

# The Beauty of Neural Networks

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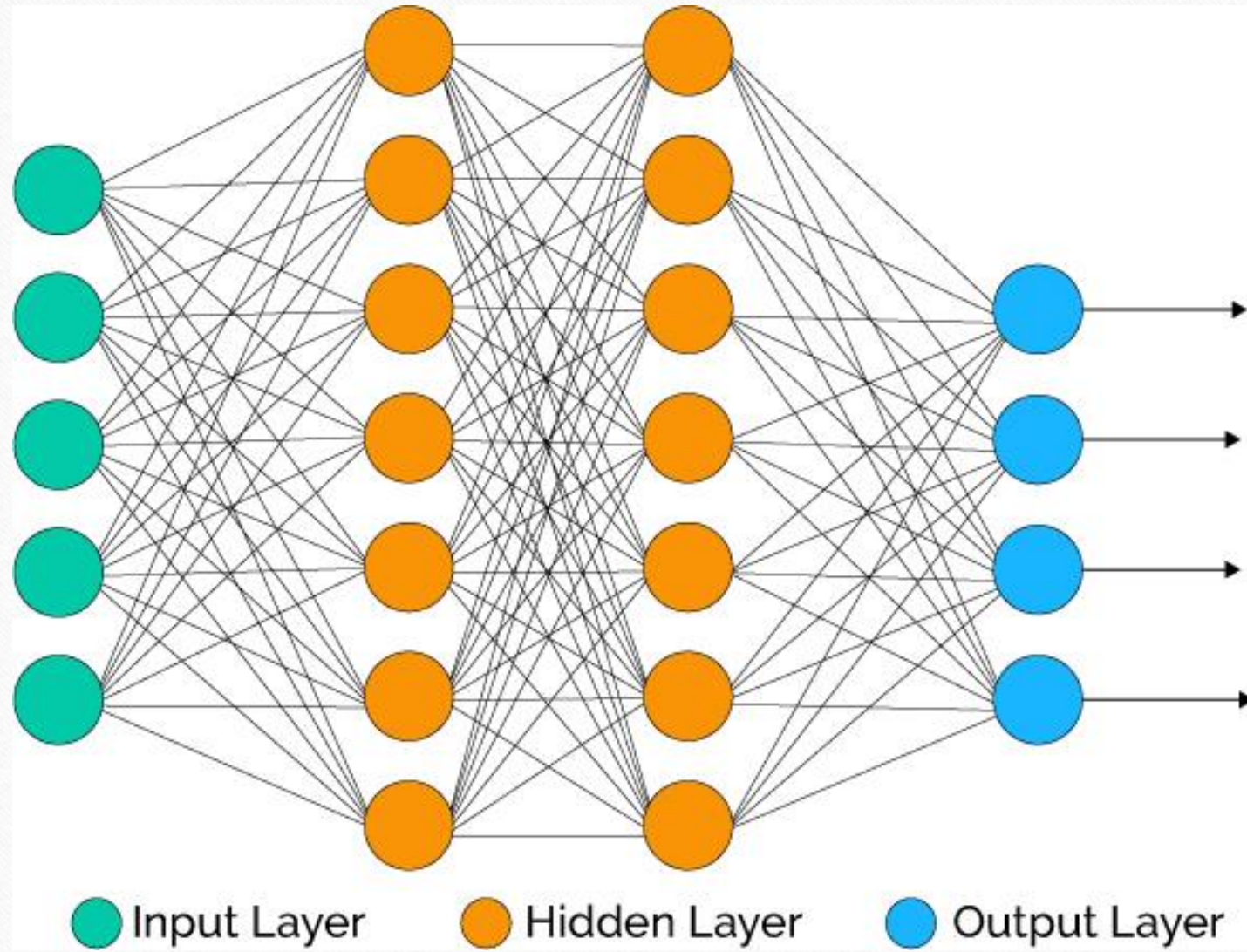
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# What is a Neural Networks

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- Neural Networks are a form of machine learning that ‘detects’ patterns
- Architecture is modeled after the human brain
  - Neurons in one region of the brain cause neurons in another region to fire based on a stimulus
- A video which explains more in detail:
  - <https://www.youtube.com/watch?v=aircAruvnKk>





Source:

<https://www.xenonstack.com/blog/artificial-neural-networks-applications-algorithms/>

# How a Neural Network Learns

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- Supervised learning: labeled dataset. We tell the network what to learn
- Unsupervised learning: unlabeled dataset. The networks picks up on patterns
- Reinforced learning: a neural network which learns by correcting misclassifications over time



# What a Neural Network can do

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- Solves problems traditional machine learning algorithms cannot
  - Classify images
  - Recognize speech
  - Predict conversations (chat bots)
  - Drive a car, fly a plane
  - Detect Bank fraud

# How does this benefit our company

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- Suppose we want to detect painting forgery
- We create a supervised neural network feeding it authenticated and forged paintings
- We train the neural network to achieve a very high accuracy
- We sell our services to the art community

# Demonstration

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- A neural network that can predict what an image is based on 8 categories



# Questions?

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