Kieran Finnegan
Ch.5

1. He combined ideas from Fukushima's neocognitron with the back-propagation algorithm to create the semi-eponymous "LeNet" – one of the earliest ConvNets. Who was he? Who was his postdoctoral advisor? And, in addition to developing "LeNet", what was his contribution to the field of neural network research?

He is Yann LeCun, his postdoctoral advisor was Geoffrey Hinton.

2. What is WordNet? Please answer by referencing its creator (the human most responsible for its existence), saying something about its use, and presenting, in just two or three sentences, a high-level description of its structure?

WordNet is a database of English words, arranged in a hierarchy moving from most specific to most general, with grouping among synonyms that was created by the psychologist George Miller.

3. What is ImageNet? Please answer by referencing its creator (the human most responsible for its existence), saying something about its use, and presenting a high-level description of its structure, being sure to mention WordNet in doing so.

Fei-Fei Li created ImageNet, it is an image database that is structured according to the nouns in WordNet. Each Noun is linked to a larger number of images that contain examples of that noun.

4. Specifically, what role did ImageNet play in the advancement of computer programs dedicated to the problem of "object recognition."

5. What is the Mechanical Turk (Amazon's Mechanical Turk), and what role did it play in building ImageNet?

It is a marketplace for work that requires human intelligence. It connects people who need a task accomplished but is hard for computers and workers, people who can help a requester. By using this Li was able to speed up the creation of ImageNet.

6. Describe the nature and operation of the ImageNet competition.

The first ImageNet Large Scale Visual Recognition Challenge was created in order to spur progress toward the more general object recognition algorithms. 35 programs were given a 1.2 million labeled training images and a group of categories. The programs had to correctly put each image in a category.

7. What was the most notable thing about the 2012 ImageNet competition?

The winning entry achieved 85 percent correct. The winning entry also did not use support vector machines. It used a convolution neural network. It was called the AlexNet named after Alex Krizhevshy, its creator.

8. What was the most notable thing about the 2015 ImageNet competition?

A bunch of team achieved 94% or higher. However the team from Baidu who scored 95.42% has exceeded the specified limit allowed to submit to the test server and was caught data snooping.

9. Describe some commercial applications of convolutional neural networks.

Image search engines became better. Googles's street view could recognize and blur out street addresses and license plates in its images. It allows object and face recognition on smartphone. Facebook label uploaded photos with names of friends while last registering a patent on classifying the emotions behind facial expressions.

10. Have ConvNets surpassed humans at object recognition?

Not yet. Humans have an error rate of about 5 percent. A machines top choice of what an object can be is only correct 82 percent of the time. The correct answer is in the top 5 choices 98 percent of the time.

11. What is the relationship between "object recognition" and "visual intelligence?"

Object recognition is the ability to to recognize what an object is. However visual intelligence is being able to describe what they see, such as the relationships between object and how they interact with the world..