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# Evaluación de la gravedad de la psoriasis mediante Deep Learning

## Anexo I – Arquitecturas de los modelos

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# ANEXO I – ARQUITECTURAS DE LOS MODELOS

En este anexo se adjuntan el detalle de las capas y las dimensiones de salida de los modelos con distintos backbone utilizados en el experimento.

| RESNET34 | |
|---|---|
| **Layer_type** | **Output_shape** |
| data | ('512', '512', '3') |
| bn_data | ('512', '512', '3') |
| zero_padding2d_34 | ('518', '518', '3') |
| conv0 | ('256', '256', '64') |
| bn0 | ('256', '256', '64') |
| relu0 | ('256', '256', '64') |
| zero_padding2d_35 | ('258', '258', '64') |
| pooling0 | ('128', '128', '64') |
| stage1_unit1_bn1 | ('128', '128', '64') |
| stage1_unit1_relu1 | ('128', '128', '64') |
| zero_padding2d_36 | ('130', '130', '64') |
| stage1_unit1_conv1 | ('128', '128', '64') |
| stage1_unit1_bn2 | ('128', '128', '64') |
| stage1_unit1_relu2 | ('128', '128', '64') |
| zero_padding2d_37 | ('130', '130', '64') |
| stage1_unit1_conv2 | ('128', '128', '64') |
| stage1_unit1_sc | ('128', '128', '64') |
| add_16 | ('128', '128', '64') |
| stage1_unit2_bn1 | ('128', '128', '64') |
| stage1_unit2_relu1 | ('128', '128', '64') |
| zero_padding2d_38 | ('130', '130', '64') |
| stage1_unit2_conv1 | ('128', '128', '64') |
| stage1_unit2_bn2 | ('128', '128', '64') |
| stage1_unit2_relu2 | ('128', '128', '64') |
| zero_padding2d_39 | ('130', '130', '64') |
| stage1_unit2_conv2 | ('128', '128', '64') |
| add_17 | ('128', '128', '64') |
| stage1_unit3_bn1 | ('128', '128', '64') |
| stage1_unit3_relu1 | ('128', '128', '64') |
| zero_padding2d_40 | ('130', '130', '64') |
| stage1_unit3_conv1 | ('128', '128', '64') |
| stage1_unit3_bn2 | ('128', '128', '64') |
| stage1_unit3_relu2 | ('128', '128', '64') |
| zero_padding2d_41 | ('130', '130', '64') |
| stage1_unit3_conv2 | ('128', '128', '64') |
| add_18 | ('128', '128', '64') |
| stage2_unit1_bn1 | ('128', '128', '64') |
| stage2_unit1_relu1 | ('128', '128', '64') |
| zero_padding2d_42 | ('130', '130', '64') |
| stage2_unit1_conv1 | ('64', '64', '128') |
| stage2_unit1_bn2 | ('64', '64', '128') |
| stage2_unit1_relu2 | ('64', '64', '128') |
| zero_padding2d_43 | ('66', '66', '128') |
| stage2_unit1_conv2 | ('64', '64', '128') |
| stage2_unit1_sc | ('64', '64', '128') |
| add_19 | ('64', '64', '128') |
| stage2_unit2_bn1 | ('64', '64', '128') |
| stage2_unit2_relu1 | ('64', '64', '128') |
| zero_padding2d_44 | ('66', '66', '128') |
| stage2_unit2_conv1 | ('64', '64', '128') |
| stage2_unit2_bn2 | ('64', '64', '128') |
| stage2_unit2_relu2 | ('64', '64', '128') |

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|---|---|
| zero_padding2d_45 | ('66', '66', '128') |
| stage2_unit2_conv2 | ('64', '64', '128') |
| add_20 | ('64', '64', '128') |
| stage2_unit3_bn1 | ('64', '64', '128') |
| stage2_unit3_relu1 | ('64', '64', '128') |
| zero_padding2d_46 | ('66', '66', '128') |
| stage2_unit3_conv1 | ('64', '64', '128') |
| stage2_unit3_bn2 | ('64', '64', '128') |
| stage2_unit3_relu2 | ('64', '64', '128') |
| zero_padding2d_47 | ('66', '66', '128') |
| stage2_unit3_conv2 | ('64', '64', '128') |
| add_21 | ('64', '64', '128') |
| stage2_unit4_bn1 | ('64', '64', '128') |
| stage2_unit4_relu1 | ('64', '64', '128') |
| zero_padding2d_48 | ('66', '66', '128') |
| stage2_unit4_conv1 | ('64', '64', '128') |
| stage2_unit4_bn2 | ('64', '64', '128') |
| stage2_unit4_relu2 | ('64', '64', '128') |
| zero_padding2d_49 | ('66', '66', '128') |
| stage2_unit4_conv2 | ('64', '64', '128') |
| add_22 | ('64', '64', '128') |
| stage3_unit1_bn1 | ('64', '64', '128') |
| stage3_unit1_relu1 | ('64', '64', '128') |
| zero_padding2d_50 | ('66', '66', '128') |
| stage3_unit1_conv1 | ('32', '32', '256') |
| stage3_unit1_bn2 | ('32', '32', '256') |
| stage3_unit1_relu2 | ('32', '32', '256') |
| zero_padding2d_51 | ('34', '34', '256') |
| stage3_unit1_conv2 | ('32', '32', '256') |
| stage3_unit1_sc | ('32', '32', '256') |
| add_23 | ('32', '32', '256') |
| stage3_unit2_bn1 | ('32', '32', '256') |
| stage3_unit2_relu1 | ('32', '32', '256') |
| zero_padding2d_52 | ('34', '34', '256') |
| stage3_unit2_conv1 | ('32', '32', '256') |
| stage3_unit2_bn2 | ('32', '32', '256') |
| stage3_unit2_relu2 | ('32', '32', '256') |
| zero_padding2d_53 | ('34', '34', '256') |
| stage3_unit2_conv2 | ('32', '32', '256') |
| add_24 | ('32', '32', '256') |
| stage3_unit3_bn1 | ('32', '32', '256') |
| stage3_unit3_relu1 | ('32', '32', '256') |
| zero_padding2d_54 | ('34', '34', '256') |
| stage3_unit3_conv1 | ('32', '32', '256') |
| stage3_unit3_bn2 | ('32', '32', '256') |
| stage3_unit3_relu2 | ('32', '32', '256') |
| zero_padding2d_55 | ('34', '34', '256') |
| stage3_unit3_conv2 | ('32', '32', '256') |
| add_25 | ('32', '32', '256') |
| stage3_unit4_bn1 | ('32', '32', '256') |
| stage3_unit4_relu1 | ('32', '32', '256') |
| zero_padding2d_56 | ('34', '34', '256') |
| stage3_unit4_conv1 | ('32', '32', '256') |
| stage3_unit4_bn2 | ('32', '32', '256') |

| | |
|---|---|
| stage3_unit4_relu2 | ('32', '32', '256') |
| zero_padding2d_57 | ('34', '34', '256') |
| stage3_unit4_conv2 | ('32', '32', '256') |
| add_26 | ('32', '32', '256') |
| stage3_unit5_bn1 | ('32', '32', '256') |
| stage3_unit5_relu1 | ('32', '32', '256') |
| zero_padding2d_58 | ('34', '34', '256') |
| stage3_unit5_conv1 | ('32', '32', '256') |
| stage3_unit5_bn2 | ('32', '32', '256') |
| stage3_unit5_relu2 | ('32', '32', '256') |
| zero_padding2d_59 | ('34', '34', '256') |
| stage3_unit5_conv2 | ('32', '32', '256') |
| add_27 | ('32', '32', '256') |
| stage3_unit6_bn1 | ('32', '32', '256') |
| stage3_unit6_relu1 | ('32', '32', '256') |
| zero_padding2d_60 | ('34', '34', '256') |
| stage3_unit6_conv1 | ('32', '32', '256') |
| stage3_unit6_bn2 | ('32', '32', '256') |
| stage3_unit6_relu2 | ('32', '32', '256') |
| zero_padding2d_61 | ('34', '34', '256') |
| stage3_unit6_conv2 | ('32', '32', '256') |
| add_28 | ('32', '32', '256') |
| stage4_unit1_bn1 | ('32', '32', '256') |
| stage4_unit1_relu1 | ('32', '32', '256') |
| zero_padding2d_62 | ('34', '34', '256') |
| stage4_unit1_conv1 | ('16', '16', '512') |
| stage4_unit1_bn2 | ('16', '16', '512') |
| stage4_unit1_relu2 | ('16', '16', '512') |
| zero_padding2d_63 | ('18', '18', '512') |
| stage4_unit1_conv2 | ('16', '16', '512') |
| stage4_unit1_sc | ('16', '16', '512') |
| add_29 | ('16', '16', '512') |
| stage4_unit2_bn1 | ('16', '16', '512') |
| stage4_unit2_relu1 | ('16', '16', '512') |
| zero_padding2d_64 | ('18', '18', '512') |
| stage4_unit2_conv1 | ('16', '16', '512') |
| stage4_unit2_bn2 | ('16', '16', '512') |
| stage4_unit2_relu2 | ('16', '16', '512') |
| zero_padding2d_65 | ('18', '18', '512') |
| stage4_unit2_conv2 | ('16', '16', '512') |
| add_30 | ('16', '16', '512') |
| stage4_unit3_bn1 | ('16', '16', '512') |
| stage4_unit3_relu1 | ('16', '16', '512') |
| zero_padding2d_66 | ('18', '18', '512') |
| stage4_unit3_conv1 | ('16', '16', '512') |
| stage4_unit3_bn2 | ('16', '16', '512') |
| stage4_unit3_relu2 | ('16', '16', '512') |
| zero_padding2d_67 | ('18', '18', '512') |
| stage4_unit3_conv2 | ('16', '16', '512') |
| add_31 | ('16', '16', '512') |
| bn1 | ('16', '16', '512') |
| relu1 | ('16', '16', '512') |
| decoder_stage0_upsampling | ('32', '32', '512') |
| decoder_stage0_concat | ('32', '32', '768') |

| | |
|---|---|
| decoder_stage0a_conv | ('32', '32', '256') |
| decoder_stage0a_bn | ('32', '32', '256') |
| decoder_stage0a_relu | ('32', '32', '256') |
| decoder_stage0b_conv | ('32', '32', '256') |
| decoder_stage0b_bn | ('32', '32', '256') |
| decoder_stage0b_relu | ('32', '32', '256') |
| decoder_stage1_upsampling | ('64', '64', '256') |
| decoder_stage1_concat | ('64', '64', '384') |
| decoder_stage1a_conv | ('64', '64', '128') |
| decoder_stage1a_bn | ('64', '64', '128') |
| decoder_stage1a_relu | ('64', '64', '128') |
| decoder_stage1b_conv | ('64', '64', '128') |
| decoder_stage1b_bn | ('64', '64', '128') |
| decoder_stage1b_relu | ('64', '64', '128') |
| decoder_stage2_upsampling | ('128', '128', '128') |
| decoder_stage2_concat | ('128', '128', '192') |
| decoder_stage2a_conv | ('128', '128', '64') |
| decoder_stage2a_bn | ('128', '128', '64') |
| decoder_stage2a_relu | ('128', '128', '64') |
| decoder_stage2b_conv | ('128', '128', '64') |
| decoder_stage2b_bn | ('128', '128', '64') |
| decoder_stage2b_relu | ('128', '128', '64') |
| decoder_stage3_upsampling | ('256', '256', '64') |
| decoder_stage3_concat | ('256', '256', '128') |
| decoder_stage3a_conv | ('256', '256', '32') |
| decoder_stage3a_bn | ('256', '256', '32') |
| decoder_stage3a_relu | ('256', '256', '32') |
| decoder_stage3b_conv | ('256', '256', '32') |
| decoder_stage3b_bn | ('256', '256', '32') |
| decoder_stage3b_relu | ('256', '256', '32') |
| decoder_stage4_upsampling | ('512', '512', '32') |
| decoder_stage4a_conv | ('512', '512', '16') |
| decoder_stage4a_bn | ('512', '512', '16') |
| decoder_stage4a_relu | ('512', '512', '16') |
| decoder_stage4b_conv | ('512', '512', '16') |
| decoder_stage4b_bn | ('512', '512', '16') |
| decoder_stage4b_relu | ('512', '512', '16') |
| final_conv | ('512', '512', '3') |
| softmax | ('512', '512', '3') |

*Tabla 1. Lista de capas y dimensiones del modelo U-Net con backbone ResNet34*

| VGG19 | |
|---|---|
| **Layer_type** | **Output_shape** |
| input_1 | ('512', '512', '3') |
| block1_conv1 | ('512', '512', '64') |
| block1_conv2 | ('512', '512', '64') |
| block1_pool | ('256', '256', '64') |
| block2_conv1 | ('256', '256', '128') |
| block2_conv2 | ('256', '256', '128') |
| block2_pool | ('128', '128', '128') |
| block3_conv1 | ('128', '128', '256') |
| block3_conv2 | ('128', '128', '256') |
| block3_conv3 | ('128', '128', '256') |
| block3_conv4 | ('128', '128', '256') |
| block3_pool | ('64', '64', '256') |
| block4_conv1 | ('64', '64', '512') |
| block4_conv2 | ('64', '64', '512') |
| block4_conv3 | ('64', '64', '512') |
| block4_conv4 | ('64', '64', '512') |
| block4_pool | ('32', '32', '512') |
| block5_conv1 | ('32', '32', '512') |
| block5_conv2 | ('32', '32', '512') |
| block5_conv3 | ('32', '32', '512') |
| block5_conv4 | ('32', '32', '512') |
| block5_pool | ('16', '16', '512') |
| center_block1_conv | ('16', '16', '512') |
| center_block1_bn | ('16', '16', '512') |
| center_block1_relu | ('16', '16', '512') |
| center_block2_conv | ('16', '16', '512') |
| center_block2_bn | ('16', '16', '512') |
| center_block2_relu | ('16', '16', '512') |
| decoder_stage0_upsampling | ('32', '32', '512') |
| decoder_stage0_concat | ('32', '32', '1024') |
| decoder_stage0a_conv | ('32', '32', '256') |
| decoder_stage0a_bn | ('32', '32', '256') |
| decoder_stage0a_relu | ('32', '32', '256') |
| decoder_stage0b_conv | ('32', '32', '256') |
| decoder_stage0b_bn | ('32', '32', '256') |
| decoder_stage0b_relu | ('32', '32', '256') |
| decoder_stage1_upsampling | ('64', '64', '256') |
| decoder_stage1_concat | ('64', '64', '768') |
| decoder_stage1a_conv | ('64', '64', '128') |
| decoder_stage1a_bn | ('64', '64', '128') |
| decoder_stage1a_relu | ('64', '64', '128') |
| decoder_stage1b_conv | ('64', '64', '128') |
| decoder_stage1b_bn | ('64', '64', '128') |
| decoder_stage1b_relu | ('64', '64', '128') |
| decoder_stage2_upsampling | ('128', '128', '128') |
| decoder_stage2_concat | ('128', '128', '384') |
| decoder_stage2a_conv | ('128', '128', '64') |
| decoder_stage2a_bn | ('128', '128', '64') |
| decoder_stage2a_relu | ('128', '128', '64') |
| decoder_stage2b_conv | ('128', '128', '64') |
| decoder_stage2b_bn | ('128', '128', '64') |
| decoder_stage2b_relu | ('128', '128', '64') |

| | |
|---|---|
| decoder_stage3_upsampling | ('256', '256', '64') |
| decoder_stage3_concat | ('256', '256', '192') |
| decoder_stage3a_conv | ('256', '256', '32') |
| decoder_stage3a_bn | ('256', '256', '32') |
| decoder_stage3a_relu | ('256', '256', '32') |
| decoder_stage3b_conv | ('256', '256', '32') |
| decoder_stage3b_bn | ('256', '256', '32') |
| decoder_stage3b_relu | ('256', '256', '32') |
| decoder_stage4_upsampling | ('512', '512', '32') |
| decoder_stage4a_conv | ('512', '512', '16') |
| decoder_stage4a_bn | ('512', '512', '16') |
| decoder_stage4a_relu | ('512', '512', '16') |
| decoder_stage4b_conv | ('512', '512', '16') |
| decoder_stage4b_bn | ('512', '512', '16') |
| decoder_stage4b_relu | ('512', '512', '16') |
| final_conv | ('512', '512', '3') |
| softmax | ('512', '512', '3') |

*Tabla 2. Lista de capas y dimensiones del modelo U-Net con backbone VGG 19*

| INCEPTIONV3 | |
|---|---|
| **Layer_type** | **Output_shape** |
| input_1 | ('512', '512', '3') |
| conv2d | ('256', '256', '32') |
| batch_normalization | ('256', '256', '32') |
| activation | ('256', '256', '32') |
| conv2d_1 | ('256', '256', '32') |
| batch_normalization_1 | ('256', '256', '32') |
| activation_1 | ('256', '256', '32') |
| conv2d_2 | ('256', '256', '64') |
| batch_normalization_2 | ('256', '256', '64') |
| activation_2 | ('256', '256', '64') |
| max_pooling2d | ('128', '128', '64') |
| conv2d_3 | ('128', '128', '80') |
| batch_normalization_3 | ('128', '128', '80') |
| activation_3 | ('128', '128', '80') |
| conv2d_4 | ('128', '128', '192') |
| batch_normalization_4 | ('128', '128', '192') |
| activation_4 | ('128', '128', '192') |
| max_pooling2d_1 | ('64', '64', '192') |
| conv2d_8 | ('64', '64', '64') |
| batch_normalization_8 | ('64', '64', '64') |
| activation_8 | ('64', '64', '64') |
| conv2d_6 | ('64', '64', '48') |
| conv2d_9 | ('64', '64', '96') |
| batch_normalization_6 | ('64', '64', '48') |
| batch_normalization_9 | ('64', '64', '96') |
| activation_6 | ('64', '64', '48') |
| activation_9 | ('64', '64', '96') |
| average_pooling2d | ('64', '64', '192') |
| conv2d_5 | ('64', '64', '64') |
| conv2d_7 | ('64', '64', '64') |
| conv2d_10 | ('64', '64', '96') |
| conv2d_11 | ('64', '64', '32') |
| batch_normalization_5 | ('64', '64', '64') |
| batch_normalization_7 | ('64', '64', '64') |
| batch_normalization_10 | ('64', '64', '96') |
| batch_normalization_11 | ('64', '64', '32') |
| activation_5 | ('64', '64', '64') |
| activation_7 | ('64', '64', '64') |
| activation_10 | ('64', '64', '96') |
| activation_11 | ('64', '64', '32') |
| mixed0 | ('64', '64', '256') |
| conv2d_15 | ('64', '64', '64') |
| batch_normalization_15 | ('64', '64', '64') |
| activation_15 | ('64', '64', '64') |
| conv2d_13 | ('64', '64', '48') |
| conv2d_16 | ('64', '64', '96') |
| batch_normalization_13 | ('64', '64', '48') |
| batch_normalization_16 | ('64', '64', '96') |
| activation_13 | ('64', '64', '48') |
| activation_16 | ('64', '64', '96') |
| average_pooling2d_1 | ('64', '64', '256') |
| conv2d_12 | ('64', '64', '64') |

| | |
|---|---|
| conv2d_14 | ('64', '64', '64') |
| conv2d_17 | ('64', '64', '96') |
| conv2d_18 | ('64', '64', '64') |
| batch_normalization_12 | ('64', '64', '64') |
| batch_normalization_14 | ('64', '64', '64') |
| batch_normalization_17 | ('64', '64', '96') |
| batch_normalization_18 | ('64', '64', '64') |
| activation_12 | ('64', '64', '64') |
| activation_14 | ('64', '64', '64') |
| activation_17 | ('64', '64', '96') |
| activation_18 | ('64', '64', '64') |
| mixed1 | ('64', '64', '288') |
| conv2d_22 | ('64', '64', '64') |
| batch_normalization_22 | ('64', '64', '64') |
| activation_22 | ('64', '64', '64') |
| conv2d_20 | ('64', '64', '48') |
| conv2d_23 | ('64', '64', '96') |
| batch_normalization_20 | ('64', '64', '48') |
| batch_normalization_23 | ('64', '64', '96') |
| activation_20 | ('64', '64', '48') |
| activation_23 | ('64', '64', '96') |
| average_pooling2d_2 | ('64', '64', '288') |
| conv2d_19 | ('64', '64', '64') |
| conv2d_21 | ('64', '64', '64') |
| conv2d_24 | ('64', '64', '96') |
| conv2d_25 | ('64', '64', '64') |
| batch_normalization_19 | ('64', '64', '64') |
| batch_normalization_21 | ('64', '64', '64') |
| batch_normalization_24 | ('64', '64', '96') |
| batch_normalization_25 | ('64', '64', '64') |
| activation_19 | ('64', '64', '64') |
| activation_21 | ('64', '64', '64') |
| activation_24 | ('64', '64', '96') |
| activation_25 | ('64', '64', '64') |
| mixed2 | ('64', '64', '288') |
| conv2d_27 | ('64', '64', '64') |
| batch_normalization_27 | ('64', '64', '64') |
| activation_27 | ('64', '64', '64') |
| conv2d_28 | ('64', '64', '96') |
| batch_normalization_28 | ('64', '64', '96') |
| activation_28 | ('64', '64', '96') |
| conv2d_26 | ('32', '32', '384') |
| conv2d_29 | ('32', '32', '96') |
| batch_normalization_26 | ('32', '32', '384') |
| batch_normalization_29 | ('32', '32', '96') |
| activation_26 | ('32', '32', '384') |
| activation_29 | ('32', '32', '96') |
| max_pooling2d_2 | ('32', '32', '288') |
| mixed3 | ('32', '32', '768') |
| conv2d_34 | ('32', '32', '128') |
| batch_normalization_34 | ('32', '32', '128') |
| activation_34 | ('32', '32', '128') |
| conv2d_35 | ('32', '32', '128') |
| batch_normalization_35 | ('32', '32', '128') |

| | |
|---|---|
| activation_35 | ('32', '32', '128') |
| conv2d_31 | ('32', '32', '128') |
| conv2d_36 | ('32', '32', '128') |
| batch_normalization_31 | ('32', '32', '128') |
| batch_normalization_36 | ('32', '32', '128') |
| activation_31 | ('32', '32', '128') |
| activation_36 | ('32', '32', '128') |
| conv2d_32 | ('32', '32', '128') |
| conv2d_37 | ('32', '32', '128') |
| batch_normalization_32 | ('32', '32', '128') |
| batch_normalization_37 | ('32', '32', '128') |
| activation_32 | ('32', '32', '128') |
| activation_37 | ('32', '32', '128') |
| average_pooling2d_3 | ('32', '32', '768') |
| conv2d_30 | ('32', '32', '192') |
| conv2d_33 | ('32', '32', '192') |
| conv2d_38 | ('32', '32', '192') |
| conv2d_39 | ('32', '32', '192') |
| batch_normalization_30 | ('32', '32', '192') |
| batch_normalization_33 | ('32', '32', '192') |
| batch_normalization_38 | ('32', '32', '192') |
| batch_normalization_39 | ('32', '32', '192') |
| activation_30 | ('32', '32', '192') |
| activation_33 | ('32', '32', '192') |
| activation_38 | ('32', '32', '192') |
| activation_39 | ('32', '32', '192') |
| mixed4 | ('32', '32', '768') |
| conv2d_44 | ('32', '32', '160') |
| batch_normalization_44 | ('32', '32', '160') |
| activation_44 | ('32', '32', '160') |
| conv2d_45 | ('32', '32', '160') |
| batch_normalization_45 | ('32', '32', '160') |
| activation_45 | ('32', '32', '160') |
| conv2d_41 | ('32', '32', '160') |
| conv2d_46 | ('32', '32', '160') |
| batch_normalization_41 | ('32', '32', '160') |
| batch_normalization_46 | ('32', '32', '160') |
| activation_41 | ('32', '32', '160') |
| activation_46 | ('32', '32', '160') |
| conv2d_42 | ('32', '32', '160') |
| conv2d_47 | ('32', '32', '160') |
| batch_normalization_42 | ('32', '32', '160') |
| batch_normalization_47 | ('32', '32', '160') |
| activation_42 | ('32', '32', '160') |
| activation_47 | ('32', '32', '160') |
| average_pooling2d_4 | ('32', '32', '768') |
| conv2d_40 | ('32', '32', '192') |
| conv2d_43 | ('32', '32', '192') |
| conv2d_48 | ('32', '32', '192') |
| conv2d_49 | ('32', '32', '192') |
| batch_normalization_40 | ('32', '32', '192') |
| batch_normalization_43 | ('32', '32', '192') |
| batch_normalization_48 | ('32', '32', '192') |
| batch_normalization_49 | ('32', '32', '192') |

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| activation_40 | ('32', '32', '192') |
| activation_43 | ('32', '32', '192') |
| activation_48 | ('32', '32', '192') |
| activation_49 | ('32', '32', '192') |
| mixed5 | ('32', '32', '768') |
| conv2d_54 | ('32', '32', '160') |
| batch_normalization_54 | ('32', '32', '160') |
| activation_54 | ('32', '32', '160') |
| conv2d_55 | ('32', '32', '160') |
| batch_normalization_55 | ('32', '32', '160') |
| activation_55 | ('32', '32', '160') |
| conv2d_51 | ('32', '32', '160') |
| conv2d_56 | ('32', '32', '160') |
| batch_normalization_51 | ('32', '32', '160') |
| batch_normalization_56 | ('32', '32', '160') |
| activation_51 | ('32', '32', '160') |
| activation_56 | ('32', '32', '160') |
| conv2d_52 | ('32', '32', '160') |
| conv2d_57 | ('32', '32', '160') |
| batch_normalization_52 | ('32', '32', '160') |
| batch_normalization_57 | ('32', '32', '160') |
| activation_52 | ('32', '32', '160') |
| activation_57 | ('32', '32', '160') |
| average_pooling2d_5 | ('32', '32', '768') |
| conv2d_50 | ('32', '32', '192') |
| conv2d_53 | ('32', '32', '192') |
| conv2d_58 | ('32', '32', '192') |
| conv2d_59 | ('32', '32', '192') |
| batch_normalization_50 | ('32', '32', '192') |
| batch_normalization_53 | ('32', '32', '192') |
| batch_normalization_58 | ('32', '32', '192') |
| batch_normalization_59 | ('32', '32', '192') |
| activation_50 | ('32', '32', '192') |
| activation_53 | ('32', '32', '192') |
| activation_58 | ('32', '32', '192') |
| activation_59 | ('32', '32', '192') |
| mixed6 | ('32', '32', '768') |
| conv2d_64 | ('32', '32', '192') |
| batch_normalization_64 | ('32', '32', '192') |
| activation_64 | ('32', '32', '192') |
| conv2d_65 | ('32', '32', '192') |
| batch_normalization_65 | ('32', '32', '192') |
| activation_65 | ('32', '32', '192') |
| conv2d_61 | ('32', '32', '192') |
| conv2d_66 | ('32', '32', '192') |
| batch_normalization_61 | ('32', '32', '192') |
| batch_normalization_66 | ('32', '32', '192') |
| activation_61 | ('32', '32', '192') |
| activation_66 | ('32', '32', '192') |
| conv2d_62 | ('32', '32', '192') |
| conv2d_67 | ('32', '32', '192') |
| batch_normalization_62 | ('32', '32', '192') |
| batch_normalization_67 | ('32', '32', '192') |
| activation_62 | ('32', '32', '192') |

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| activation_67 | ('32', '32', '192') |
| average_pooling2d_6 | ('32', '32', '768') |
| conv2d_60 | ('32', '32', '192') |
| conv2d_63 | ('32', '32', '192') |
| conv2d_68 | ('32', '32', '192') |
| conv2d_69 | ('32', '32', '192') |
| batch_normalization_60 | ('32', '32', '192') |
| batch_normalization_63 | ('32', '32', '192') |
| batch_normalization_68 | ('32', '32', '192') |
| batch_normalization_69 | ('32', '32', '192') |
| activation_60 | ('32', '32', '192') |
| activation_63 | ('32', '32', '192') |
| activation_68 | ('32', '32', '192') |
| activation_69 | ('32', '32', '192') |
| mixed7 | ('32', '32', '768') |
| conv2d_72 | ('32', '32', '192') |
| batch_normalization_72 | ('32', '32', '192') |
| activation_72 | ('32', '32', '192') |
| conv2d_73 | ('32', '32', '192') |
| batch_normalization_73 | ('32', '32', '192') |
| activation_73 | ('32', '32', '192') |
| conv2d_70 | ('32', '32', '192') |
| conv2d_74 | ('32', '32', '192') |
| batch_normalization_70 | ('32', '32', '192') |
| batch_normalization_74 | ('32', '32', '192') |
| activation_70 | ('32', '32', '192') |
| activation_74 | ('32', '32', '192') |
| conv2d_71 | ('16', '16', '320') |
| conv2d_75 | ('16', '16', '192') |
| batch_normalization_71 | ('16', '16', '320') |
| batch_normalization_75 | ('16', '16', '192') |
| activation_71 | ('16', '16', '320') |
| activation_75 | ('16', '16', '192') |
| max_pooling2d_3 | ('16', '16', '768') |
| mixed8 | ('16', '16', '1280') |
| conv2d_80 | ('16', '16', '448') |
| batch_normalization_80 | ('16', '16', '448') |
| activation_80 | ('16', '16', '448') |
| conv2d_77 | ('16', '16', '384') |
| conv2d_81 | ('16', '16', '384') |
| batch_normalization_77 | ('16', '16', '384') |
| batch_normalization_81 | ('16', '16', '384') |
| activation_77 | ('16', '16', '384') |
| activation_81 | ('16', '16', '384') |
| conv2d_78 | ('16', '16', '384') |
| conv2d_79 | ('16', '16', '384') |
| conv2d_82 | ('16', '16', '384') |
| conv2d_83 | ('16', '16', '384') |
| average_pooling2d_7 | ('16', '16', '1280') |
| conv2d_76 | ('16', '16', '320') |
| batch_normalization_78 | ('16', '16', '384') |
| batch_normalization_79 | ('16', '16', '384') |
| batch_normalization_82 | ('16', '16', '384') |
| batch_normalization_83 | ('16', '16', '384') |

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| conv2d_84 | ('16', '16', '192') |
| batch_normalization_76 | ('16', '16', '320') |
| activation_78 | ('16', '16', '384') |
| activation_79 | ('16', '16', '384') |
| activation_82 | ('16', '16', '384') |
| activation_83 | ('16', '16', '384') |
| batch_normalization_84 | ('16', '16', '192') |
| activation_76 | ('16', '16', '320') |
| mixed9_0 | ('16', '16', '768') |
| concatenate | ('16', '16', '768') |
| activation_84 | ('16', '16', '192') |
| mixed9 | ('16', '16', '2048') |
| conv2d_89 | ('16', '16', '448') |
| batch_normalization_89 | ('16', '16', '448') |
| activation_89 | ('16', '16', '448') |
| conv2d_86 | ('16', '16', '384') |
| conv2d_90 | ('16', '16', '384') |
| batch_normalization_86 | ('16', '16', '384') |
| batch_normalization_90 | ('16', '16', '384') |
| activation_86 | ('16', '16', '384') |
| activation_90 | ('16', '16', '384') |
| conv2d_87 | ('16', '16', '384') |
| conv2d_88 | ('16', '16', '384') |
| conv2d_91 | ('16', '16', '384') |
| conv2d_92 | ('16', '16', '384') |
| average_pooling2d_8 | ('16', '16', '2048') |
| conv2d_85 | ('16', '16', '320') |
| batch_normalization_87 | ('16', '16', '384') |
| batch_normalization_88 | ('16', '16', '384') |
| batch_normalization_91 | ('16', '16', '384') |
| batch_normalization_92 | ('16', '16', '384') |
| conv2d_93 | ('16', '16', '192') |
| batch_normalization_85 | ('16', '16', '320') |
| activation_87 | ('16', '16', '384') |
| activation_88 | ('16', '16', '384') |
| activation_91 | ('16', '16', '384') |
| activation_92 | ('16', '16', '384') |
| batch_normalization_93 | ('16', '16', '192') |
| activation_85 | ('16', '16', '320') |
| mixed9_1 | ('16', '16', '768') |
| concatenate_1 | ('16', '16', '768') |
| activation_93 | ('16', '16', '192') |
| mixed10 | ('16', '16', '2048') |
| decoder_stage0_upsampling | ('32', '32', '2048') |
| decoder_stage0_concat | ('32', '32', '2816') |
| decoder_stage0a_conv | ('32', '32', '256') |
| decoder_stage0a_bn | ('32', '32', '256') |
| decoder_stage0a_relu | ('32', '32', '256') |
| decoder_stage0b_conv | ('32', '32', '256') |
| decoder_stage0b_bn | ('32', '32', '256') |
| decoder_stage0b_relu | ('32', '32', '256') |
| decoder_stage1_upsampling | ('64', '64', '256') |
| decoder_stage1_concat | ('64', '64', '544') |
| decoder_stage1a_conv | ('64', '64', '128') |

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| decoder_stage1a_bn | ('64', '64', '128') |
| decoder_stage1a_relu | ('64', '64', '128') |
| decoder_stage1b_conv | ('64', '64', '128') |
| decoder_stage1b_bn | ('64', '64', '128') |
| decoder_stage1b_relu | ('64', '64', '128') |
| decoder_stage2_upsampling | ('128', '128', '128') |
| decoder_stage2_concat | ('128', '128', '320') |
| decoder_stage2a_conv | ('128', '128', '64') |
| decoder_stage2a_bn | ('128', '128', '64') |
| decoder_stage2a_relu | ('128', '128', '64') |
| decoder_stage2b_conv | ('128', '128', '64') |
| decoder_stage2b_bn | ('128', '128', '64') |
| decoder_stage2b_relu | ('128', '128', '64') |
| decoder_stage3_upsampling | ('256', '256', '64') |
| decoder_stage3_concat | ('256', '256', '128') |
| decoder_stage3a_conv | ('256', '256', '32') |
| decoder_stage3a_bn | ('256', '256', '32') |
| decoder_stage3a_relu | ('256', '256', '32') |
| decoder_stage3b_conv | ('256', '256', '32') |
| decoder_stage3b_bn | ('256', '256', '32') |
| decoder_stage3b_relu | ('256', '256', '32') |
| decoder_stage4_upsampling | ('512', '512', '32') |
| decoder_stage4a_conv | ('512', '512', '16') |
| decoder_stage4a_bn | ('512', '512', '16') |
| decoder_stage4a_relu | ('512', '512', '16') |
| decoder_stage4b_conv | ('512', '512', '16') |
| decoder_stage4b_bn | ('512', '512', '16') |
| decoder_stage4b_relu | ('512', '512', '16') |
| final_conv | ('512', '512', '3') |
| softmax | ('512', '512', '3') |

*Tabla 3. Lista de capas y dimensiones del modelo U-Net con backbone InceptionV3*