

The Epistemic Control Loop

Ricardo Sanz, Carlos Hernández and Manuel Rodríguez
UPM Autonomous Systems Laboratory

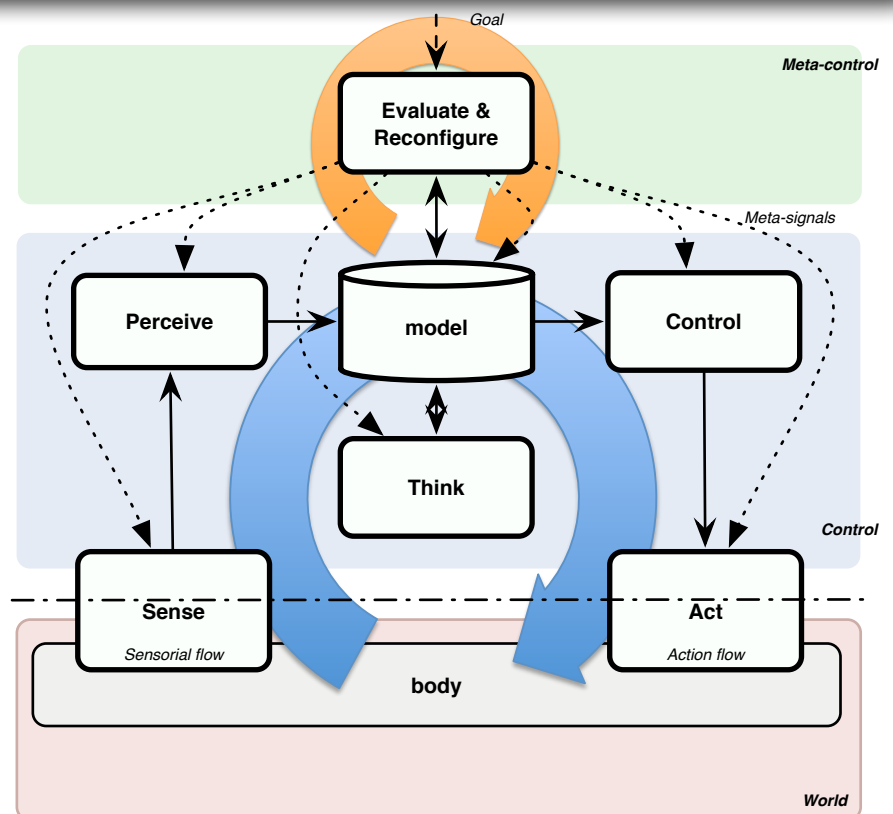
In the ICEA project we are concerned with the extraction of general designs from rat brains.

When extracting control design patterns from mammal brains ---something we have been doing in the CEA Project--- there are several objectives that tend to confound the methods and the results. The three main motivations are i) doing mammal brain theory, ii) building mammal-inspired animats and iii) having better-performant controllers. At the end of the day, however, the strive for unifying cognitive science threads shall render **just one single science** and a collection of derived technologies. This single science can be easily profiled as the **science of robust autonomous behavior**. We are interested in a theory that describes systems that operate robustly in uncertain environments attaining some goals that are critical for their dwelling. Function, viability, survivability are terms used to describe the character of this activity of the autonomous system. In this paper we will provide insights on this picture, recognising epistemology as the critical science to be developed, but not in the broad and somewhat weak sense of the philosophers but in the precise terms of mathematical physics: *Epistemology is the study of the processes of systemic congruence*. In this paper we will describe a fundamental pattern of mind design ---the epistemic control loop--- that captures **the fundamental essence of cognition**.

A Core Architectural Pattern



www.iceaproject.eu



What is the atom of Mind ?