

Data Collection and Preprocessing Phase

Date	2 Dec 2024
Team ID	TMID739650
Project Title	ADVANCED COVID-19 DETECTION USING LUNG X-RAYS BY DEEP LEARNING
Maximum Marks	6 Marks

Preprocessing Template

The images will be preprocessed by resizing, normalizing, augmenting, denoising, adjusting contrast, detecting edges, converting color space, cropping, batch normalizing, and whitening data. These steps will enhance data quality, promote model generalization, and improve convergence during neural network training, ensuring robust and efficient performance across various computer vision tasks.

Section	Description
Data Overview	<pre> Found 33866 images belonging to 4 classes. Found 8464 images belonging to 4 classes. {'COVID': 0, 'Lung_Opacity': 1, 'Normal': 2, 'Viral Pneumonia': 3} {'COVID': 0, 'Lung_Opacity': 1, 'Normal': 2, 'Viral Pneumonia': 3} Found 33866 training images. Found 8464 validation images. Model: "functional_2" </pre>
Resizing	-
Normalization	-
Data Augmentation	-
Denoising	-

Edge Detection	-																																																
Color Space Conversion	-																																																
Image Cropping	-																																																
Batch Normalization	-																																																
Data Preprocessing Code Screenshots																																																	
Loading Data	<table><tr><th>Layer (type)</th><th>Output Shape</th><th>Param #</th><th>Connected to</th></tr><tr><td>input_layer_2 (InputLayer)</td><td>(None, 299, 299, 3)</td><td>0</td><td>-</td></tr><tr><td>block1_conv1 (conv2D)</td><td>(None, 149, 149, 32)</td><td>864</td><td>input_layer_2[0]...</td></tr><tr><td>block1_conv1_bn (BatchNormalizatio...</td><td>(None, 149, 149, 32)</td><td>128</td><td>block1_conv1[0][...</td></tr><tr><td>block1_conv1_act (Activation)</td><td>(None, 149, 149, 32)</td><td>0</td><td>block1_conv1_bn[...</td></tr><tr><td>block1_conv2 (conv2D)</td><td>(None, 147, 147, 64)</td><td>18,432</td><td>block1_conv1_act...</td></tr><tr><td>block1_conv2_bn (BatchNormalizatio...</td><td>(None, 147, 147, 64)</td><td>256</td><td>block1_conv2[0][...</td></tr><tr><td>block1_conv2_act (Activation)</td><td>(None, 147, 147, 64)</td><td>0</td><td>block1_conv2_bn[...</td></tr><tr><td>block2_sepconv1 (separableConv2D)</td><td>(None, 147, 147, 128)</td><td>8,768</td><td>block1_conv2_act...</td></tr><tr><td>block2_sepconv1_bn (BatchNormalizatio...</td><td>(None, 147, 147, 128)</td><td>512</td><td>block2_sepconv1[...</td></tr><tr><td>block2_sepconv2_act (Activation)</td><td>(None, 147, 147, 128)</td><td>0</td><td>block2_sepconv1_...</td></tr><tr><td>block2_sepconv2 (separableConv2D)</td><td>(None, 147, 147, 128)</td><td>17,536</td><td>block2_sepconv2_...</td></tr></table>	Layer (type)	Output Shape	Param #	Connected to	input_layer_2 (InputLayer)	(None, 299, 299, 3)	0	-	block1_conv1 (conv2D)	(None, 149, 149, 32)	864	input_layer_2[0]...	block1_conv1_bn (BatchNormalizatio...	(None, 149, 149, 32)	128	block1_conv1[0][...	block1_conv1_act (Activation)	(None, 149, 149, 32)	0	block1_conv1_bn[...	block1_conv2 (conv2D)	(None, 147, 147, 64)	18,432	block1_conv1_act...	block1_conv2_bn (BatchNormalizatio...	(None, 147, 147, 64)	256	block1_conv2[0][...	block1_conv2_act (Activation)	(None, 147, 147, 64)	0	block1_conv2_bn[...	block2_sepconv1 (separableConv2D)	(None, 147, 147, 128)	8,768	block1_conv2_act...	block2_sepconv1_bn (BatchNormalizatio...	(None, 147, 147, 128)	512	block2_sepconv1[...	block2_sepconv2_act (Activation)	(None, 147, 147, 128)	0	block2_sepconv1_...	block2_sepconv2 (separableConv2D)	(None, 147, 147, 128)	17,536	block2_sepconv2_...
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