

# Embodied Cognition

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Andy Clark, *Being There: Putting Brain, Body, and World Together Again*, The MIT Press, 1998

- ➔ “Treating cognition as pure problem solving invites us to abstract away from the very body and the very world in which our brains evolved to guide us.”
- ➔ “Might it not be more fruitful to think of brains as controllers for embodied activity?”

(Clark, xii)

# Embodied Cognition...

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**Andy Clark, "Autonomous Agents: Walking on the Moon" (Chapter 1)**

➔ "The attempts to build robust mobile robots leads, surprisingly quickly, to a radical rethinking of many of our old and comfortable ideas about the nature of adaptive intelligence."

**(Clark, p. 11)**

➔ "This image of multiple, special-purpose problem solvers orchestrated by environmental inputs and relatively simple kinds of internal signaling is, I shall argue in a later chapter, a neuroscientifically plausible model even of more advanced brains."

**(Clark, p. 14)**

# Embodied Cognition...

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Andy Clark, "Autonomous Agents Walking on the Moon" (Chapter 1)

- ➔ "The **New Robotics revolution** rejects a fundamental part of the classical image of mind.
- ➔ "It rejects the image of a central planner that is privy to all the information available anywhere in the system and dedicated to the discovery of possible behavioral sequences that will satisfy particular goals."

(Clark, p. 21)

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Andy Clark, "Autonomous Agents Walking on the Moon" (Chapter 1)

➔ "Carefully understood, the **first moral of embodied cognition** is thus to avoid excessive world modeling, and to gear such modeling as is required to the demands of real-time, behavior-producing systems.

(Clark, p. 23)

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**Andy Clark, "Autonomous Agents Walking on the Moon" (Chapter 1)**

- ➔ "The **second moral** follows closely from the first.
- ➔ "...we reduce (our) information-processing load by sensitizing (ourselves) to particular aspects of the world -- aspects that have special significance because of the environmental niche (we) inhabit.

**(Clark, p. 24)**

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Andy Clark, "Autonomous Agents Walking on the Moon" (Chapter 1)

**"The last but most speculative of our short list of morals... "**

- ➔ "...our daily perceptual experiences may mislead us by suggesting the presence of world models more durable and detailed than those our brains actually build. **(Clark, pp. 25-26)**
- ➔ **Example:** "Animate vision" research suggests that our vision might NOT transform incoming light signals into detailed 3-dimensional model of the external world. Instead, it might use selective "sampling" to enable us to rapidly survey a scene. **(Clark p. 29)**