Is there any similarity in learning process between humans and machines. Human learning process varies from person to person. Once a learning process is set into the minds of people, it is difficult to change it. But, in Machine Learning (ML), it is easy to change the learning method by selecting a different algorithm. In ML, we have well defined processes to understand and estimate the accuracy in learning. Estimation of human learning is usually done through examinations and it cannot be considered as a measure of intelligence. Let us examine the difference between human and machine learning now.

Humans acquire knowledge through experience either directly or shared by others. Machines acquire knowledge through experience shared in the form of past data. We have the terms, Knowledge, Skill, and Memory being used to define intelligence. Just because you have good memory, that does not mean you are intelligent. And just because you are intelligent, it does not mean you should have a good memory. However, there are exceptions to these rules. Humans begin learning by memorizing. After few years, he realizes that mere capability to memorize is not intelligence. Then he practices on transforming the data stored in memory to knowledge and applies them to develop skills to solve problems faced in real life. A person with good memory and more knowledge without the required skills cannot be considered intelligent. Search engines replaces human memory and these days the focus is on acquiring intelligence by making use of data available on the web. In humans, learning speed depends on individuals and in machines; learning speed depends on the algorithm selected and the volume of examples exposed to it.

Skill is a manifestation of intelligence possessed by humans. And intelligence is the ability to apply knowledge. Human intelligence sustains, but his knowledge fades as new technologies emerge. Humans without knowledge in particular subjects can apply their intelligence to solve problems in new domains. But machines can solve new problems only if their intelligence has been updated with retraining on data acquired from the changed scenarios. This is a fundamental difference between human intelligence and machine intelligence.

Both humans and machines make mistakes in applying their intelligence in solving problems. In ML, overfitting memorizes all examples and an overfitted model lacks generalization and it fails to work on never seen before examples. In most of the Asian countries, the education system does overfitting of students by over coaching and tuitions on technical subjects enabling them to solve only example problems. These example problems are answered in examinations without need for applying any intelligence. These students can solve the problems which they have already seen and only the problems seen by them in the past. They are not able to handle general problems properly with accuracy because their intelligence is not generalized. This is the major reason for missing skill levels among university recruits. In short, vast majority of students become overfitted learning models and their employability is in question.  
  
In ML, Transfer Learning is a technique that reuses a model that was created by machine learning experts and that has already been trained on a large dataset. Transfer learning leverages information extracted from one set of distributions. In humans, transfer of knowledge to students is often done by teachers and tuition providers. This may not make the students intelligent. But in the case of machine learning, transfer learning makes the transferee as intelligent as the transferor. In the case of humans, transfer learning only transfers the knowledge and it depends on the inherent intelligence of the transferee to enhance his/her problem solving skills.  
  
To summarize, overfitting is a curse to humans and machine learning systems. Machine intelligence is limited to the areas in which they are trained. But human intelligence is independent of his domain of training. An intelligent human being will be able to solve problems related to unforeseen domains, whereas a machine will not be able to do that.