CS765 Interactive Cognitive Systems

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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"...
A "linear" view

Repeatedly

1. Sense
2. Plan
3. Act

Where the intelligence is located in the planning phase.
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

http://ist-socrates.berkeley.edu/~kihlstrom/IntroductionWeb/perception_supplement.htm
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?