

## **An expectation-based robotic model of affective experience**

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### **Abstract**

Previous work in the SEER-3 project has focussed on exploring ways that one might use the states of a robotic model of a simple agent to serve as depictive specifications of the content of particular experiential episodes of the modeled agent. In particular, an expectation-based theory of the non-conceptual content of visual experience has been assumed as a working hypothesis, in order to investigate the depictive specifications that can be constructed as a result (Chrisley and Parthemore 2007). An extension of this theory from non-affective to affective visual experience is proposed. As in the non-affective model, the content of the experience that the robot models at a given time is taken to be the superposition of the expected states of the sensory manifold were the robot to perform one of a specified set of actions at that time. However, in the proposed extension, the expected sensory manifold includes not just the usual (non-affective) anticipated visual sensory values, but also anticipated affective states. The dynamical notion of an affective state (with positive or negative polarity) deployed here is adapted from (Sloman, Chrisley and Scheutz 2005), roughly: positive affect states are sinks, negative affective states are sources, but the dynamic space is such that the variables that define the space are not directly in the agent's control, but require indirect control via intervention in, and interaction with, the environment. Integrating such states into the SEER-3 expectation-based architecture allows the depiction of an "affective field" to be superimposed on the non-affective visual field, thus specifying affective aspects of visual experience. This suggests a way of overcoming one of the common critiques of representationalism: that it can only handle the factual, dispassionate aspects of cognition, and must be silent concerning meaning and significance of the more engaged, affective variety.

### **References**

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- Sloman, A., Chrisley, R., and Scheutz, M. (2005). The Architectural Basis of Affective States and Processes. In J-M. Fellous and M. A. Arbib (Eds.), *Who Needs Emotions?* NY: Oxford University Press.