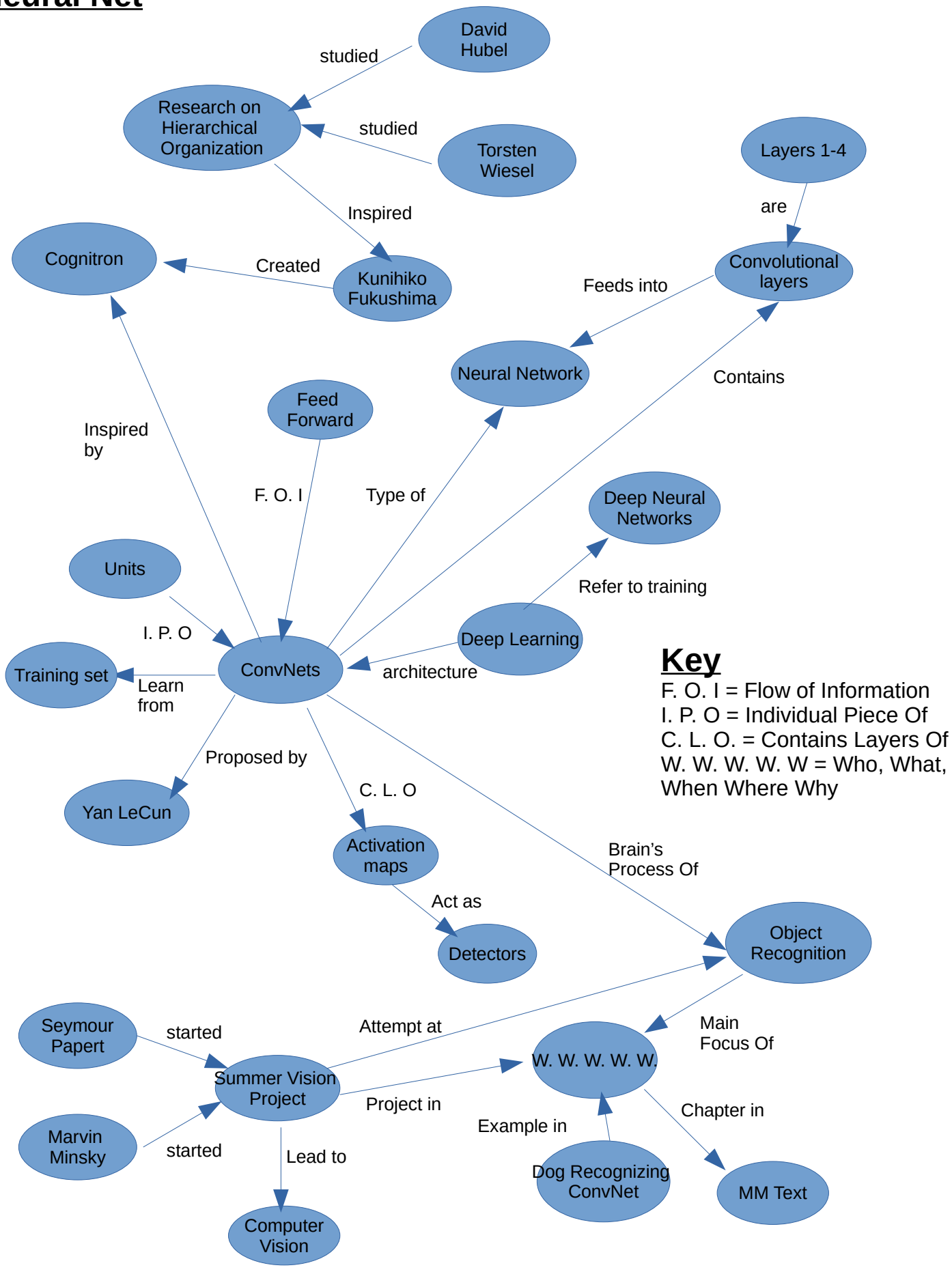
Chapter 4: Who, What, When, Where, Why
Neural Net



Questions

1. (1) Who first proposed the idea of ConvNets? (2) When did ConvNets become widely used?
2. (1) Who created the Cognitron? (2) What was the successor to the Cognitron?
3. (1) Who were the two computer scientists who started the Summer Vision Project? (2) Did the Summer Vision Project succeed in its goal?
4. (1) What do ConvNets learn from? (2) How are these created?
5. (1) What kind of flow of information do most ConvNets use? What is the other type of information flow and how is it different?
6. (1) What is the main focus of Who, What, When, Where, Why? (2) How do humans recognize objects?
7. (1) What are the first four layers of a ConvNet called? (2) What major geometrical component do the first four layers of a ConvNet detect in object recognition?
8. (1) What do ConvNets contain layers of? (2) What is the purpose of these contained layers?
9. (1) What does deep learning refer to? (2) Who discovered this method for training a neural network?
10. (1) What is the neural network discussed throughout the chapter? (2) Can it detect other objects?

Answers

1. (1) Yan LeCun first proposed the idea of ConvNets. (2) ConvNets became widely used after 2010 after a breakthroughs in research.
2. (1) Kunihiko Fukushima created the Cognitron. (2) The successor to the Cognitron was the Neocognitron.
3. (1) Seymour Papert and Marvin Minsky started the Summer Vision Project. (2) The project failed at its goal to be able to recognize objects by the end of the summer.
4. (1) ConvNets learn from training data. (2) These files are created, normally by an intern, undergrad, etc, by taking the data that is given as input to the ConvNet and giving it a label based on it's content.
5. (1) Most ConvNets use a feed forward flow of information. (2) The other type of information flow is called a feed backwards and it is a top down approach, while feed forward is a bottom up approach.
6. (1) The main focus of Who, What, When, Where, Why is object recognition. (2) Humans recognize objects by receiving light into their retina. Cells in each retina, neurons in the back of the eye, are then activated and communicate their message through the optic nerve and to the brain. The data is processed by the visual cortex, and allows us to recognize objects.
7. (1) The first four layers of a ConvNet are called convolutional layers. (2) The convolutional layers are responsible for detecting edges and simple shapes.
8. (1) ConvNets contain layers of activation maps. (2) The purpose of these activation maps is to determine if an certain criteria has been met, compute a value to send to the next layer, and then send the value.
9. (1) Deep learning refers to training a deep neural network. (2) Fukushima was one of the first people to try training a deep neural net by this method.
10. (1) The neural network discussed throughout the chapter is the Dog Recognizing ConvNet. (2) It can detect the difference between a dog and a cat.