Medical Image classifier

(Med-AI)

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MY LINKS:
GITHUB | LINKEDIN | PROJECT | VIDEO

Purpose

- Demonstrate how powerful AI can be.
- How AI can impact and save lives
- How AI can improve diagnosis with accuracy

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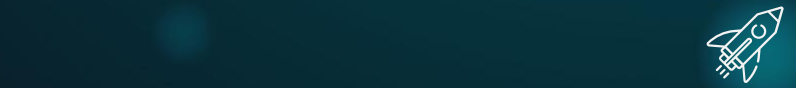


Research

F

Frameworks
Tensorflow and Keras

L

Layers
Purpose of Layers in models

A

Activation
Sigmoid, Softmax, ReLU

E

Evaluation
How is a model evaluated

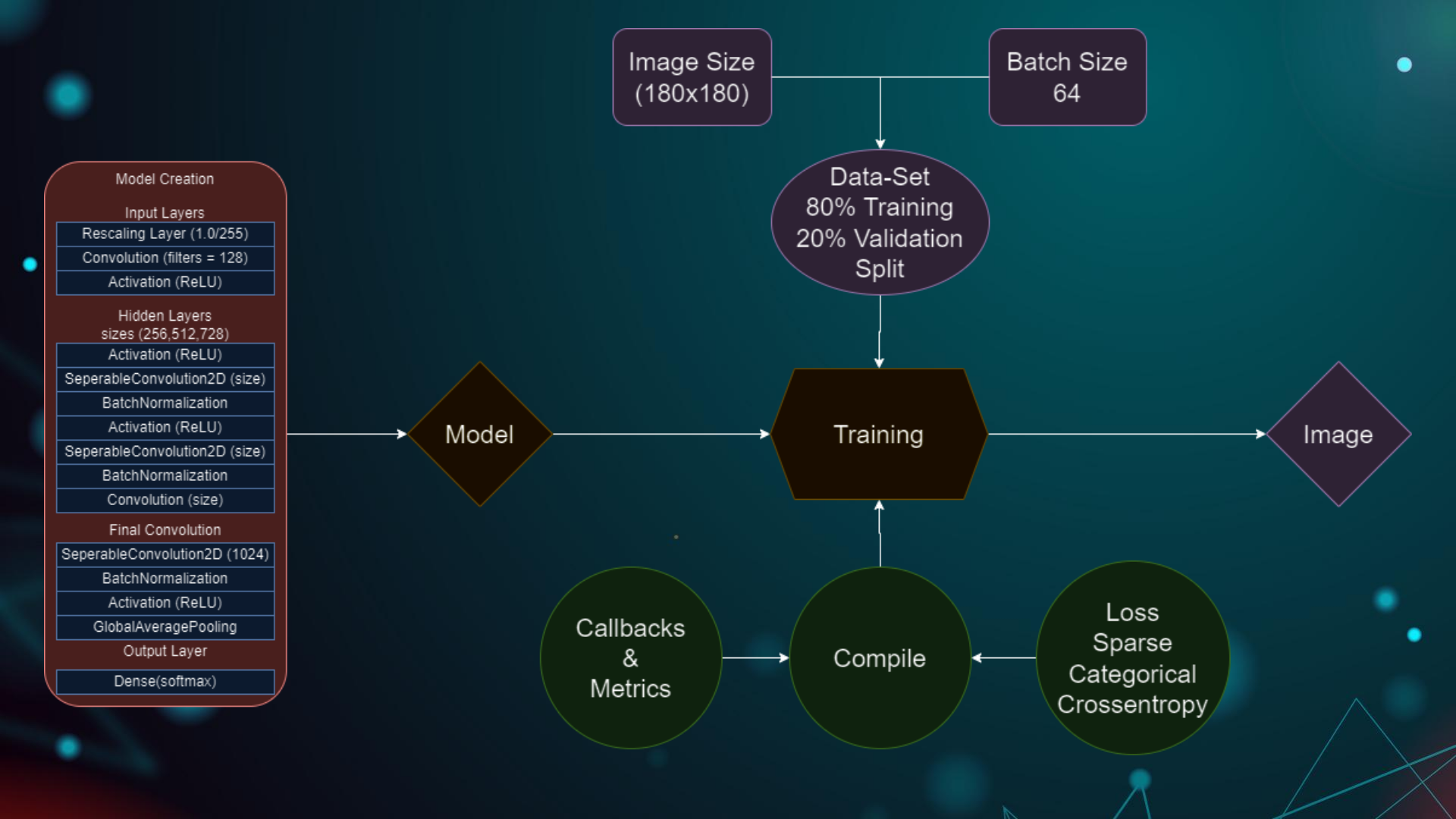


Image Size (180x180)
Batch Size 64
Data-Set 80% Training 20% Validation Split
Model Creation
Input Layers
Rescaling Layer (1.0/255)
Convolution (filters = 128)
Activation (ReLU)
Hidden Layers sizes (256,512,728)
Activation (ReLU)
SeperableConvolution2D (size)
BatchNormalization
Activation (ReLU)
SeperableConvolution2D (size)
BatchNormalization
Convolution (size)
Final Convolution
SeperableConvolution2D (1024)
BatchNormalization
Activation (ReLU)
GlobalAveragePooling
Output Layer
Dense(softmax)
Model
Training
Image
Callbacks & Metrics
Compile
Loss Sparse Categorical Crossentropy

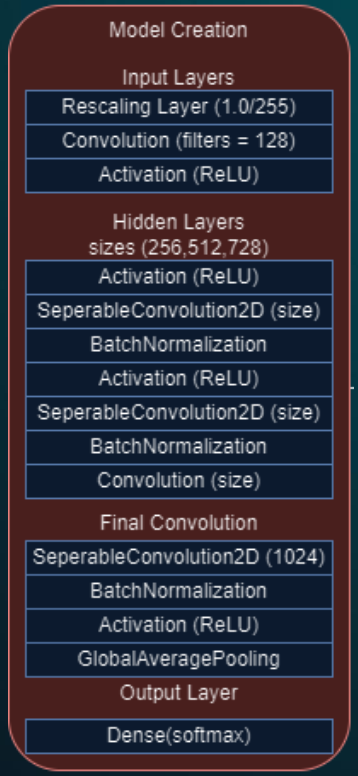
Model

Input Layers

Output Layer

Hidden Layers

Xception

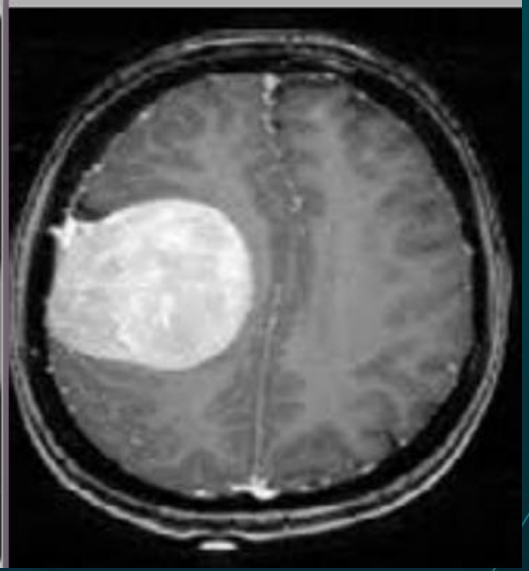


Training

Process

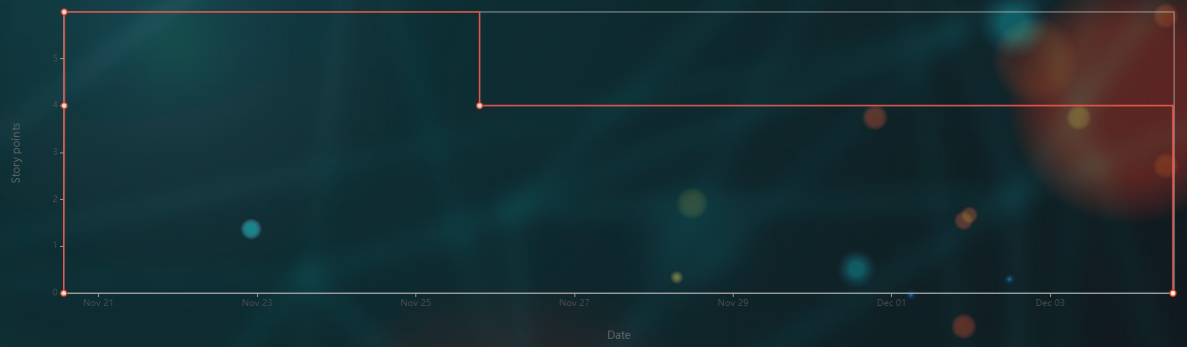
Data	Compile	Image
• All images are preprocessed to ensure the highest quality of image is present then it gets resized to 180x180 pixels • Batch size of 64 • Dataset gets split into 80% Training and 20% Validation.	• The data gets then compiled a loss called Sparse Categorical Crossentropy. • It uses callbacks such as early stopping to determine when the model is fully trained. • These callbacks use Metrics to determine how well the model is learning.	• The Model then gets brought through epochs which are run-throughs of the data. • Once the early stopping function determines the model is satisfactory. This model then gets saved which can be used to predict images.

Results

X-ray Image of chest	CT Image of chest	MRI Image of brain
Prediction: COVID Confidence: 0.3521873950958252	Prediction: SQUAMOUS CELL CARCINOMA Confidence: 0.25303924083709717	Prediction: TUMOR Confidence: 0.4037858843803406
		

Organisation

First Burndown



Final Burndown

DEMO

Thank you