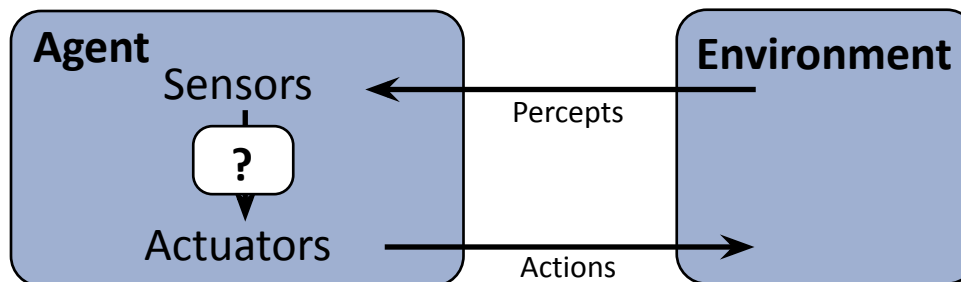
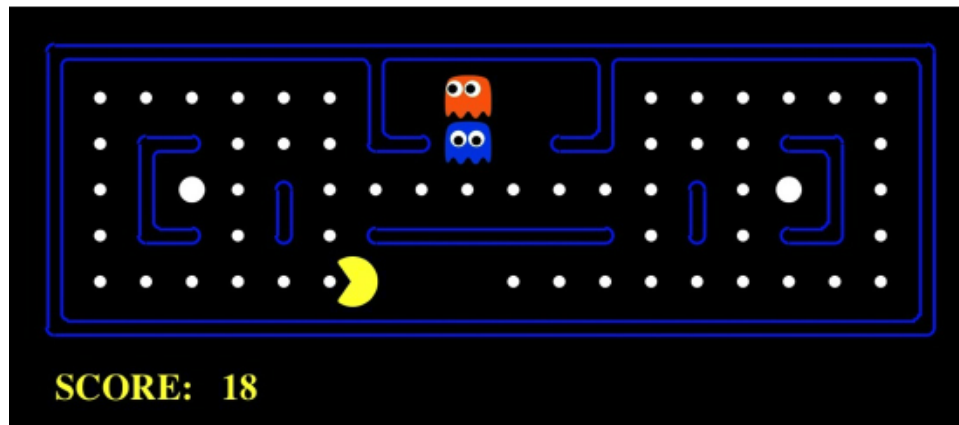


Pac-Man as an Agent



Pac-Man is a registered trademark of Namco-Bandai Games, used here for educational purposes

Demo1: [pacman-l1.mp4](#)

AI

Machine Learning
[learning decisions;
sometimes independent]

Robots
[physically
embodied]

Rational
Agents
[decisions]

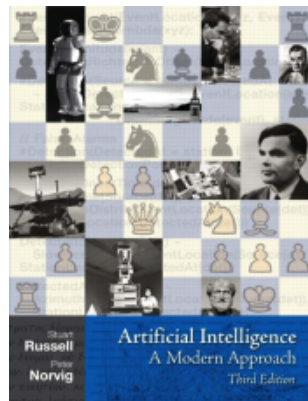
Human-AI
Interaction

NLP

Computer
Vision

Textbook

- Not required, but for students who want to read more we recommend
 - Russell & Norvig, AI: A Modern Approach, 3rd Ed.



- Warning: Not a course textbook, so our presentation does not necessarily follow the presentation in the book.

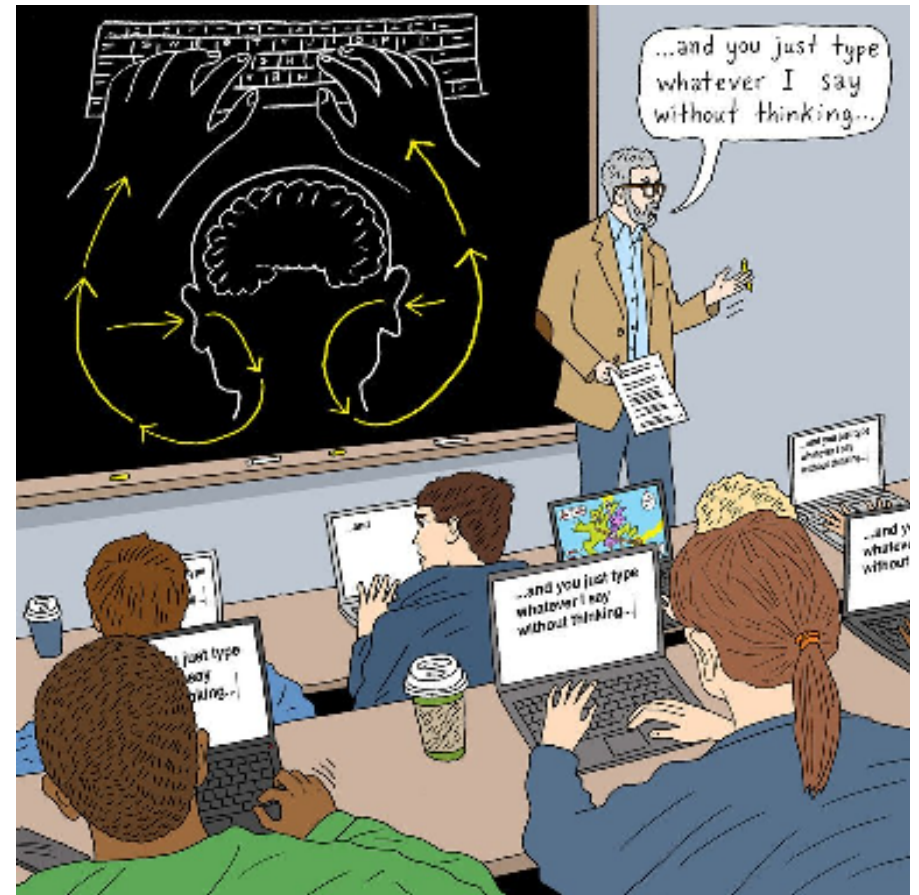
Laptops in Lecture

The New York Times

***Laptops Are Great. But Not
During a Lecture or a Meeting.***

Economic View

By SUSAN DYNARSKI NOV. 22, 2017

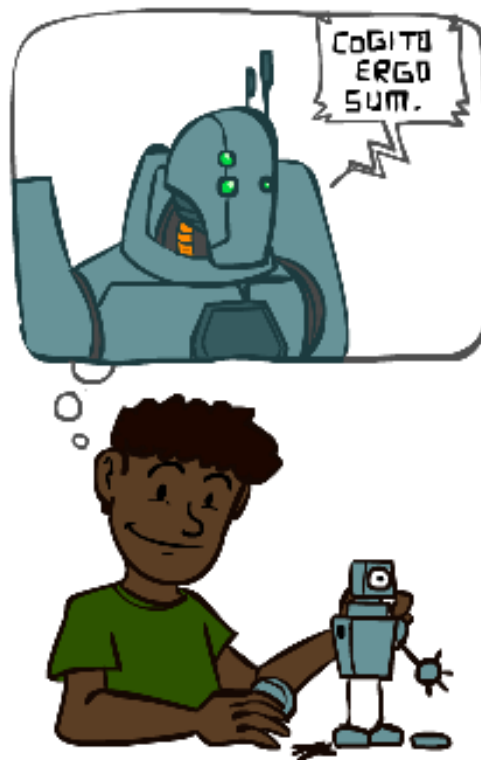


Laptops in Lecture

(starting next lecture)

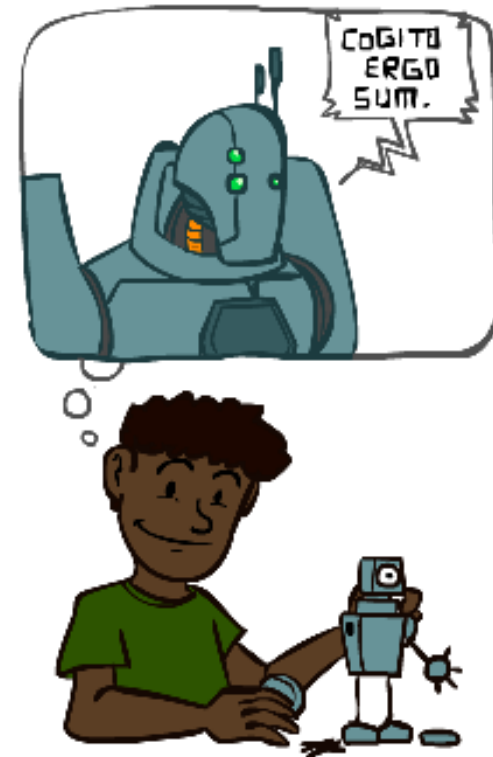
- We prefer if you don't use electronics in lecture.
- Laptops detract more from the people behind you than yourself.
- Solution: Sit in back or sides with laptop (please).

A (Short) History of AI



A (Short) History of AI

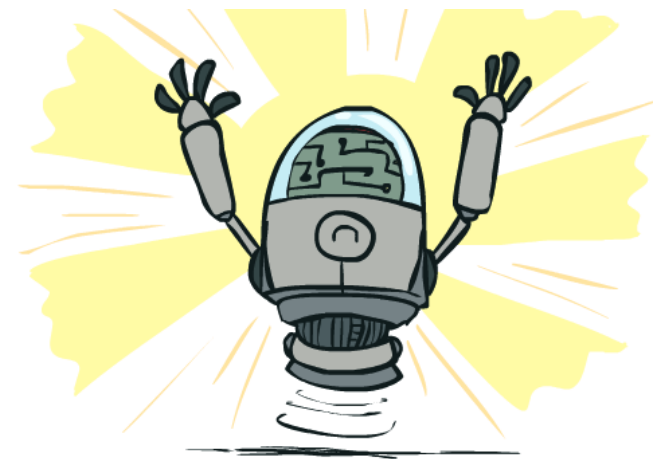
- 1940-1950: Early days
 - 1943: McCulloch & Pitts: Boolean circuit model of brain
 - 1950: Turing's "Computing Machinery and Intelligence"
- 1950—70: Excitement: Look, Ma, no hands!
 - 1950s: Early AI programs, including Samuel's checkers program, Newell & Simon's Logic Theorist, Gelernter's Geometry Engine
 - 1956: Dartmouth meeting: "Artificial Intelligence" adopted
 - 1965: Robinson's complete algorithm for logical reasoning
- 1970—90: Knowledge-based approaches
 - 1969—79: Early development of knowledge-based systems
 - 1980—88: Expert systems industry booms
 - 1988—93: Expert systems industry busts: "AI Winter"
- 1990—: Statistical approaches
 - Resurgence of probability, focus on uncertainty
 - General increase in technical depth
 - Agents and learning systems... "AI Spring"?
- 2000—: Where are we now?



What Can AI Do?

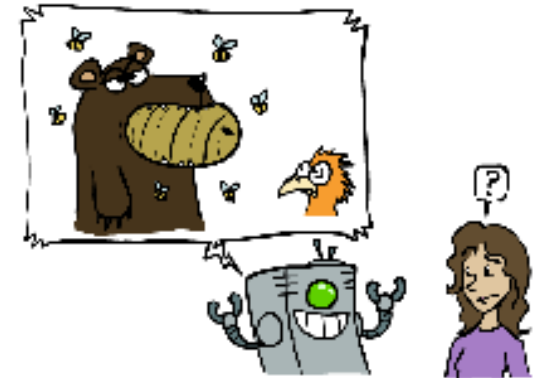
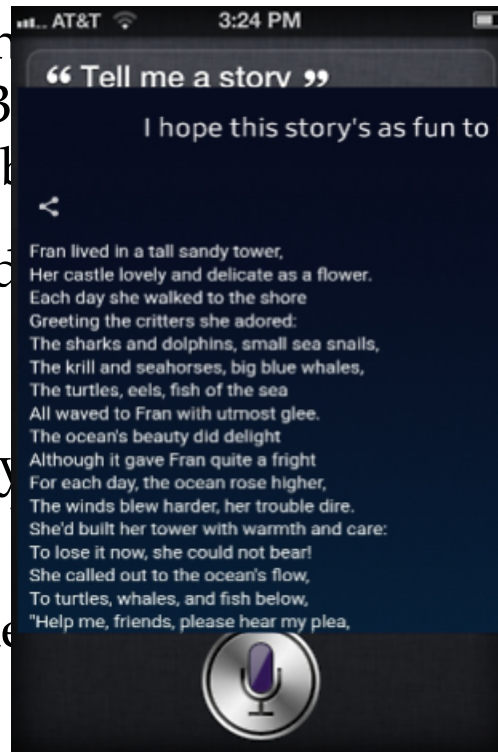
Quiz: Which of the following can be done at present?

- ✓ Play a decent game of Jeopardy?
- ✓ Win against any human at chess?
- ✓ Win against the best humans at Go?
- ✓ Play a decent game of tennis?
- ✓ Grab a particular cup and put it on a shelf?
- ✗ Unload any dishwasher in any home?
- ✓ Drive safely along the highway?
- ✗ Drive safely along Telegraph Avenue?
- ✗ Buy a week's worth of groceries on the web?
- ✓ Buy a week's worth of groceries at Berkeley Bowl?
- ✗ Discover and prove a new mathematical theorem?
- ✓ Perform a surgical operation?
- ✓ Translate spoken Chinese into spoken English in real time?
- ✗ Write an intentionally funny story?



Unintentionally Funny Stories

- A composite image. On the left, a person is shown from the chest up, wearing a blue shirt and holding an open book. They are looking down at the book. On the right, a smartphone screen is displayed, showing a text-based story. The phone's status bar at the top shows 'AT&T', signal strength, Wi-Fi, and the time '3:24 PM'. The screen has a dark background with white text. The text on the screen is a story about a character named Fran. The story is presented in a list-like format with bullet points. The phone is held by a hand, and the background is a blurred indoor setting.

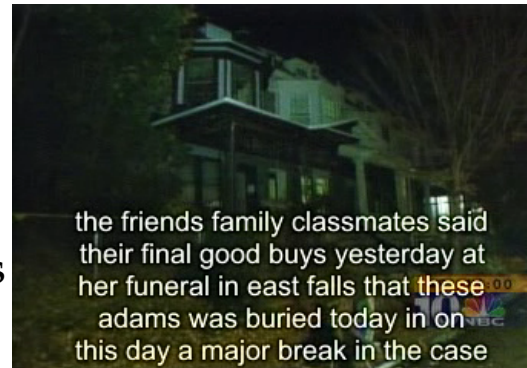


friend Bill Bird was

[Shank, Tale-Spin System, 1984]

Natural Language

- Speech technologies (e.g. Siri)
 - Automatic speech recognition (ASR)
 - Text-to-speech synthesis (TTS)
 - Dialog systems
- Language processing technologies
 - Question answering
 - Machine translation



- Web search
- Text classification, spam filtering, etc...

<https://play.aidungeon.io/>