

# A Cognitive Architecture and Simulation Environment for the Ptinto Robot

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*Abstract*—In this article we present a cognitive architecture and we describe some algorithms for simulating the movement of an hexapod robot (a six legs spider) who has been designed and built at the Astrobiology Center (CAB) in Madrid (Spain). The robot is called Ptinto and it was created with the purpose of exploring the Tinto river and the surrounding areas.

*Index Terms*—*Autonomous agents; cognitive architecture; planning and scheduling; simulation.*

The cognitive control architecture aims to control Ptinto in order to autonomously explore the environment. The architecture is structured as a three layer system, using a planning and scheduling component with long-term memory and basic learning possibilities, and an executor that implements some reactive behavior.

The simulation suite is specifically adapted to the geometric features and dynamics of this particular robot. It includes both a standalone simulation test-bench (for kinematics designs) and an environment to interact with the control architecture.