

The Rest of AI

Machines will be capable, within twenty years, of doing any work that a man can do. (Herbert Simon, 1965)

Artificial intelligence is no match for natural stupidity. (Anonymous)

Machines will follow a path that mirrors the evolution of humans. Ultimately, however, self-aware, self-improving machines will evolve beyond humans' ability to control or even understand them. (Ray Kurzweil, 2010)

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Natural Language

- Ambiguity: Time flies like an arrow.
- Semantics: The chickens are ready to eat.
- Classical Approach: Treat sentences as logical expressions.
- Statistical Approach: Treat sentence structure and meaning as probabilistic.
- IBM Watson's Mistake:

Category "U.S. Cities." Clue: "Its largest airport is named for a World War II hero; its second largest for a World War II battle."

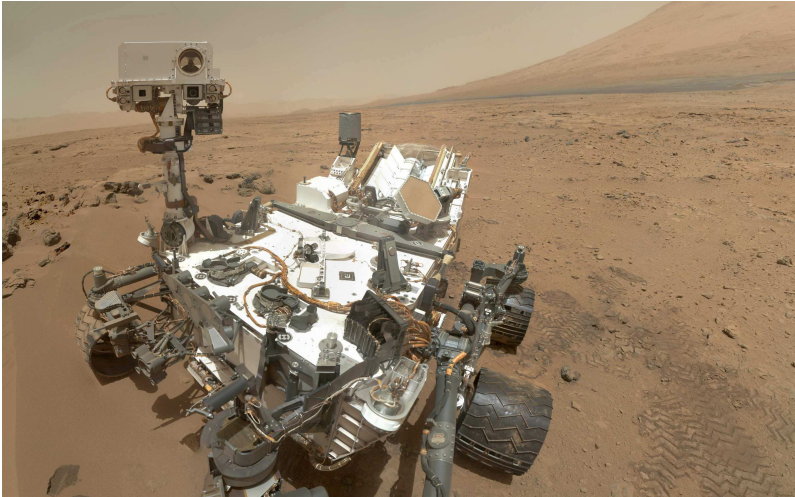
Answer: "Toronto," which is not in U.S.

Watson regards its input as probabilistic requirements, not logical.

Vision

- 2D images need to be converted to 3D models.
Use multiple images over time or different angles.
- Object Recognition: Find and identify objects in images.
Convert to features, learn from examples, database match.
- Face Recognition

Robotics



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Happening Now or Short-Term

- Data Mining: Classify based on personal data.
Ad-targeting, Credit Reports, Insurance, Health, Background Checks, Purchase Returns, Rental History
- Surveillance: Use your data to keep track of you.
Cell phone, ISP Logs, Facebook, Google, License Plate Readers, Face Recognition

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Future: Medium-Term

- Autonomous cars
- Household robots

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Future: Long-Term

- Robots will be able to do (almost) all the work.
What will people do?
- Singularity
The acceleration of technological progress has been the central feature of this century. I argue in this paper that we are on the edge of change comparable to the rise of human life on Earth. The precise cause of this change is the imminent creation by technology of entities with greater than human intelligence.
(Vernor Vinge)

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