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The future of AI

Fausto Giunchiglia

**A few insights into the possible futures
of Artificial Intelligence**



Artificial Intelligence?





Artificial Intelligence?



Artificial Intelligence

=

Sensing

+

Representing

Reasoning

Learning

+

acting

... and Computer Science?



Question



**Human-level intelligence
or
Human-like intelligence
???**





John McCarthy's answers (continued)

Q. Isn't AI about simulating human intelligence?

A. Sometimes but not always or even usually. On the one hand, we can learn something about how to make machines solve problems by observing other people or just by observing our own methods. On the other hand, most work in AI involves studying the problems the world presents to intelligence rather than studying people or animals. AI researchers are free to use methods that are not observed in people or that involve much more computing than people can do.

My interpretation: Human-Like intelligence is **THE** main way to achieve human-level intelligence (think of the AI metaphors, e.g. planning, knowledge level, NLU, vision, ...)





The fundamental assumption of (strong) AI

Artificial intelligences will be **actors** (e.g., expert systems, problem solvers, programmed computers, robots, ...) that will live in **environments** (the world) which are not themselves artificial intelligences.

A clear distinction between what is **IN**side an artificial intelligence (the “myself”) and what is **OUT**side an artificial intelligence (other intelligences, artificial intelligences or the environment).

... **similarly to what happens for humans**

Therefore ... steps towards artificial intelligence should be mostly taken by trying to **build more and more intelligent actors.**





Weak AI: intelligent environments

Intelligent ...

For Him & For Her



... cars



... homes



... keys

... and more.

...and computer science?

... tunnels





The future of AI (personal opinion)

It is very unlikely that the “traditional” approach to strong AI will achieve its long term goal.

It is unlikely that the “traditional” approach will produce large scale (as opposed to niche) breakthroughs in its way to (not) achieving its long term goal

It is very likely that **weak AI will achieve its short term goals** (more specifically, building intelligent environments), also via a strong synergy with computer science

Weak AI is the best way towards strong AI.





From weak AI to strong AI: where will it happen first?

Simple acting/ complex sensing and representation
(e.g., Question/ Answering systems,
monitoring of closed and open environments)

... much later

Complex acting, sensing and representation
(e.g., robotics)

Reasoning: already well developed, open issue of how
to integrate it in the full S/RRL/A cycle





Thank you!

