

# IESTI01 - TinyML

CNN Recap

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# Convolutions

# Exploring CNN

CNN Explainer

<https://poloclub.github.io/cnn-explainer/>

ConvNetJS MNIST demo

<https://cs.stanford.edu/people/karpathy/convnetjs/demo/mnist.html>

ConvNetJS CIFAR-10 demo

<https://cs.stanford.edu/people/karpathy/convnetjs/demo/cifar10.html>

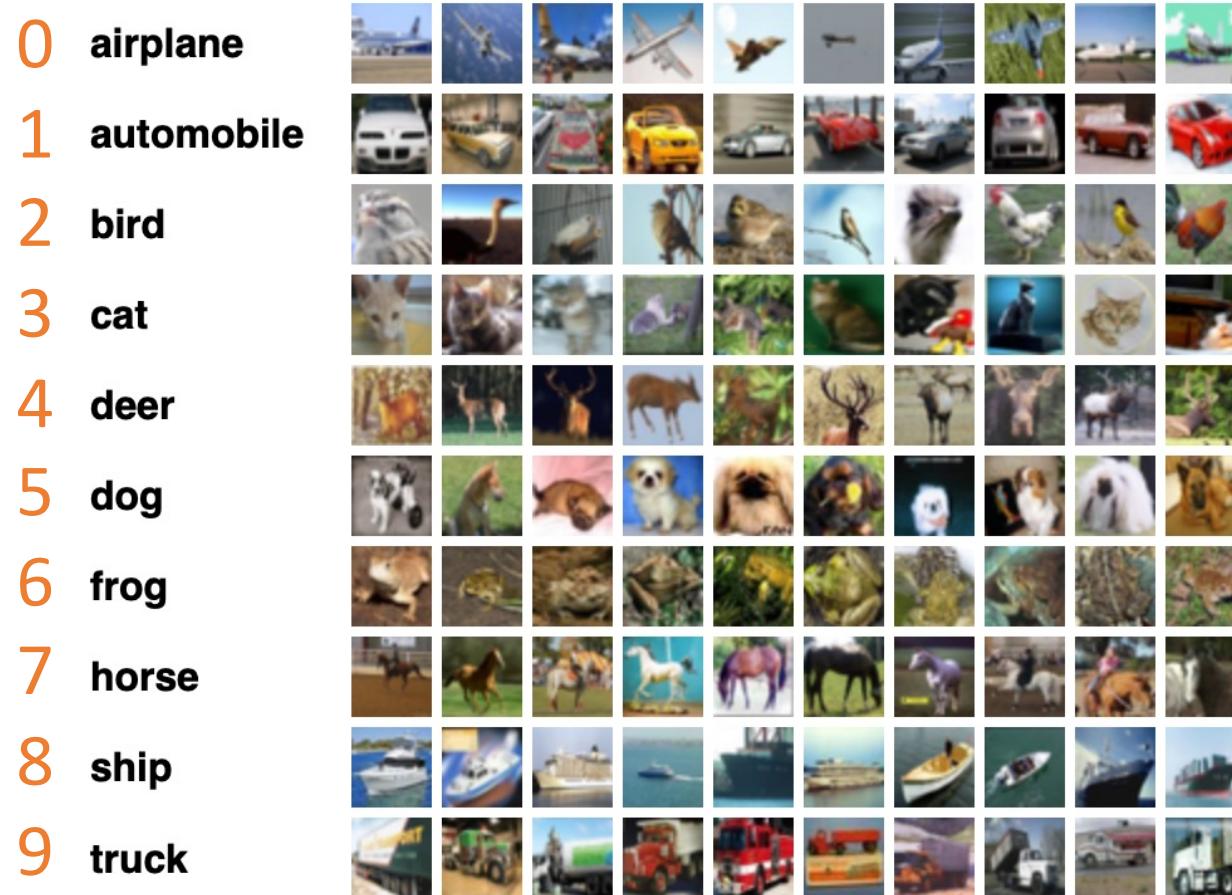
# Image Classification using CNN

## Code Time!

CNN\_Cifar-10.ipynb



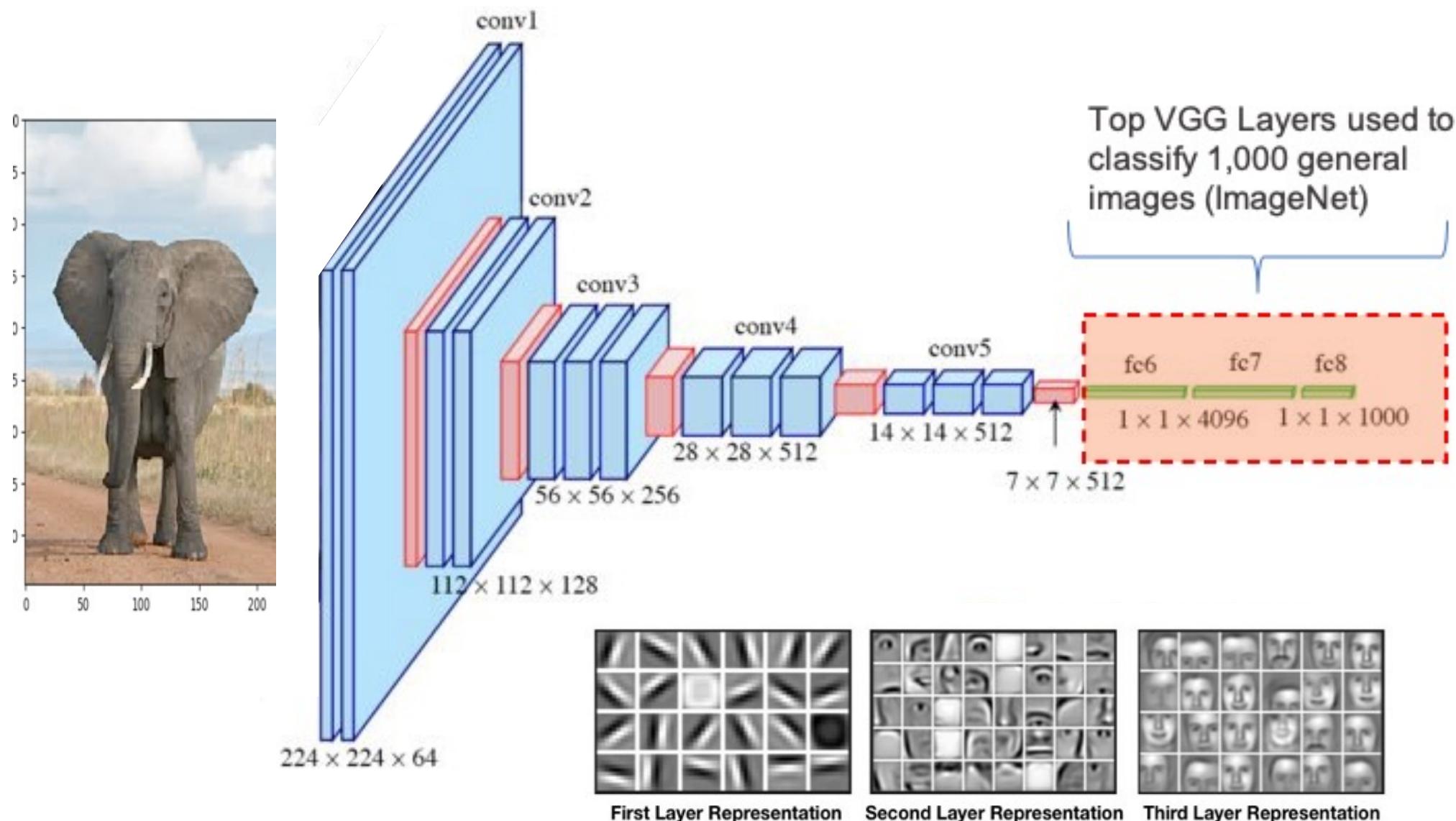
# Cifar-10



<https://www.tensorflow.org/datasets/catalog/cifar10>

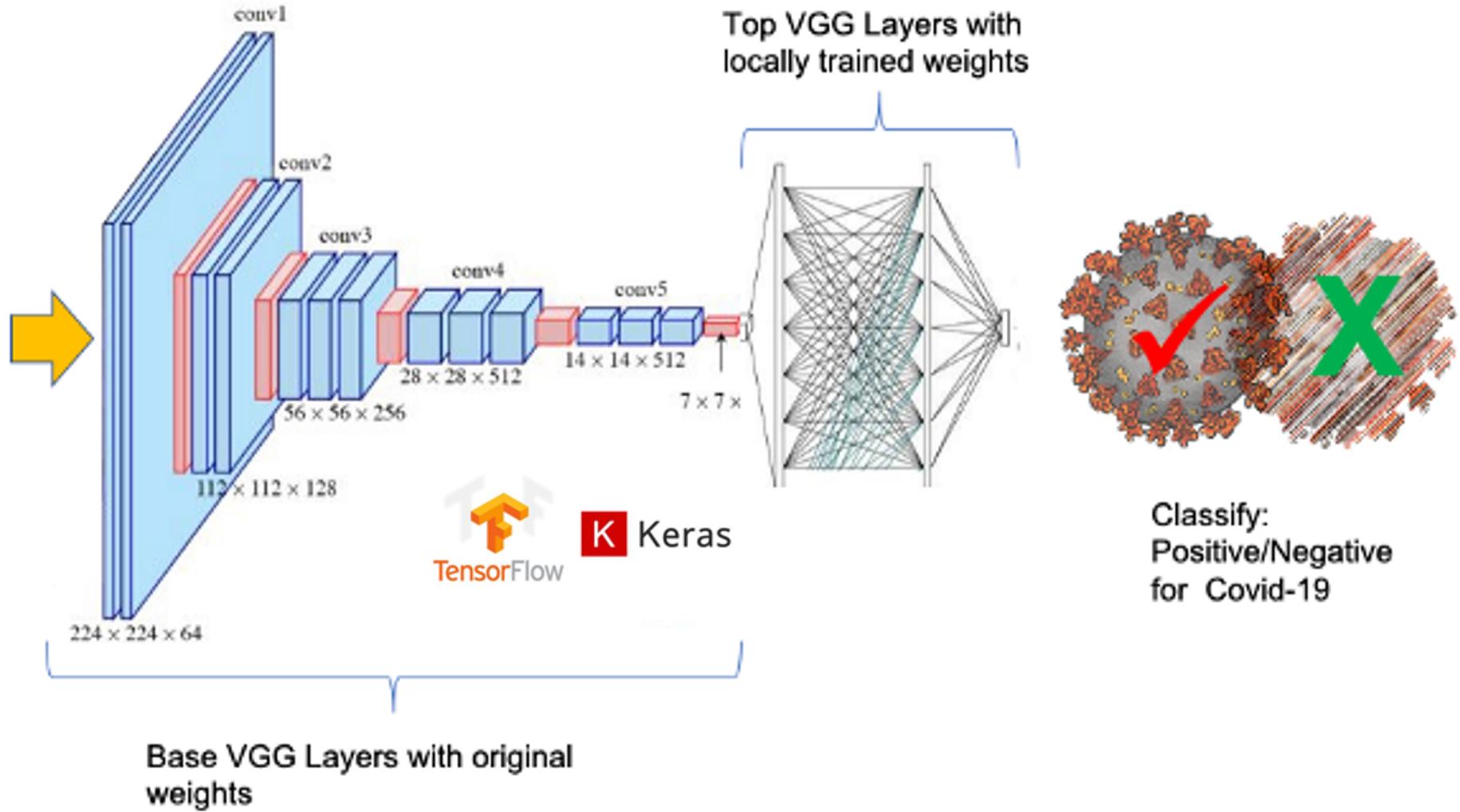
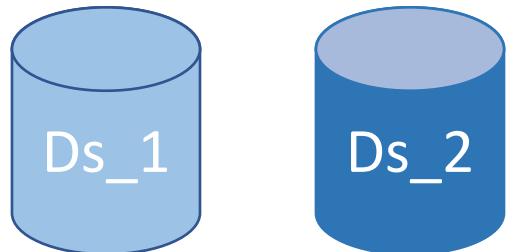
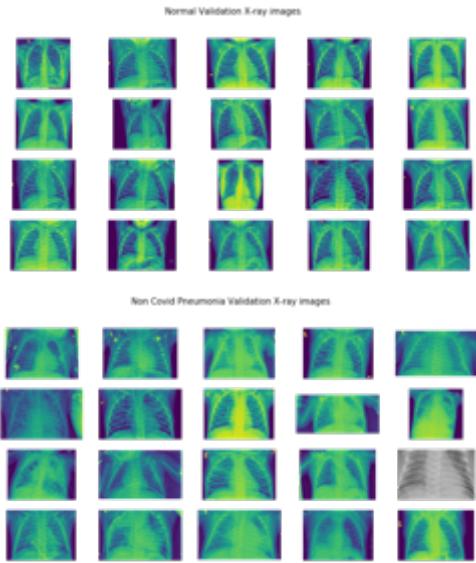
# Transfer Learning

# VGG-16 Convolutional Neural Network Model



# Training the model (Transfer Learning)

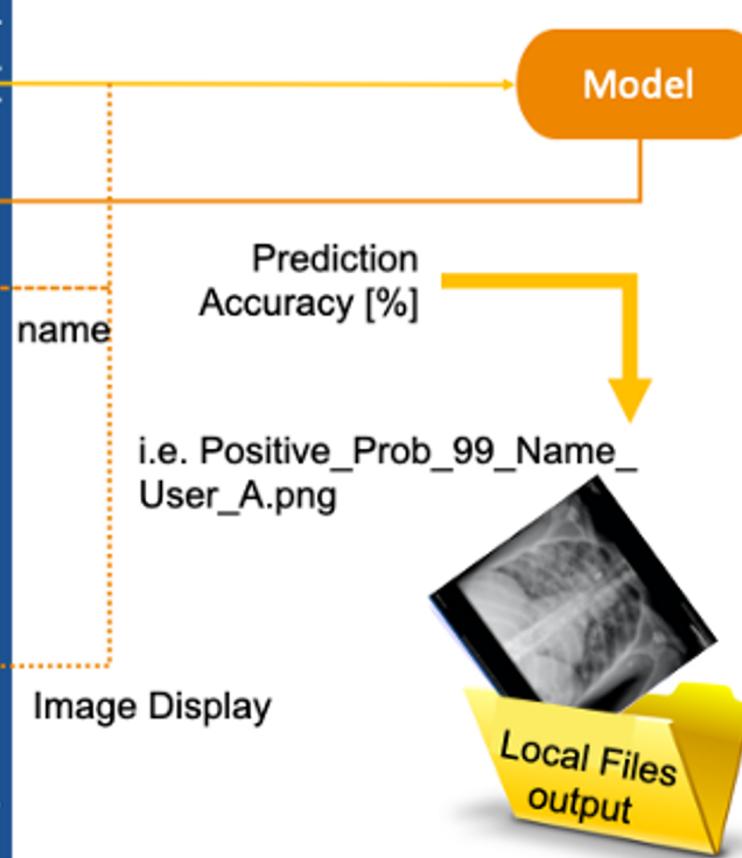
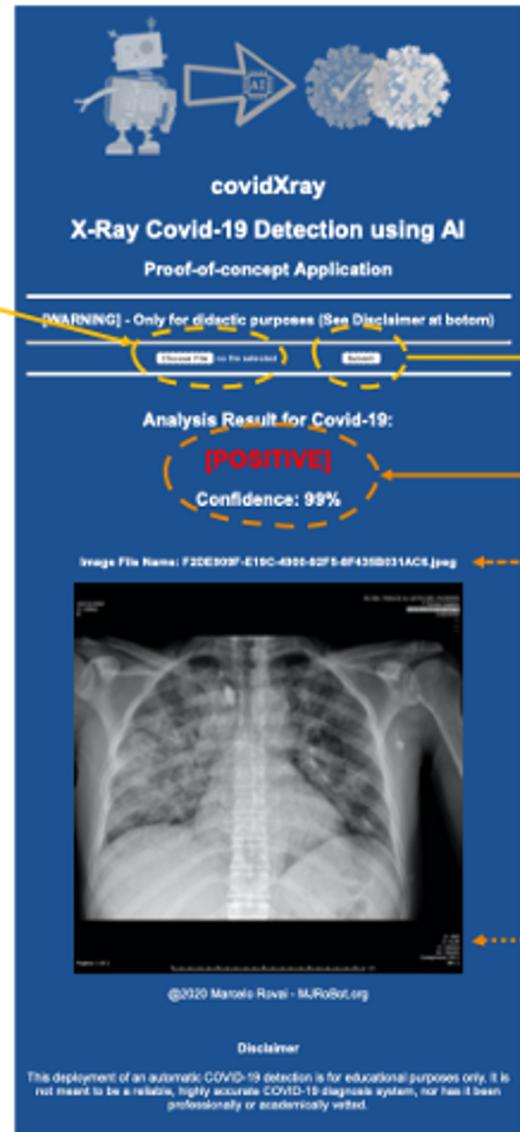
Input Image (Chest X-Ray)



# Inference



i.e. User\_A.png



<https://github.com/Mjrovai/covid19Xray>

# Reading Material

# Main references

- [Harvard School of Engineering and Applied Sciences - CS249r: Tiny Machine Learning](#)
- [Professional Certificate in Tiny Machine Learning \(TinyML\) – edX/Harvard](#)
- [Introduction to Embedded Machine Learning \(Coursera\)](#)
- [Text Book: "TinyML" by Pete Warden, Daniel Situnayake](#)

I want to thank [Laurence Moroney](#) from Google, Harvard professor [Vijay Janapa Reddi](#), Ph.D. student [Brian Plancher](#) and their staff for preparing the excellent material on TinyML that is the basis of this course at UNIFEI.

The IESTI01 course is part of the [TinyML4D](#), an initiative to make TinyML education available to everyone globally.

**Thanks**  
And stay safe!

