Taking the Mystery Out of Machine Learning

Radiologists have been taught to fear machine learning. It means what it says, a machine can learn. It is an inherently frightening concept. It is almost a shame to put such a label on the process, because it is not really new. Remember Fuzzy Logic? Neural Networks? We were all impressed that a computer could recognize the letter “A”, but that was more than a few decades ago. Today, Facebook can pick your face out of a crowd of billions, or can it really?

You see, Facebook knows your friends, of course. These friends of yours categorize their own images simply by having a collection of photo albums and you are in some of them – and in your own albums. This means that the probability that you are in your own picture is very high, and the likelihood that you are in your friends’ pictures is higher than a stranger. What appeared to be an incredible accomplishment was really much simpler and far less mysterious.

As computing power increased, it became possible to break down verbal speech into text, which is ubiquitous in radiology today. Did voice dictation cause a reduction in radiologists? No. The same is true for all aspects of the interpretation process. Automation and simplification techniques can add precision, repeatability, reduce mistakes and add productivity. Unfortunately, sometimes more is less and the addition of technology actually slows down the inherent genius of the human mind. More often than not, however, it augments our thinking and avoids those “only human” moments. This is the reason that airplanes have both pilots and autopilots in the cockpit. Radiology needs radiologists and technology, just the same.

There has been too much focus on perfecting the radiology report, and not enough focus on perfecting the viewing component of the interpretation process. Thankfully, this is now changing because of machine learning. Radiologists can look forward to more intelligent image viewers that automatically adapt to their unique usage patterns, evoke and apply the right tools at the right time, and ensure that their eyes can stay focused on the images just like a jet fighter pilot uses a heads up display.

Many radiologists have given up on any company being able to build them a perfect product. Perhaps, then, it makes good sense for the profession to be open-minded about new products which can learn to be perfect all by themselves.

Using simple, pragmatic and proven machine learning technologies working in combination with more traditional methods of image processing, it becomes possible to design a display that looks within the images for cues and evokes the right tools, assists workflow and optimizes the reading experience according to each radiologists individual preferences as well as group best practices. TeraRecon has developed a new WIA™ (Within Image Analysis) platform, and it does exactly that. Your image categorization preferences are learned and stored, saving considerable time.

The company’s flagship iNtuition™ advanced post-processing system can now be upgraded to run on the nVidia Cuda™ GPU technology. This is the same technology used when massive computing power is needed for machine learning. There is a big difference between typical GPU systems and the use of Cuda. Today, TeraRecon is the only advanced post-processing company in the world leveraging it. Learn more here.

Source & Image Credit: TeraRecon

© For personal and private use only. Reproduction must be permitted by the copyright holder. Email to copyright@mindbyte.eu.

Find More About TeraRecon

Published on : Thu, 6 Apr 2017

© For personal and private use only. Reproduction must be permitted by the copyright holder. Email to copyright@mindbyte.eu.