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Cognitive and Emotional Fusion in Intelligent Robotic Architectures

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Introduction

We use the cognitive architecture to model multi-agent cooperation. is an event-oriented, conceptual control architecture that learns new rules on its own. We demonstrate how cooperative behaviour is produced by the evolving, general schema principles while accounting for the beliefs of the individual and the context of the environment [1]. The implemented agents are capable of identifying other agents as distinct actors, learning about those actors' specialised skills through observation, and taking those skills into account when making plans.

Description

As a result, they may simulate changes in their context-dependent scope of action with regard to their interactions with the environment, interactions of other agents with the environment, and interactions between agents, resulting in coordinated multi-agent plans. Plans are shared between the agents and serve as a foundation for early cooperation. In conclusion, our findings demonstrate how cooperative behaviour can be coordinated and planned as it emerges from sensory experience and anticipatory, event-based structures [2]. The majority of methods for creating intelligent, autonomous gaming agents are solid, but their behaviour is frequently predetermined, scripted, and scarcely adjustable. The speech and learning capacities of current gaming agents are still quite limited, as well as how convincingly self-motivated they can act.

Although new artificially intelligent agents have been created over the past few decades, their level of intelligence, their ability to interact with others, and their behavioural flexibility are still far from ideal [2]. The primary driving forces behind this effort, however, are cognitive science and artificial intelligence, rather than the dearth of fully intelligent game agents. In cognitive research, two significant trends have emerged over the past 20 years. First, humans and other adaptable animals accumulate sensory, motor, and body-mediated experiences in their environment, which serve as the foundation for cognition. Second, because brains are predictive encoding systems that have evolved to be able to anticipate the arrival of sensory information, they primarily learn from the disparities between predicted and real sensory data. A unified brain principle has been developed, which combines the free-energy-based inference, neuronal learning, active epistemic, and motivation-driven inference principles [3]. In addition, it has been noted that human brains have the potential to process event signals in a variety of ways.

According to the event segmentation theory, which is also strongly related to the common coding framework and the idea of event coding, humans can learn to divide the continuous sensory stream into discrete events. It was already suggested that these event codes are ideally suited to be included into rules based on event schemas, which are closely related to rules for production and rules produced by anticipatory behaviour control mechanisms. Event-based knowledge structures are also qualified to be incorporated into a linguistic, grammatical system, as is recognised from a cognitive robotics perspective. We put predictive coding and active inference theory into practise and incorporate it into highly modularized cognitive system architecture. Semantic, Sensory-Motor, Self Motivated, Learning and Intelligent are what we term the architecture.

The architecture is inspired by a recent proposal for an integrated sub-symbolic computational theory of cognition, which argues that production rule-like systems can be rooted in sensory experiences using predictive encodings and free energy-based inference [4]. The theory also highlights how active inference-based, goal-directed behaviour may produce a fully autonomous, self-motivated, goal-oriented behavioural system and how conceptual predictive structures may be learned by focusing generalisation and segmentation mechanisms on the detection of events and event transitions is essentially a predictive control architecture that interacts with its environment in a self-motivated, goal- and information-drive manner. It describes an ongoing cognitive control process that includes self-motivated behaviour, event-oriented learning of probabilistic event schema rules, hierarchical, goal-oriented, probabilistic reasoning, planning, and decision-making processes, as well as interactions [5]. There are several different tasks involved in the implementation.

Conclusion

The implemented cognitive game agents are capable of completing Super Mario levels independently or with a group of players, as well as accomplishing a range of interaction and deductive tasks. Our implementation focuses on teaching and applying schematic rules that allow artificial agents to produce behaviourally relevant intrinsic and extrinsic effects, like gathering, creating, or destroying objects in the virtual world, transporting other agents, or altering an agent's internal state, like the level of health. In these areas, it is possible to register signals of persistent surprise, which leads to the issuance of event schema learning and is strongly tied to the reference principle. As a result, sensorimotor systems with production rule-like. From signs of surprise, grounded event schemas generate prediction models that can be used in planning. This represents a step closer to fully develop cognitive systems that use learning strategies and construct hierarchical conceptual models of their surroundings in order to interact with them in a self-driven, maintenance-focused way.

References

1. Murphy, Robin R. "Biological and cognitive foundations of intelligent sensor fusion." *IEEE Trans Sys Cyber P A Sys and Hum* 26 (1996): 42-51.
2. Burghart, Catherina, Ralf Mikut, Rainer Stiefelhagen and Tamim Asfour, et al. "A cognitivearchitecture for a humanoid robot: A first approach." *IEEE RAS Inter Confer Huma Robo* IEEE (2005): pp. 357-362.
3. Chen, Min, Francisco Herrera and Kai Hwang. "Cognitive computing: Architecture, technologies and intelligent applications." *IEEE Access* 6 (2018): 19774-19783.
4. Kawamura, Kazahiko and Stephen Gordon. "From intelligent control to cognitive control." *W Autora Cong* IEEE (2006): pp 1-8.

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5. Lin, Kai, Yihui Li, Jinchuan Sun and Dongsheng Zhou. "Multi-sensor fusion for body sensor network in medical human–robot interaction scenario." *Inform Fusi* 57 (2020): 15-26.

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