

When I'm 90?

What might we have seen in the world of computing?



Call it mid-life crisis or call it just day dreaming but the other day, while on a joyous flight back to the Island I was watching people tinker with their myriad electronic devices, i-pod, blackberry or others and I started to think, “what was driving all this ability to do things which 20 years ago would have been impossible?” This led further to the inevitable thought provoking question, of what currently impossible things will increase in computational power deliver to us all in the next 50 years?

Eric Horvitz, in his article ‘forecasting the future’ referred to “computation as the fire in our modern-day caves”. This succinctly gets across the point of how important and effectual computational power will be. He believed that, in another 50 years time the computational revolution will be recognised as a transformation, easily as significant as the Industrial revolution was in the last Century. Computation will play a central role in solving challenges with respect to all sorts of key areas including the hot topic areas of energy and the environment.

Some scientists believe that computational power sufficient to simulate the human brain, approximately 10 million billion calculations per second, will be available by 2020, all at the cost of a decent laptop! The software needed to really reap the benefits from this computational power will, however, take a further 10 years to reach the equivalent point. By this point (2030) scientists also believe that computers (machines) will have passed the ‘Turing Test’. Described by Professor Alan Turing way back in the 1950’s, this is a test where a human judge engages in a natural language conversation with two other parties, one human and one machine (computer). If the judge can not reliably tell, which is which, then the machine is said to have passed the test!

Some also believe that we can expect 'super' computers of the future to design and build even better computers and that given the very short time span between silicon based generations that systems will develop at a phenomenal rate. So, Douglas Adams' 'Deep Thought' in Hitch Hikers Guide to the Galaxy may well be not that far fetched after all!

Computers with superhuman intelligence: machines that can react and respond way beyond their inputs provides the prospect of robotic helpers, 50 years from now. Many believe that we will create, true artificial intelligence, unravel the physiological basis for consciousness and routinely have false memories implanted, will Arnie's 'Total Recall' film actually become a reality, an interesting and kind of scary thought!

Lives will be significantly enhanced by automated reasoning systems that people will perceive as intelligent. Translation and interpretation systems will catalyse unprecedented understanding and cooperation between people at very positive thoughts, if applied in the correct fashion.

The speed of changes in computational based effects, how quickly some of these things will or may happen, will be very difficult to predict. In the past 5 years alone advances in these areas and technologies have led a greater effect on business than in any other period in the last 50 years. So, what will be some of the results of this continued exponential increase in the application of computational power?

Robots that can walk like a man are already in their infancy, but will progress in sophistication as computational power allows for increased processing at this 'mobile' scale. There is also no reason why as these robots develop that they will need to maintain their shape. The robot of this type, as an assembly of components, will be able to reconfigure itself to suit the task at hand whether that be walking on land, swimming like a fish in water or even flying. So, maybe 'Optimus Prime' of Transformers fame, is not that far fetched either!

Peter Norvig, Google's director of research obviously predicts a continued growing transformation in our global access to information. However, the way in which the information request is targeted and response received will be radically different and ever more powerful. In the future instead of typing a few words into a search engine, people will discuss their needs with a digital intermediary, which, during the information gathering process will proactively offer suggestions and refinements. The results, instead of a list of 'matching' possibles, will be an annotated report presented in whatever media interface the user requires for example as a verbal conversation piece with references to original information sources which can be easily followed.

The British Computer Society, with its recent 50th anniversary has also applied some of its members to thoughts on what the next 50 years will bring. Generally, thoughts suggest that computing will shift away from its familiar, desktop, laptop and mobile (PDA) forms and move towards embedded smart devices with different levels of computational power. Some will be passive; as is the case with existing RFID devices, but others will interact more pro-actively with the environment around them. The software to drive these devices will also progress exponentially as more and more business applications, whether for ordering, payroll,

information exchange are based around industry standards. These standards or Universal Transaction Exchange Protocol and digital object libraries will form the basis of many such applications. Companies will also look to outsource more and more of their routine processing and data handling activities.

eCommerce, which we all know and love is already progressing as we all become more technologically un-tethered, to mCommerce (mobile commerce) and onwards to sCommerce where the objects around us are conducting commerce without explicit human interaction is becoming more and more common place, RFID tags and Oyster cards being a couple of examples.

The human computing interface itself will almost certainly become very blurred as people opt to have implants, particularly Personal Identification Devices, to assist them while travelling or paying for goods. The Universal identification of all individuals, the politicians will have a field day! The boundary of the computer industry itself will also blur as computing power becomes ubiquitous to the point where it will almost certainly be meaningless to think of an IT sector.

In his recent article in Computing, Justin Richards, summarised that according to the 12th Century philosopher, Bernard Charles, 'If we have not seen further, it is because we have not stood on the shoulders of giants'. There are, as we know, plenty of giants in the field of computing and judging from the thoughts and ideas I came across in researching this article, plenty of giant brains out there too. The challenge will be making sure we apply one when using the other.

So, if I'm lucky enough to live to 90, I get the feeling it's inevitable that the continued increases in computational power will mean I will have seen some of the 'currently unbelievable' become reality.