0130004 8828125
221	ID_086_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.0127735 13793945 312

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
222	ID_087_brightness_0.8.png	1.0	1.0	1.0	1.0	1.0	0.011005640029907227
223	ID_087_brightness_1.5.png	1.0	1.0	1.0	1.0	1.0	0.012003183364868164
224	ID_087_noise_5.png	1.0	1.0	1.0	1.0	1.0	0.012000322341918945
225	ID_087_zoomed_1_2.png	1.0	1.0	1.0	1.0	1.0	0.011999845504760742
226	ID_087_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.012002229690551758
227	ID_088_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.01300358772277832
228	ID_088_saturation_0.9.png	1.0	1.0	1.0	1.0	1.0	0.01200103759765625
229	ID_089_rotated_15.png	0.9995269775390625	0.9996266693817984	0.9998472401385022	0.9997369425940854	0.9994740235501722	0.018999576568603516
230	ID_090_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.011999368667602539
231	ID_090_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.012003421783447266
232	ID_091_saturation_0.9.png	1.0	1.0	1.0	1.0	1.0	0.010993480682373047
233	ID_092_saturation_0.9.png	1.0	1.0	1.0	1.0	1.0	0.011000394821166992
234	ID_093_blur_0.5.png	1.0	1.0	1.0	1.0	1.0	0.01199483871459961
235	ID_093_blur_1.5.png	1.0	1.0	1.0	1.0	1.0	0.012000799179077148

No	Filename	Pixel Accuracy	Precision	Recall	F1 Score	IoU	Prediction Time (second)
236	ID_093_brightness_1.5.png	1.0	1.0	1.0	1.0	1.0	0.011997461318969727
237	ID_093_rotated_30.png	0.9994659423828125	0.9995127760935469	0.9998555878477173	0.9996841525813759	0.9993685046189388	0.01299905776977539
238	ID_094_brightness_0.8.png	1.0	1.0	1.0	1.0	1.0	0.013000965118408203
239	ID_094_rotated_45.png	0.9998779296875	0.9998528573267855	1.0	0.9999264232502529	0.9998528573267857	0.013999700546264648
240	ID_094_rotated_60.png	0.9995574951171875	0.9996029740850357	0.9998736393667527	0.9997382884061764	0.999476713762429	0.013000726699829102
241	ID_094_saturation_0.6.png	1.0	1.0	1.0	1.0	1.0	0.012003183364868164
242	ID_095_brightness_1.1.png	1.0	1.0	1.0	1.0	1.0	0.012001991271972656
243	ID_095_flipped_vertical.png	1.0	1.0	1.0	1.0	1.0	0.012000560760498047
244	ID_095_rotated_60.png	0.999542236328125	0.9995849349430639	0.9998736393667527	0.9997292663117047	0.9994586791771933	0.014002323150634766
245	ID_095_zoomed_1_2.png	1.0	1.0	1.0	1.0	1.0	0.011991500854492188
246	ID_095_zoomed_1_5.png	1.0	1.0	1.0	1.0	1.0	0.013000965118408203
247	ID_095_zoomed_1_8.png	1.0	1.0	1.0	1.0	1.0	0.012000083923339844
Average		0.9992801805256832	0.9994093114755481	0.9995627627294597	0.999485439523219	0.9989740223248145	0.012677569138376336

Lampiran 5. Source Code

Full code dapat diakses pada *Repository Github*, namun akses penuh dari *code* hanya bisa melalui izin dari penulis. Untuk lebih lanjut bisa menghubungi penulis melalui email ini, adiwidd20@gmail.com.

Link: https://github.com/Adiwid20/Source_Code_Skripsi.git

Lampiran 6. Dataset

Dataset pada dari penelitian ini, dapat diakses secara penuh pada platform *dataset* seperti Kaggle. Namun akses hanya melalui izin penulis. Untuk lebih lanjut bisa menghubungi penulis melalui email ini, adiwidd20@gmail.com. *Dataset* bisa diakses pada link berikut :

<https://kaggle.com/datasets/c3fb3a275ee413fa549dc58bfe180fd1e767166c050b45f9182bfa2c29695ba>



RIWAYAT HIDUP



Putu Adi Widyantara lahir di Tejukula pada tanggal 20 Juni 2002. Penulis berkebangsaan Indonesia dan beragama Hindu. Kini penulis beralamat di Jalan Amerta, Banjar Dinas Kelod, Desa Busungbiu, Kecamatan Busungbiu, Kabupaten Buleleng, Provinsi Bali. Penulis menyelesaikan pendidikan dasar di SD Negeri 6 Busungbiu dan lulus pada tahun 2015. Kemudian penulis melanjutkan di SMP Negeri 4 Busungbiu dan lulus pada tahun 2018. Pada tahun 2021, penulis lulus dari SMA Negeri 1 Busungbiu dan melanjutkan ke Program Studi Ilmu Komputer Jurusan Teknik Informatika di Universitas Pendidikan Ganesha. Pada semester akhir tahun 2025 penulis telah menyelesaikan Tugas Akhir yang berjudul “Pengembangan Model Segmentasi Semantik Berbasis *Deeplabv3+* Untuk Pemantauan Sampah di Perairan Sungai”. Selanjutnya, mulai tahun 2021 sampai dengan penulisan skripsi ini, penulis masih terdaftar sebagai mahasiswa Program Studi Ilmu Komputer di Universitas Pendidikan Ganesha.

