

Implications of Embodied Artificial Intelligence upon the Christian Doctrine of the Bodily Resurrection of the Dead

Several months ago, I heard a radio report on the newest field of Artificial Intelligence (AI) called Embodied Artificial Intelligence (EAI). Theorists and computer scientists in this specialty of AI contend that a true artificial intelligence can only exist within a true artificial body. The theory behind this claim revolves around the notion that minds learn and grow by personal encounters with their environment. For example, how could the human mind possibly exist without sense organs to gather data, then make use of body parts to act upon that data? I have searched the Web for information about EAI and these are the best five quotes that I have found. They will provide some background information.

Quote One about EAI

Never ask a researcher in the field of AI what AI is! So if you really want to ask me, here's a try to give the three most heard answers: AI is the attempt to make computers smart. This means that computers can really think and we want to make them able to do so. This is known as hard AI. AI is the simulation of human or human-like thinking on a computer. This means that computers are as dumb as you always knew. The only thing they can is simulate small parts of human thinking. This is the so called soft (or weak) AI. Intelligence is only possible in a real environment. Therefore, we need to build real-world entities, that behave in a somehow intelligent manner. This paradigm is the youngest and calls itself the embodied AI or the new AI. by Martin Lorenz at <http://members.surfeu.at/martin.lorenz/ai.html>

Quote Two about EAI

Embodied artificial intelligence (EAI) has recently received enormous interest both from scientists and the broad public. In reaction to the hype and to the promises of researchers in this field, heavy criticisms of the area, its methods, and its scientific goals have arisen. This special issue is devoted to the study of the conditions which make knowledge in EAI possible, ie. to epistemological questions.

In embodied artificial intelligence the foundational questions concern the nature of human thinking and intelligence. Is it necessary for an intelligent system to possess a body, as claimed by leading scientists of robotics and AI and is it a necessary or useful requisite for the construction of intelligent systems? Is there evidence thereof? What are necessary elements of embodied architectures, what drives these systems? How are we to proceed in a science of embodied systems? What are the philosophical implications of an "embodied" perspective? These and other questions are addressed from a broad range of different points of view, corresponding to different backgrounds of the authors.

From Cybernetics and Systems, a Special issue on Epistemological Aspects of Embodied AI guest editor: Erich Prem (<http://www.ai.univie.ac.at/~erich/cs-contents.html>)

Quote 3 about EAI

Many believe that the major problem facing traditional artificial intelligence (and the functional theory of mind) is how to connect intelligence to the outside world. Some turned to robotic functionalism and a hybrid response, that attempts to rescue symbolic functionalism by grounding the symbol system with a connectionist hook to the world. Others turned to an alternative approach, embodied cognition, that emerged from an older tradition in biology, ethology, and behavioral modeling. Both approaches are contrasted here before a detailed exploration of embodiment is conducted. In particular we ask whether strong embodiment is possible for robotics, i.e. are robot "minds" similar to animal minds, or is the role of robotics to provide a tool for scientific exploration, a weak embodiment?

(1) The overriding task of mind is to produce the next action. (2) Actions are selected in the service of drives built in by evolution or design. (3) Mind operates on sensations to create information for its own use.

by Stan Franklin about Autonomous Agents as Embodied AI
(<http://www.msci.memphis.edu/~franklin/AAEI.html>)

Quote 4 about EAI

Indeed, there are no eternally fixed representations of the external world in the "motor system" rather, it is under the guidance of both internal and external factors with important linkages to frontal, parietal, cerebellar, basal ganglionic, and cingulate gyrus areas that subserve cognitive and motivational activities. Indeed, the motor system including related structures, is a self-organizing dynamical system contexed among musculoskeletal, environmental (e.g., gravity), and social forces. We do not simply inhabit our bodies; we literally use them to think with.

The Implications of Embodiment for Cognitive Theories (1997) by Erich Prem
(<http://citeseer.nj.nec.com/prem97implication.html>)

Quote 5 about EAI

EAI insists that symbolic processing should consist of artificial neural networks trained for bodily movements. Imaginations need bodies. Robots can realize imaginations, and so can realize EAI. Current computers do not have bodies, and so cannot realize imaginations. Since the main linguistic aspects of imaginations are metaphors, EAI is realized as Metaphor Based AI (MBAI) in the current computers. -

By Tsukimoto Hiroshi

(<http://www.ipsj.or.jp/members/SIGNotes/Eng/02/2000/122/article004.html>)

These scientists and theorists are concluding that a mind cannot exist apart from a body. This is also the conclusion of those who take seriously the Christian doctrine of the resurrection of the dead and the related doctrine of a "spiritual body". At the time of the writing of the New Testament, this teaching was held by the Pharisees, but denied by the Sadducees and mocked by the Greeks. Here are five New Testament quotes concerning the resurrection of the dead:

Acts 23:8 ~ For the Sadducees say that there is no resurrection, neither angel, nor spirit: but the Pharisees confess both.

Acts 17:32 ~ And when they heard of the resurrection of the dead, some mocked: and others said, "We will hear thee again of this matter".

Romans 6:5-7 ~ For if we have been planted together in the likeness of his death, we shall be also in the likeness of his resurrection: Knowing this, that our old man is crucified with him, that the body of sin might be destroyed, that henceforth we should not serve sin. For he that is dead is freed from sin.

1 Corinthians 15:42-44 ~ So also is the resurrection of the dead. It is sown in corruption; it is raised in incorruption: It is sown in dishonour; it is raised in glory: it is sown in weakness; it is raised in power: It is sown a natural body; it is raised a spiritual body. There is a natural body, and there is a spiritual body.

Revelation 20:5-6 ~ But the rest of the dead lived not again until the thousand years were finished. This is the first resurrection. Blessed and holy is he that hath part in the first resurrection: on such the second death hath no power, but they shall be priests of God and of Christ, and shall reign with him a thousand years.

Most "religious" people in the world today consider the resurrection of the dead to be some old-fashioned fundamentalist doctrine. "We don't need bodies", they say. Many believe that if there is a life after death, human personalities will exist as disembodied spirits in communion with each other and with God. This Greek way of thinking mocks the resurrection, just as Greeks mocked the resurrection in Paul's day. I believe in resurrected bodies. I agree with Millard Erickson, that:

"The full range of the biblical data can best be accommodated by the view that we will term "conditional unity." According to this view, the normal state of a human is as a materialized unitary being. In Scripture humans are so addressed and regarded. They are not urged to flee or escape from the body, as if it were somehow inherently evil. This monistic condition can, however, be broken down, and at death it is, so that the immaterial aspect of the human lives on even as the material decomposes. At the resurrection however, there will be a return to a material or bodily condition. The person will assume a body that has some points of continuity with old body, but also a new or reconstituted or spiritual body (page 555 of Christian Theology)."

This is the biblical data, but why would our souls, once departed from our earthly bodies, require a new body? What is the logic? For centuries Christians could only supply religious answers. Now we finally have some scientific support. Embodied AI is providing answers. Re-quoting from selections above, here are five reasons

why a human who has left behind an earthly body would require a resurrected body:

1. It is necessary for an intelligent system to have a body.
2. Bodies are the way that minds connect to the outside world.
3. The main task of the mind is to produce the next action. We need a body for this.
4. We do not simply inhabit our bodies; we literally use them to think with.
5. Imaginations need bodies.

Has EAI and DOR (doctrine of resurrection) ever been connected before? I don't know. Most people who delve into EAI probably are not interested in DOR, and visa versa. Maybe this reflection is the first to connect the dots.