



# Week 7 lesson guidance - Deep Learning models

## OVERVIEW:

This lesson provides an introduction and overview of several types of **Deep Learning models**.

### Deep Learning:

Deep Learning models vary in their form and content. Several different models have been developed which are appropriate for certain kinds of applications, including image recognition, automated image captioning, text understanding, audio generation, and superior game playing.

#### Some key Deep Learning models:

- Restricted Boltzman Machines (**RBM**)
- Deep Belief Networks (**DBN**)
- Autoencoders
- Convolutional Neural Networks (**CNN**)
- Recurrent Neural Networks (**RNN**)
- Long Short Term Memory (**LSTM**) models

**View this presentation for more information about specific types of Deep Learning models:**



Overview of deep learning models

Steve Knode

24:10

## Required Weekly Readings/videos:

The required readings and videos will provide more information about specific Deep Learning models.

- [An intuitive explanation of convolutional neural networks](#)
- [All about Autoencoders](#) (video)
- [A friendly introduction to Convolutional Neural Networks and Image Recognition](#) (video)
- [Fundamentals of Deep Learning -- Introduction to Recurrent Neural Networks](#)
- [Essentials of Deep Learning : Introduction to Long Short Term Memory](#)
- [Optional] [LSTM Networks - The Math of Intelligence \(Week 8\)](#) (video)

## Depth Links:

Data scientists have to do more than just develop models. They must be prepared to **"explain"** and **"interpret"** the models (i.e., "tell the story") to the decision makers in terms that make sense to them. In order to facilitate that deeper understanding of these important machine learning concepts, provided here are **"depth links (readings and videos)"** which will further your understanding of the concepts. Some of the links contain excellent descriptions in depth of the machine learning aspect, some include examples explained in detail. Although not part of the required readings for the lesson, these depth links should be read/viewed to enhance understanding of the inner workings of the concepts:

- [A must read tutorial when you are starting your journey with Deep Learning](#)

- [Reinforcement Learning Explained: Overview, Comparisons and Applications in Business](#)
- [Recurrent Neural Networks - Ep. 9 \(Deep Learning SIMPLIFIED\)](#)
- [Autoencoder Explained](#)
- [Restricted Boltzmann Machines - Ep. 6 \(Deep Learning SIMPLIFIED\)](#)

## Activity for this week:

Continue with the deep learning assignment. Complete the required readings and videos to familiarize yourself with the basic concepts of Deep Learning models (**especially CNN**).

Each week you should strive to contribute meaningfully to the discussion items for the week. Insights, experiences, ideas, etc. can be posted and commented on, thereby enriching the learning experience.

## References:

Ujjwalkarn. (August 11, 2016). *An intuitive explanation of convolutional neural networks*. Retrieved from <https://ujjwalkarn.me/2016/08/11/intuitive-explanation-convnets/>

Gupta, D. (December 7, 2017). *Fundamentals of Deep Learning* ♦ *Introduction to Recurrent Neural Networks*. Retrieved from <https://www.analyticsvidhya.com/blog/2017/12/introduction-to-recurrent-neural-networks/>

Srivastava, P. (December 10, 2017). *Essentials of Deep Learning : Introduction to Long Short Term Memory*. Retrieved from <https://www.analyticsvidhya.com/blog/2017/12/fundamentals-of-deep-learning->

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