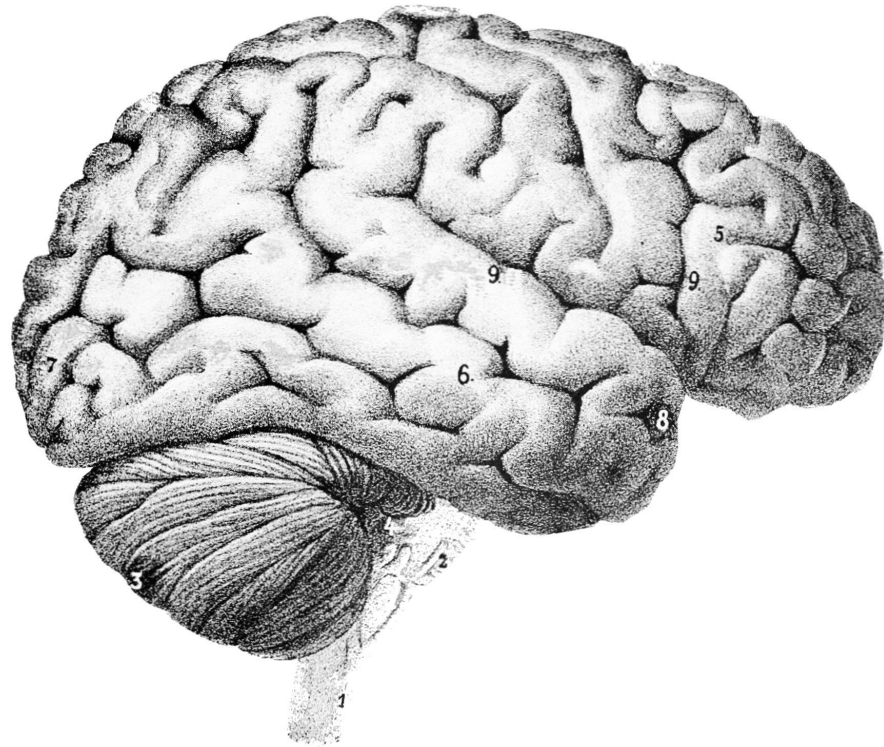




# **CS765** Interactive Cognitive Systems

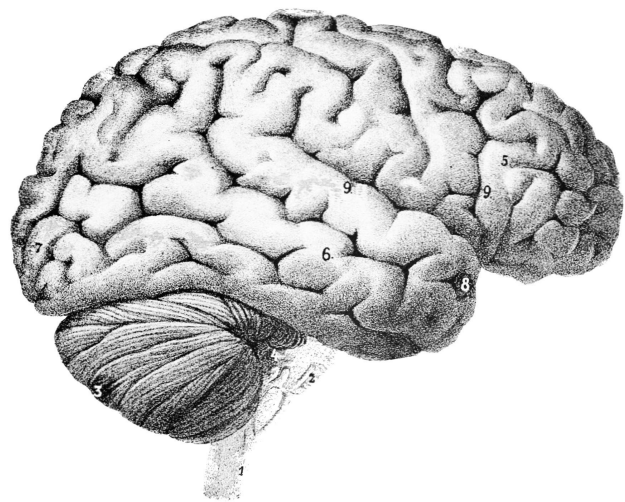
Matthew Egbert  
Jim Warren



What does this thing do?



What role does it play in these diverse activities?



=



?

Is the brain a computer?

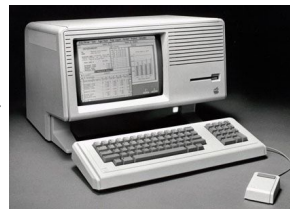
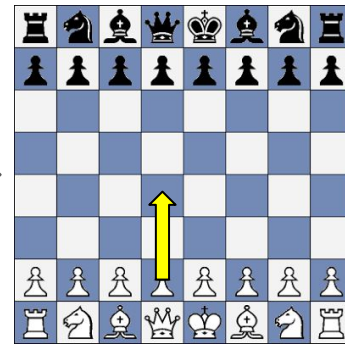
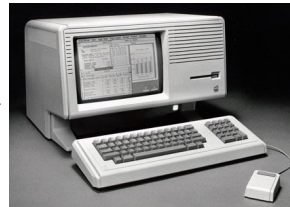
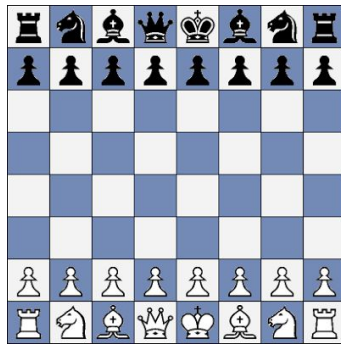


# If the brain is like a computer...

...then cognition is 'information processing' that transforms...

*input into output*

This is the view of "**Classic AI**"...



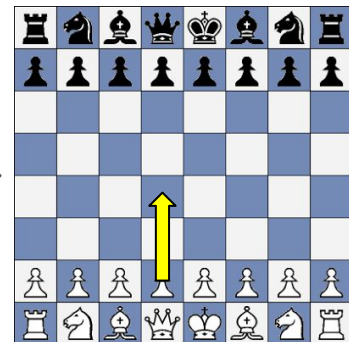
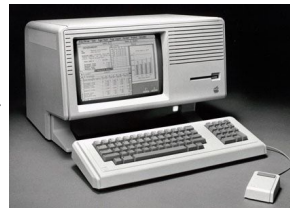
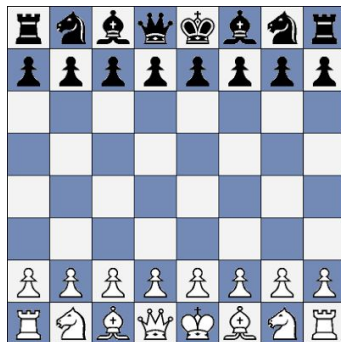
**THIS IS  
A CAT**

# A "linear" view

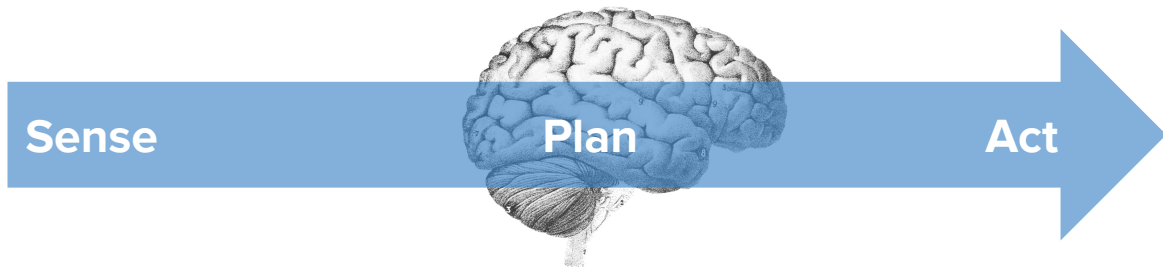
Repeatedly

1. Sense
2. Plan
3. Act

Where the intelligence is located in the planning phase.



"THIS IS  
A CAT"



# An "interactive" view

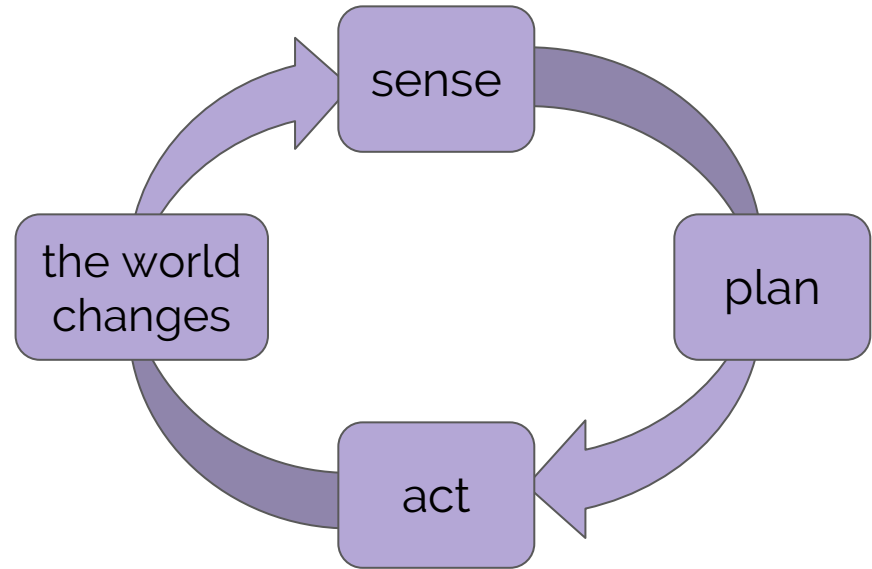
A new perspective is emerging in cognitive science and AI that sees intelligence as the result of interaction.

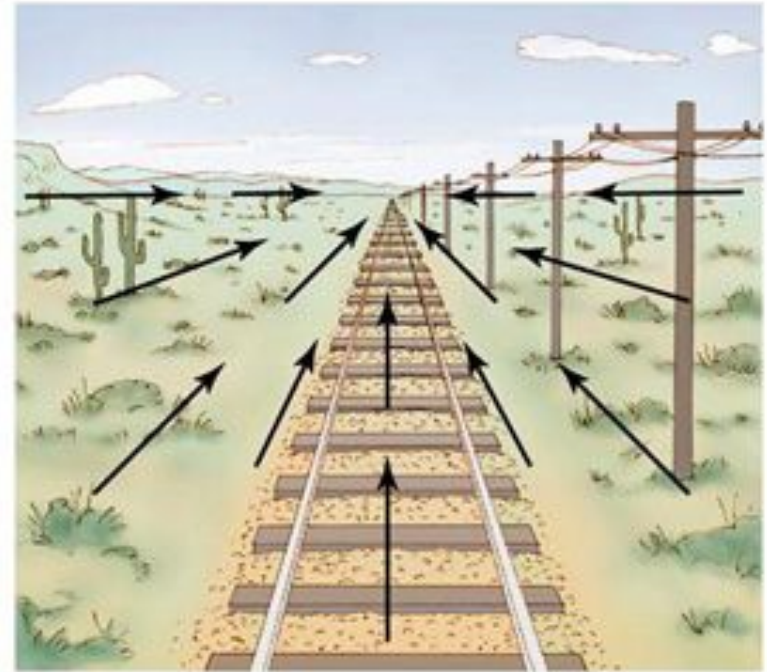
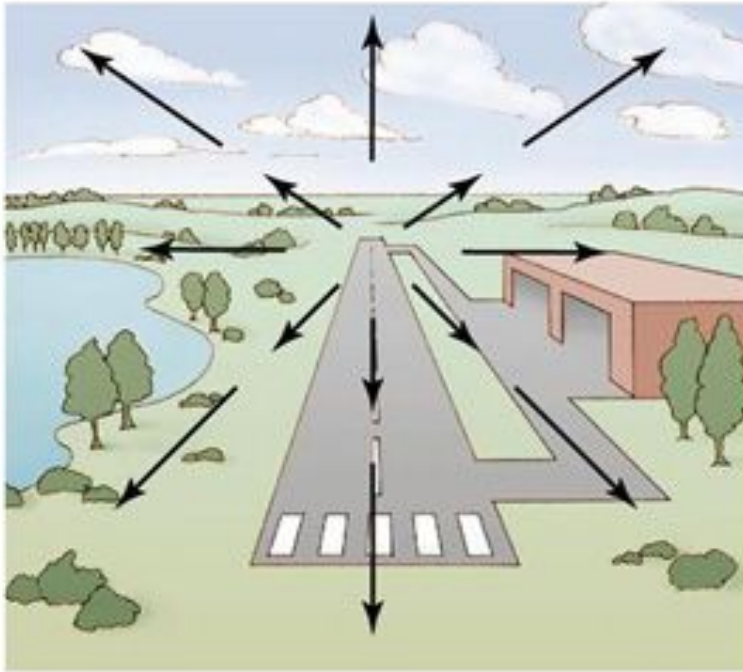
**Instead of the linear story of..**

sensory input is processed to determine  
motor output

**we have the circular, interactive story of..**

yes, your sensors affect your motors, but  
your the motor activity also influences  
your sensory input





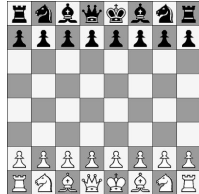
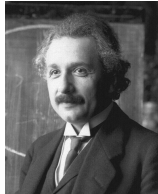
Optic Flow



# Course Content

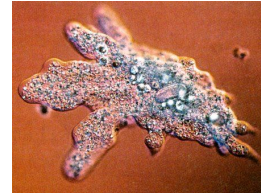
**25%** "Classic (cognitivist) AI" approaches to creating interactive intelligent systems where...

Intelligence is seen as computational manipulation of structured representations (involving search, optimisation & heuristics).



**75%** New and emerging approaches where...

Intelligence is seen as ongoing dynamic interaction between brain, body and environment.



# Course Content

3 one-hour gatherings per week; a mix of

- lectures
- student presentations of papers
- in class "hands-on workshops"

assessment is TBD, but some combination of:

- mid-term test
- 1-3 writeups from hands-on workshops
- exam
- group project?
- student paper presentations?

