AI tutorial, practical and homework following lecture on 14-9

Practical

1. Try out Google "Quick, Draw" which uses an artificially neural network to try to guess what you have drawn – and learns as it goes along (best used on a device with a touch screen). https://quickdraw.withgoogle.com/

   What sort of artificial intelligence is this? "Thinking Rationally", "Thinking Humanly", "Acting Rationally", or "Acting Humanly"

   What restriction have the authors placed on the program to make it more likely to get the answer right?

2. Go to this website which is also about drawing with neural networks.

   https://magenta.tensorflow.org/sketch-rnn-demo

   read the text and try out the "Magic Sketchpad Game" and the "Multi-Prediction Demo"

   How good are the systems at predicting what you were going to draw next?

   What is being taken into account in deciding the prediction?

   Where does the information come from?

   Is this intelligence?

   Go to the bottom on the website page and following the links to more information to find out how the algorithms work.

3. Try out the online demo of the Aristo AI system which searches the internet to try to find the answers to the sorts of multiple-choice questions that you might get at school.

   https://allenai.org/aristo/ (follow the link marked "View All Aristo Demos"

   What sort of artificial intelligence is this? "Thinking Rationally", "Thinking Humanly", "Acting Rationally", or "Acting Humanly"

4. Try making different sounds with this experimental too, and read about how it works:

   https://experiments.withgoogle.com/sound-maker

   What sort of artificial intelligence is this? "Thinking Rationally", "Thinking Humanly", "Acting Rationally", or "Acting Humanly"

5. Try out Google's talk to books to find books that might have ideas that you are interested in. Click on "learn more" to find out how it works.

   https://books.google.com/talktobooks/

Tutorial

1. Define, in your own words:
    a. Intelligence
    b. Artificial intelligence
    c. Agent
    d. Rationality
    e. Logical Reasoning

2. Are reflex actions (e.g. flinching off a hot stove) rational? Are they intelligent?

3. How could introspection – reporting one's inner thoughts – be inaccurate?

4. To what extent are the following technologies artificial intelligence? Why?
    a. Self-serve checkouts
    b. Google Maps
    c. Siri

5. This exercise will help you to understand the kind of "explosion" of numbers that can happen when there are many combinations of possibilities to consider.

    A computer has been designed to pick the best five-side football team (five players) from 500 students at James Gillespie's High School based on their characteristics and abilities to work together. The computer needs to decide who plays in each of the five positions. For each possible team of five a quality score can be worked out in a millionth of a second. How long would it take to evaluate all the possibilities to find the best?

    The program is to be used by Edinburgh Napier University to choose the five a side team from 5000 students. How long will it take now?

    What if the team had 11 players?

Homework

Read chapters 1 and 2 of the course book.

Make sure you have watched the video's linked to in the last slide of the lecture.