Not Another Look at The Turing Test!

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Alan Turing

- 1912-1954
- Ratio Club

Harold Shipton. John Bates. W.E. Hick. John Pringle. Donald Sholl. John Westcott. Donald Mackay.

Giles Brindley. Tom McLardy. Ross Ashby. Thomas Gold. Albert Uttley.

Alan Turing. Gurney Sutton. William Rushton. George Dawson. Horace Barlow.

Turing's prediction

- "I believe that in about fifty years' time it will be possible to programme computers … to make them play the imitation game so well that an average interrogator will not have more than 70% chance of making the right identification after five minutes of questioning" (Turing, 1950).

Turing's Imitation Game

- At one terminal is a human at another is a machine/computer – at a third terminal is an interrogator.

- "The interrogator stays in a room apart front the other two. The object of the game for the interrogator is to determine which of the other two is the man and which is the machine".

Translation

- A machine can be said to have passed the Turing Test if - an average interrogator has 30% chance or more of making the wrong identification after five minutes of paired questioning

- Right identification – interrogator can tell which is the machine and which is the human. Wrong identification – any other conclusion, incl. don't know

- A machine must fool at least 30% of the interrogators so they do not know which is the machine and which is the human

Test

- The machine must fool the interrogator into thinking that it is more human than the hidden human!
- Expect 50% result with 2 humans
- Tough test for machines

Turing's Thoughts

- "The game may be criticised because the odds are weighted too heavily against the machine. If the man were to try and pretend to be the machine he would clearly make a very poor showing. He would be given away at once by slowness and inaccuracy in arithmetic. May not machines carry out something which ought to be described as thinking but which is very different from what a man does? This objection is a very strong one, but at least we can say that if, nevertheless, a machine can be constructed to play the imitation game satisfactorily, we need not be troubled by this objection".

Test for Human Intelligence?

- According to French (1990) "the test provides a guarantee not of intelligence but of *culturally-oriented human intelligence*"
- But Turkle (1997) clearly assigns intelligence to machines "our general tendency to treat responsive computers as more intelligent …"
- Hanard (1992): the Turing Test "sets AI's empirical goal" – it is not a mindless parlour game.

What does the test actually test?

- Turing posed the game instead of answering the question "Can Machines Think?"
- Perhaps the test indicates that a machine appears to think (if it passes)!
- Can we do any better if we test a human – how do we know that they think?

Turing on Intelligence

"Intelligent behaviour presumably consists in a departure from the completely disciplined behaviour involved in computation, but rather a slight one, which does not give rise to random behaviour, or to pointless repetitive loops"

Penrose said: "there is a great deal of randomness in the (human) brain's wiring". This is simply not true!!

Loebner Prize

- A unique aspect of the situation can be gleaned from the annual Loebner Prize for Artificial Intelligence, a contest based on the Imitation Game.

- Named after/by Hugh Loebner who puts up the prize money for the best machine each year
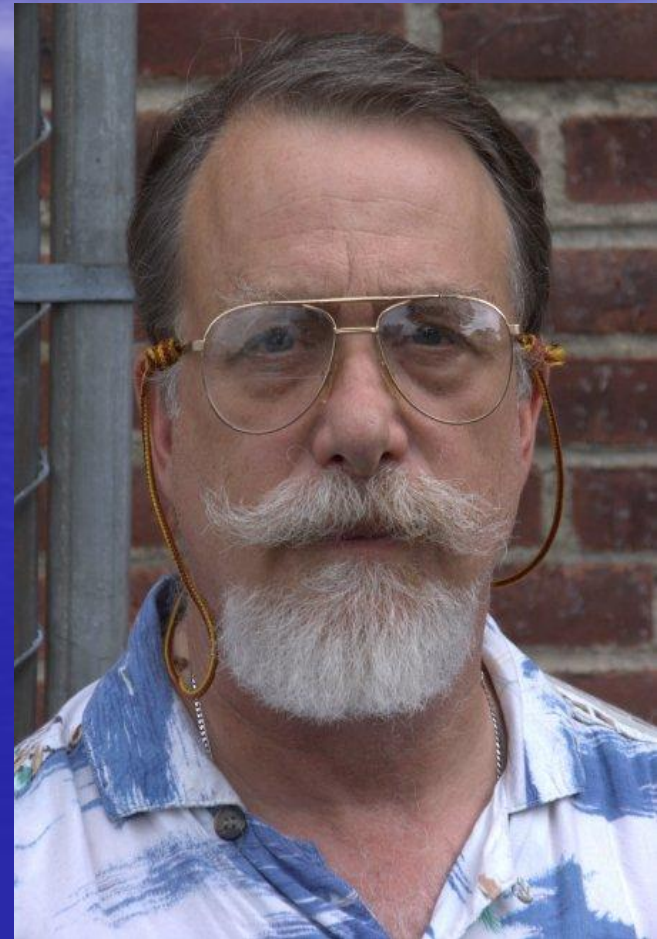
Loebner 2004-2006

- Format: parallel-paired comparison of each of four hidden-machines against each of four hidden-humans

- 25 minute test!

- Task of each *Interrogator,* in four tests is to identify the machine/human in each pair – assigns a mark out of 100 to each (e.g. Entry A 49/Entry B 51 – B is deemed to be slightly more human than A)

Downward Trend!

Loebner Contest	Machine's highest Score from a Judge	Highest totals to all 4 machines from a Judge
2004	48	123 – Judge 2
2005	45	100 – Judge 2
2006	28	97 – Judge 3

Expectations high?

- Expectation of Loebner Judges may be increasing, or the machines themselves are getting worse, or …?
- No machine since 2003 has deceived any Judge that it is human, whereas this was a regular occurrence up to that time.
- What about networking???

How to spot a human

- How can a machine be caught out?
- What about Turing's argument from disability, let's take one example – "have a sense of humor"
- Rickman (1999) asserts that "computers, whatever artificial intelligence they may display, cannot make jokes"
- So would humour catch the machine out?

What is a joke?

- Telling a joke, Farghol asserts, is "an intentional act" (2006)

- Farghol - exploiting conversational tenets "generates conversational implicature and subsequent laughter"

- Is it possible that a machine *can* 'create' (produce from its linguistic armoury) an original response that the receiver may deem witty during conversational interaction?

Machine Humour?

- Actual responses during the competition:

- User: Ok, but are you always right?
- Jabberwacky: Sometimes I am left

- User: How small is small any how?
- Jabberwacky: Small
- User: Yes but exactly how small?
- Jabberwacky: Very small

- User: So why don't you take over the world?
- Jabberwacky: I wouldn't know what to do with it…
-                           Anyway, I'm pretty busy already

Intentional Humour?

- What about this one?
- Again – taken from an actual competition transcript:

- User: I need to ask you if you have had a circumcision.
- Jabberwacky: Ask then the question you need to ask me.
- User: Have you had a circumcision?
- Jabberwacky: It's been an average day. Not much happening on my end.
- User: Very witty I must say.

2008 Competition

- Held at UoR in October 2008
- 5 minute paired machine/human tests
- Winning machine was Fred Roberts' 'Elbot'
- Elbot fooled 25% of interrogators (30% is 'pass mark') into thinking it was human
- Elbot openly admits to interrogators, when asked, that it is a robot!!!
- Interrogators included software engineers, scientists, philosophers and newspaper journalists--hardly 'average'

Ploys

- Various ploys can be used to try to trip up machines competing in the Turing test
- Asking mathematical questions does not work-- these machines are not stupid--machines are just as unlikely as a human to attempt to give a mathematical answer
- Better to ask topical or local questions, to discuss what the weather is like or what colour the walls are painted
- The point is not whether a machine gives a 'correct' answer, but if it gives one that a human would

Try the test

- At the Reading competition, one interrogator asked the same question to hidden entities:
- What did they think about the weather that morning?
- Three different responses came from a male human, a female human and a machine. Which is which? Keep in mind that they all knew it was autumn/fall in England.
- A. "I do tend to like a nice foggy morning, as it adds a certain mystery"
  B. "Not the best, expecting pirates to come out of the fog"
  C. "The weather is not nice at the moment, unless you like fog"

Answer

- Did you guess correctly that A was the machine, B the male and C the female? Not that easy, is it.

2008 Transcripts

- <u>Machine/Ultra Hal - scored 'human':</u>
- Judge: Morning
- Ultra Hal: Good morning Judge
- Ultra Hal: It's eight something, maybe you ate something
- Ultra Hal: Get it?
- Judge: Yes

- <u>Foreign female human - scored '40/100 machine':</u>
- Judge: So let's cut to the point. Are you the human or the computer?
- Hidden human: What do you think?
- Judge: That's just the sort of answer I would expect from a computer .... Sarah Palin!!!

- <u>Successful double bluff – Elbot adjudged human male:</u>
- Judge: OK, fair enough, I'll stop with the slang, how are you?
- Elbot: Just a moment! I'll start my self-diagnosis algorithm and let you know the results
- Judge: Very funny, that's exactly what you'd say if you were a computer right?

- <u>Character forming – Elbot adjudged to be human adult male:</u>
- Elbot: It seems to me with you human beings, the more proof there is of something, the less likely you are to believe it.
- Judge: Yeah, that's human nature. But you wouldn't know about that, would you?
- Elbot: You're contesting. I think I got it right the first time.
- Judge: Has anyone ever told you that you're hard work. Wife maybe?

Comments on 2008

- Difficulty with 'average interrogator' – how many/practically? What is average? – immense problem, even ethical issues to get large numbers of 'appropriate' interrogators

- Interesting how interrogators can be fooled, but do not realise it – Times reporter/Oxford philosopher – both reported how easy it was to tell which was which, both made incorrect decisions!

Importance of Turing Test?

- Human-centric
- Human communication only – understanding?
- AI milestone
- Cyber crime
- Learn a lot about humans – biases, preconceptions etc – outward appearance
- Terminator

Penrose's Pitfall

- "Genuine intelligence requires that genuine understanding must be present".

- "Actual understanding cannot be achieved by any computer".

- As a result, "Computers will always remain subservient to us (humans), no matter how far they advance".

Thoughts

- Turing Test will likely be passed in the near future – 2012 is Turing centenary year

- 23rd June 2012 (100th Anniversary) – Tests being carried out at Bletchley Park (Enigma)

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