



Alan Turing: A retrospective - Audio

Alan Turing: The Turing test and artificial intelligence

Blaine Price

My name is Blaine Price, I'm a senior lecture in computing at The Open University. I went to Bletchley Park at the National Museum of computing to meet with Simon Lavington, author of the latest book on Turing, 'Turing and his contemporaries'. As a computer scientist we usually consider Alan Turing to be one of the father's of computer science and a major contributor to modern computing, I asked Simon what was his your view.

Professor Simon Lavington

Well I think you're right in saying Turing was one of the fathers, some people would say the uncle. He was not the father but undoubtedly a brilliant person who made a significant contribution.

Blaine Price

What can you tell us about what he did at Bletchley Park? And how that relates to modern computing or things we find in computers today?

Professor Simon Lavington

Personally I think that what Turing did at Bletchley Park doesn't relate too much to modern computers. I think Turing's main contribution at Bletchley Park was to encourage the code crackers to think in terms of statistics. Turing at Bletchley Park was called 'The Prof' he was the person to whom everybody else went when they had a particular sticky problem. But this was about cryptanalysis, this was not about how to design computers.

Blaine Price

What about some of his papers on Turing Machine's and the way they relate to the modern architecture of computers today.

Professor Simon Lavington

Well his most significant publication in that sense was in 1936 and as you probably know he conceived of this idea of a universal computer, it was a thought experiment really that helped one to think about computability and some deeply philosophical problems in mathematics. And certainly this was a most fundamental paper, however I don't think it had very much influence per say on the people who actually started to build modern computers after the war.

Blaine Price

In terms of modern computer science and the way people have designed algorithms, and studied software today how would you place his contribution of the Turing Machine and computability?

Professor Simon Lavington

Software engineering and computability and theoretical computer science only really started to gain momentum in the 1960's. Which of course was rather a long time after Turing did his fundamental work in 1936, this is not to say that Turing's paper was not important, it's just to say that its impact on computer science rather than its impact on mathematical logic came later. And I think this is characteristic of a lot of what Turing did at the time of writing a paper for example the morphogenesis or his paper on intelligent machinery the impact at the time was rather small it's only later that people have begun to see the wisdom in his words.

Blaine Price

You've mentioned a couple of his other works there, so let's just discuss them a bit. One was the idea of intelligence and its contribution to what we understand today as the sub-field of artificial intelligence. Can you tell us a bit about his paper, what he wrote about and how those ideas are understood today, and how they're translated today?

Professor Simon Lavington

Well I guess the paper you're referring to is the one that resulted from a discussion in 1949 in Manchester with a philosophy department, when the great and good of the philosophical community of the day met together with Turing and other computer builders to discuss the question of can computers think. And as a result of that Turing wrote a paper in which he devised this game almost, a little test to put clarity into what was meant by human thought. And thinking like a human being and this little game as you probably know was to imagine an observer communicating through to a room next door communicating either with a machine or another human being. And the observer by questioning the person or machine next door has to decide whether he or she is talking to a machine or another human being. And the particular test that Turing devised was the observer by asking various questions had to determine whether the person or machine in the next room was male or female. And I think it's what has been hung on that test and what has been developed for that test that nowadays fascinates those that study artificial intelligence.

Blaine Price

And what do you think the relevance of the Turing test is, to actually determining whether a machine is intelligent or not?

Professor Simon Lavington

Well I think his contribution to philosophical debate was quite valid, at the time amongst a small community of academics but its impact on practical software didn't come until later.

Blaine Price

Do you know about his work on devising or theorising about a computer being able to play chess?

Professor Simon Lavington

Game playing was one of the challenges of mechanical thought processes and I think Turing began puzzling about this whilst he was at Bletchley Park I.e. a long time before computers as such came into being.

Blaine Price

How would summarise his contribution for science in general?

Professor Simon Lavington

I have to say that I'm a little bit cautious especially in this year; the centenary of his birth. I'm a little cautious of ascribing too much to Turing. It is tempting to say that we owe the whole of modern computing to one person, I think that's far from the truth. Turing was one of several people on both sides of the Atlantic who was working within groups, research groups in laboratories all trying to produce the first working universal stored program computer, and in fact many such machines burst into life in the late 1940's. The particular machine that Turing inspired was not the first one, it was an interesting one but it was not the first one nor indeed was its design very much like all the others but then individuality one would expect from Turing wouldn't one.

Blaine Price

Simon can you describe for us how you see Turing's legacy?

Professor Simon Lavington

Today I see Turing's legacy as a national, perhaps international treasure but I think it's important to realise that at the time of his death in 1954 I think he was roughly without a legacy, people were taken a back, horrified perhaps by his sudden death and after all he'd been working more or less alone for the last couple of years of his life. And I think at that point in the 1950's there was not really a Turing legacy and it was only ten, twenty years after his death when we began to know about what went on at Bletchley Park, when theoretical computer scientists took up Turing's ideas on computability and when the artificial intelligence people took up Turing's ideas on artificial thinking machines, mechanical thought gradually,

gradually Turing as it where blossomed into a hero of the scientific world but it wasn't always like that.

Blaine Price

Thank you very much for talking to us today.