Exercise: An example of a cognitive architecture

In the exercises we have "seen" that it is hard to scale up pure reinforcement learning and imitation learning approaches from toy-world problems to real-world problems where robots shall be able to show a broad range of different capabilities and solve problems on their own.

So should we give up building such robots?

Some robotic and AI researchers think we need a more complex computational model of the human mind. Such models are called "cognitive architectures".

For this exercise, search for an example of a cognitive architecture and present it to your fellow students (ca. 10-15 min presentation). You can prepare some slides and/or show demonstrations/code (e.g., from GitHub)

Here are some examples of cognitive architectures, but you are not limited to these. You are free to choose any cognitive architecture which you find exciting:

- BrainControl:
  https://www.elektronikpraxis.vogel.de/brain-control-ki-ohne-neuronales-netz-zum-selber-testen-a-674221/
  https://www.youtube.com/watch?v=63gcQg_bQjw&feature=youtu.be
  https://github.com/CognitiveModeling/BrainControl
  (Explain your students what happens in the game!)
  https://www.frontiersin.org/articles/10.3389/fpsyg.2016.00925/full

- OpenCOG

- Soar