Polycystic Ovary Syndrome Detection from Images using Deep Learning

By
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Abstract

Polycystic Ovary Syndrome (PCOS) is an endocrinological dysfunction prevalent among women of reproductive age. PCOS is a combination of syndromes caused by an excess of androgens — a group of sex hormones — in women, Syndromes including acne, alopecia, hirsutism, hyperandrogenemia, oligoovulation, etc. are caused by PCOS

It is also a major cause of female infertility. An estimated 15% of reproductive-aged women are affected by PCOS globally.

Dataset Description

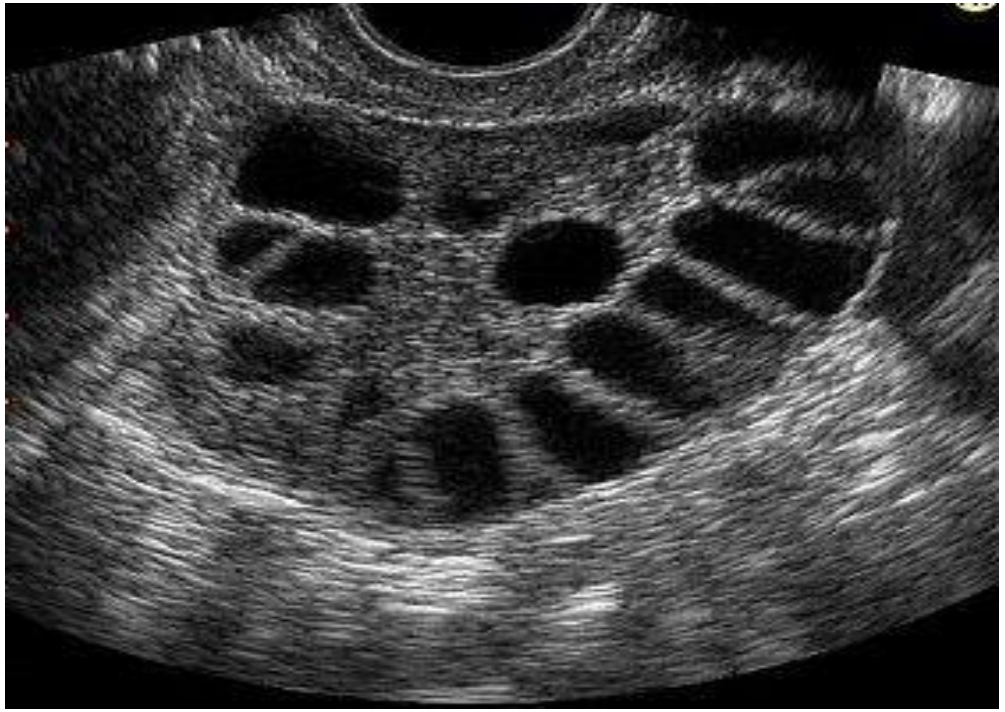
A Datasets included ultrasound pictures of healthy ovaries as well as cystic ovaries .The ultrasound photos that showed infected cysts on the ovary were given the label ‘infected’ while the ultrasound images that showed a healthy ovary were given the label ‘not infected’.

In the Kaggle ,the Dataset have 2 different folder ,
I have take only train folder and then used for
As a Train data, test data and validation data.

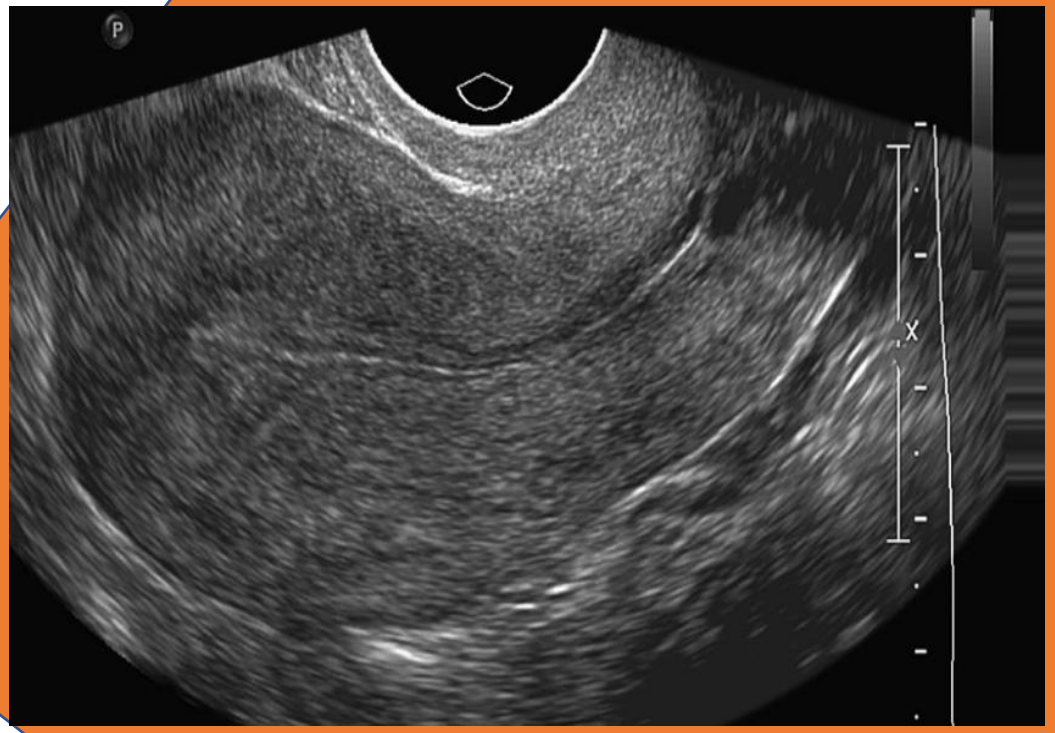
Tools and Technologies used

- **Tensorflow**
- **Keras**
- **NumPy**

Sample Image



Infected



Not Infected

Image Preprocessing

our models with images of uniform dimensions, we have rescaled all the photos of both the datasets to 224×224 pixels.

We have used **ImageDataGenerator** from **Keras** to normalize our image data.

ImagedataGenerator: Generate batches of tensor image data with real-time data augmentation.

Model Description

We have use a Keras image classification model, optionally loaded with weights pre-trained on ImageNet.

After the we have to pass model output as a Input of the Dence and Flatten layers

Class Indices of train, test and validation data

```
train_data.class_indices
```

```
{'infected': 0, 'notinfected': 1}
```

Result

we have developed MobileNetModel - a CNN model to classify polycystic ovarian ultrasound images
we get the 100 % accuracy, our model really perform well in a datasets

THANK YOU