Welcome

(SPEECH)
Hello and welcome.

(DESCRIPTION)
Title. Introduction to Deep Learning. Welcome. deeplearning.ai

(SPEECH)
As you probably know, deep learning has already transformed traditional internet businesses like web search and advertising.

(DESCRIPTION)
A man sits in front of a computer at an L shaped desk, facing the camera

(SPEECH)
But deep learning is also enabling brand new products and businesses and ways of helping people to be created.

Everything ranging from better healthcare, where deep learning is getting really good at reading X-ray images to delivering personalized education, to precision agriculture, to even self driving cars and many others.

If you want to learn the tools of deep learning and be able to apply them to build these amazing things, I want to help you get there.

When you finish the sequence of courses on Coursera, called the specialization, you will be able to put deep learning onto your resume` with confidence.

Over the next decade, I think all of us have an opportunity to build an amazing world, amazing society, that is AI powers, and I hope that you will play a big role in the creation of this AI power society.

So that, let's get started.

I think that AI is the new electricity.

Starting about 100 years ago, the electrification of our society transformed every major industry, every ranging from transportation, manufacturing, to healthcare, to communications and many more.

And today, we see a surprisingly clear path for AI to bring about an equally big transformation.

And of course, the part of AI that is rising rapidly and driving a lot of these developments, is deep learning.

So today, deep learning is one of the most highly sought after skills and technology worlds.

And through this course and a few causes after this one, I want to help you to gain and master those skills.

So here's what you learn in this sequence of courses also called a specialization on Coursera.

In the first course, you learn about the foundations of neural networks, you learn about neural networks and deep learning.

This video that you're watching is part of this first course which last four weeks in total.

And each of the five courses in the specialization will be about two to four weeks, with most of them actually shorter than four weeks.

But in this first course, you'll learn how to build a new network including a deep neural network and how to train it on data.

And at the end of this course, you'll be able to build a deep neural network to recognize, guess what?

Cats. For some reason, there is a cat neem running around in deep learning.

And so, following tradition in this first course, we'll build a cat recognizer.

Then in the second course, you learn about the practical aspects of deep learning.

(DESCRIPTION)
Text, 2, improving deep neural networks, hyperparameter tuning, regularization, and optimization

(SPEECH)
So you learn, now that you've built in your network, how to actually get it to perform well.

So you learn about hyperparameter tuning, regularization, how to diagnose price and variants and advance optimization algorithms like momentum armrest prop and the ad authorization algorithm.

Sometimes it seems like there's a lot of tuning, even some black magic and how you build a new network.

So the second course which is just three weeks, will demystify some of that black magic.

In the third course which is just two weeks, you learn how to structure your machine learning project.

It turns out that the strategy for building a machine learning system has changed in the era of deep learning.

So for example, the way you switch your data into train, development or dev also called holdout cross-validation sets and test sets, has changed in the era of deep learning.

So whether the new best practices are doing that and whether if you were training set and your test come from different distributions, that's happening a lot more in the era of deep learning.

So how do you deal with that?

And if you've heard of end to end deep learning, you also learn more about that in this third course and see when you should use it and maybe when you shouldn't.

The material in this third course is relatively unique.

I'm going to share of you a lot of the hard one lessons that I've learned, building and shipping, quite a lot of deep learning products.

As far as I know, this is largely material that is not taught in most universities that have deep learning courses.

But I really hope you to get your deep learning systems to work well.

In the next course, we'll then talk about convolutional neural networks, often abbreviated CNNs.

Convolutional networks or convolutional neural networks are often applied to images.

So you learn how to build these models in course four.

Finally, in course five, you learn sequence models and how to apply them to natural language processing and other problems.

So sequence models includes models like recurrent neural networks abbreviated RNNs and LSTM models, sense for a long short term memory models.

You'll learn what these terms mean in course five and be able to apply them to natural language processing problems.

So you learn these models in course five and be able to apply them to sequence data.

So for example, natural language is just a sequence of words, and you also understand how these models can be applied to speech recognition, or to music generation, and other problems.

So through these courses, you'll learn the tools of deep learning, you'll be able to apply them to build amazing things, and I hope many of you through this will also be able to advance your career.

So that, let's get started.

Please go on to the next video where we'll talk about deep learning applied to supervise learning.