## The Imagenet Challenge

The Imagenet challenge over the years

1. The Imagenet dataset is a 1000-class, 1,000,000-image dataset (1000 images per class)
2. The **I**magenet **L**arge **S**cale **V**isual **R**ecognition **C**hallenge (**ILSVRC**) or the **Imagenet Challenge** is an annual contest for contender's models to correctly classify the images in the dataset
3. Let us look at the Challenge results between 2010-2015
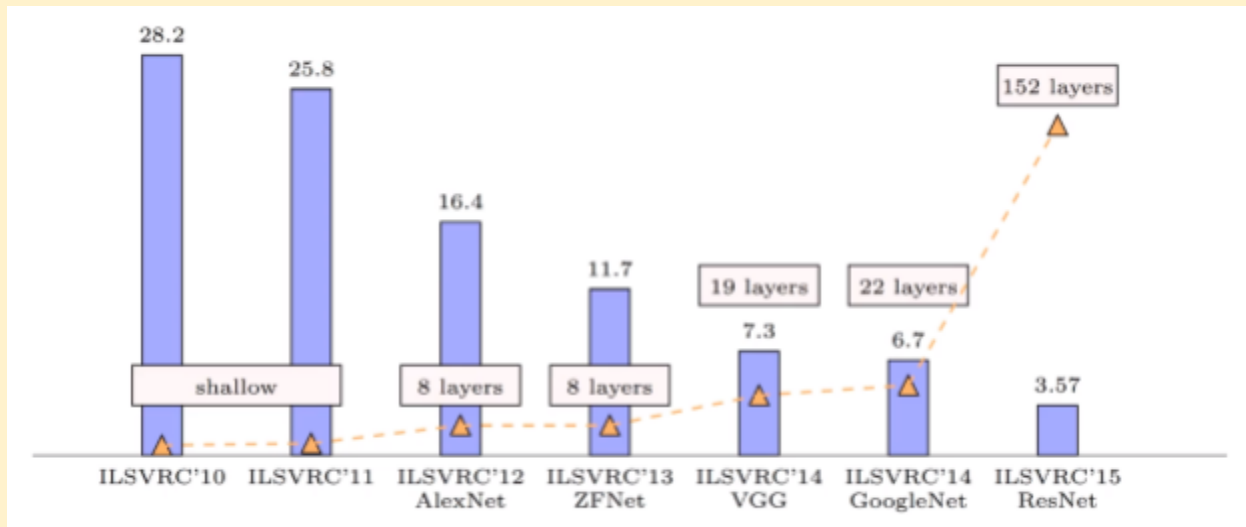
4. Let us analyse the graph briefly
   a. The metric used to measure performance was Top-5 accuracy. I.e. If any of the top-five predicted class probabilities matched the true class, it was considered correct.
   b. **2010-2011**: This was the pre-DL era, and the Machine Learning models that were submitted had an error between 25-28 %
   c. **2012**: The AlexNet (CNN) architecture smashed existing records with 16.4% error. It kickstarted the Deep Learning Era.
   d. **2013-2014**: Significant improvements were made using models such as ZFNet, VGG and GoogLeNet. Error was brought down to ~6.7%
   e. **2015**: Microsoft's ResNet successfully brought the error down to 3.57% which is lower than the error scored by humans!
   f. One of the reasons for beating the human-error was because some of the classes in the Imagenet Dataset were very fine-grained, i.e. distinguishing between the different dog breeds.
   g. Another interesting point to note is the consistently increasing depth of the Networks used. From shallow networks in the ML era right up to 152 layers in ResNet