COGNITIVE MODE-SETTING IN EMBODIED AGENTS

TECHNICAL FIELD

[0001] Embodiments of the invention relate to the field of artificial intelligence, and more particularly (but not exclusively), to cognitive mode-setting in embodied agents.

BACKGROUND ART

[0002] A goal of artificial intelligence (AI) is to build computer systems with similar capabilities to humans. There is growing evidence that the human cognitive architecture switches between modes of connectivity at different timescales, varying human behaviour, actions and/or tendencies.

[0003] Subsumption architectures couple sensory information to "action selection" in an intimate and bottom-up fashion (as opposed to traditional AI technique of guiding behaviour using symbolic mental representations of the world). Behaviours are decomposed into "sub-behaviours" organized in a hierarchy of "layers", which all receive sensor information, work in parallel and generate outputs. These outputs can be commands to actuators, or signals that suppress or inhibit other "layers". US20140156577, discloses an artificial intelligence system using an action selection controller that determines which state the system should be in, switching as appropriate in accordance with a current task goal. The action selection controller can gate or limit connectivity between subsystems.

OBJECTS OF THE INVENTION

[0004] It is an object of the present invention to improve cognitive mode-setting in embodied agents or to at least provide the public or industry with a useful choice.

SUMMARY

[0004a] In a first aspect, the present disclosure provides a computer implemented system for animating a virtual object, digital entity or robot, the system including: a plurality of Modules, each Module being associated with at least one Connector, wherein the Connectors enable flow of information between Modules, and the Modules together provide a neurobehavioural model for animating the virtual object, digital entity or robot, wherein two or more of the Connectors are associated with: Modulatory Variables configured to modulate the flow of information between connected Modules; and Mask Variables configured to override Modulatory Variables.

[0004b] In a second aspect, the present disclosure provides a computer implemented method of for processing an Episode in an Embodied Agent using a Deictic Routine, including the steps of: defining a prepared sequence of fields corresponding to elements of the Episode; defining a prepared sequence of Deictic

Operations using a state machine, wherein: each state of the state machine is configured to trigger one or more Deictic Operations; and at least two states of the state machine are configured to complete fields of the Episode, wherein the set of Deictic Operations include: at least one Mode-Setting Operation; at least one Attentional Operation; and at least one Motor Operation.

BRIEF DESCRIPTION OF DRAWINGS

Figure 1: two Modules and associated Modulatory Variables;

Figure 2: interconnected modules associated with a set of Mask Variables;

Figure 3: a table of five cognitive modes of the modules of Figure 2;

Figure 4: application of Mode A of Figure 3;

Figure 5: application of Mode B of Figure 3;

Figure 6: a cortical-subcortical loop;

Figure 7: a cognitive architecture;

Figure 8: a user interface for setting Cognitive Modes;

Figure 9: three Modules and Connectors;

Figure 10: connectivity in emotion and action perception/execution;

Figure 11: a Working Memory System (WM System);

Figure 12: the architecture of a WM System;