CV ASSIGNMENT – 1

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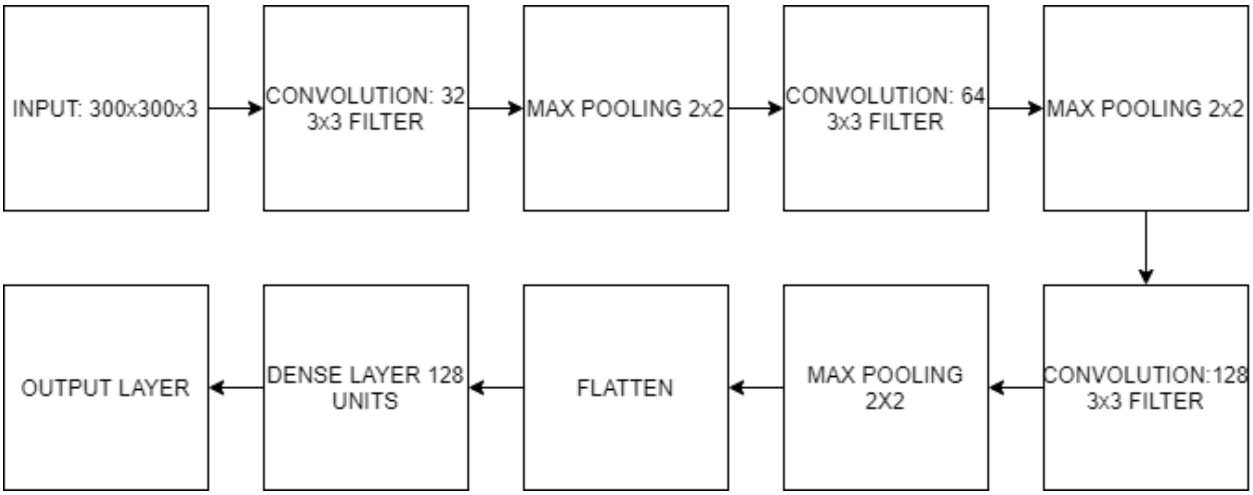
TOOLS USED

1. Keras 2.3.1
2. Tensorflow 2.0.0
3. Python 3.6
4. Protobuf 3.6.0

NETWORK ARCHITECTURE



Input is an image of dimensions 300x300x3 stored in the form of numpy array. Raw_PCB (Unbalanced) dataset contains 2669 such images (defect: 149, no defect: 2520). Raw_PCB (Unbalanced) is used as the training dataset (xtrain.npy and ytrain.npy).

The CNN model is implemented in Keras and its layout is as shown in the above figure.

FILES

Python file used for training the CNN: cnn.py

Trained model is stored as: trained_pcb_model.h5py

Python file that loads the trained model and is used to run on test data: cnn_run.py

TRAINING DETAILS

Dataset: Raw PCB (Unbalanced) – xtrain.npy and ytrain.npy

Batch size: 64

Epochs: 20

Accuracy: 0.95

Loss: 0.15

Validation Accuracy: 0.93

Validation Loss: 0.25

TESTING DETAILS

Dataset: Raw PCB (Balanced) – xtest.npy and ytest.npy

Correct Predictions: 225

Incorrect Predictions: 75

Accuracy: 0.76

Loss: 0.44

	Precision	Recall	F1 score
Class 0	0.90	0.57	0.70
Class 1	0.69	0.94	0.79

PCB boards belong to 2 classes – one for defective and the other for non-defective.