

Dr. Animashree Anandkumar basically gave a great presentation on what is artificial intelligence. Breaking down the trinity of AI, and gave her analysis on what the future of AI is headed, how some people are looking forward to the progression, yet also slightly worried about where its advanced progression may lead. She breaks down what intelligence is comparing a video of the Boston dynamics robot executing a flawless flip, and a dog failing to do a backflip. Even though the dog failed doing the flip she makes the point that the dog is still the intelligent being, and the robot is not based on her definition of what intelligence actually means. She states intelligence is the ability to acquire and apply knowledge and skills. Even though the robot executed the flip it was planned and programmed, the robot is not acquiring knowledge everything is premeditated, while the dog is improvising, learning, and may be able to learn how to do a flip.

There is a gap in AI between intelligence and general intelligence which is human-level intelligence and cognitive reasoning. Most AI systems are so far from general intelligence, being able to complete task oriented objectives. She explains the trinity of AI the computer infrastructure which she says are the 3 key ingredients for AI to be successful which is algorithms, compute, and data. The most important of these 3 is data. The system should be able to use examples, and learn. It needs information for the algorithms to process the data, extract knowledge and execute. To process the data it needs to compute the information. Images are used to train AI using image classification. Deep learning which is many layers giving a large capacity for models to learn from the data. If you take the current deep learning systems it's not scalable to run them on regular computers. GPU computing is the new form used for these models. It stands for graphic processing unit. Processing in deep learning layers requires more than a billion operations per image. NVIDIA GPUs have been at the for front of the competition in this space as we can tell with their record growth within the past few years. Within a span of a few years AI has reached human-level capabilities in image training and recognition.

She speaks on the future of AI, and where we will go next with this technology. Multi dimensional processing, projection to lower dimensions can lose information. How to capture all information in multidimensional data. She uses a mathematical object called tensors, which enable multi-dimensional processing. She speaks on the mind and body, the mind being the actual AI, and the body being the robotics. How they aim and are working to make these physical specimens intelligence with autonomous systems learning. Instead of using pre programmed algorithm, can the machine learn from data, and sensors how to improve itself. She gives the example of a drone learning how to land on its own which is very interesting.

This was a very powerful message and I learned a lot, it was very refreshing to listen to someone so intelligent and passionate about AI deliver their message. Although the video is 5 years old, a lot of the things that she covered remain relevant today. I'm pretty confident that AI has evolved tremendously since this video was released. Some of the things we didn't as a society think were possible then, are definitely in the works of progression now.

Work Cited

TEDx Talks. (2018, December 11). *Trinity of Artificial Intelligence* | *Anima Anandkumar* | *TEDxIndianaUniversity* [Video]. YouTube.
<https://www.youtube.com/watch?v=zkJ5lEuGQDw>