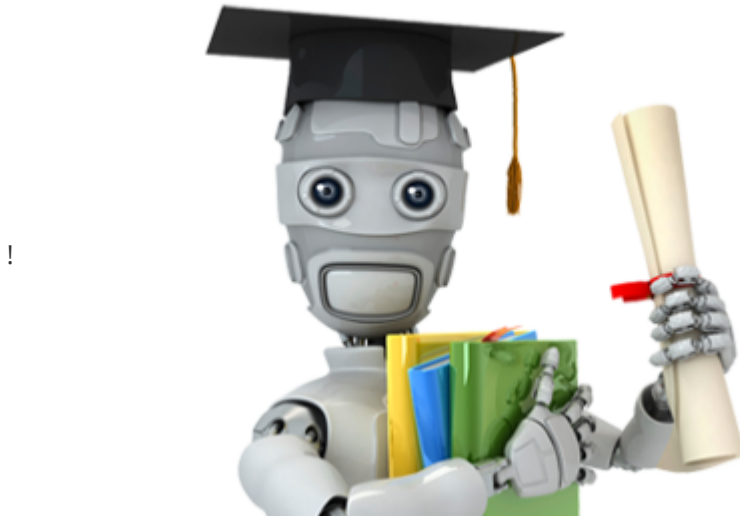


# Machine Learning

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Deep learning is a subset of machine learning. To understand Deep Learning, it is important to understand the fundamentals of machine learning.

## Learning Algorithms

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There are many different types of learning algorithms including:

- **Classification:** Computer program is asked to **classify** an input as one of  $k$  categories. For example, modern image recognition algorithms such as AlexNet attempt to classify images as one out of 1000 categories.
- **Regression:** Computer program is asked to **predict** a numerical value given some input. For example, given the square footage and number of bathrooms in a house, predict the per month rent.
- **Transcription:** Computer program observes a relatively unstructured representation of some kind of data and asked to transcribe the information into discrete textual form. For example, converting speech to text.
- **Machine Translation:** Computer program is given a sequence of symbols in some language, and attempts to convert the sequence of symbols in another language.