

CCN Report  
Modelling Emotion at a Neuronal Level

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# 1 Introduction

What report's about.

## **2 Emotional Memory**

(Hamann, 2001; LeDoux, 1993) - Background/History of Emotional Memory, the case for its existence.

### 3 Models of Emotion

#### 3.1 A Simple High-level Model of Cortical Areas associated with Emotions

(Moren & C., 2000)'s model

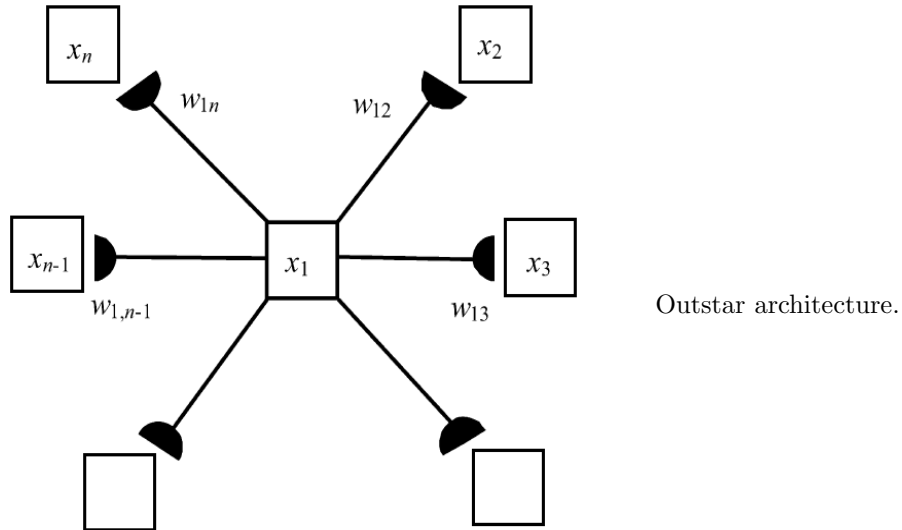


Figure 1: Outstar architecture.

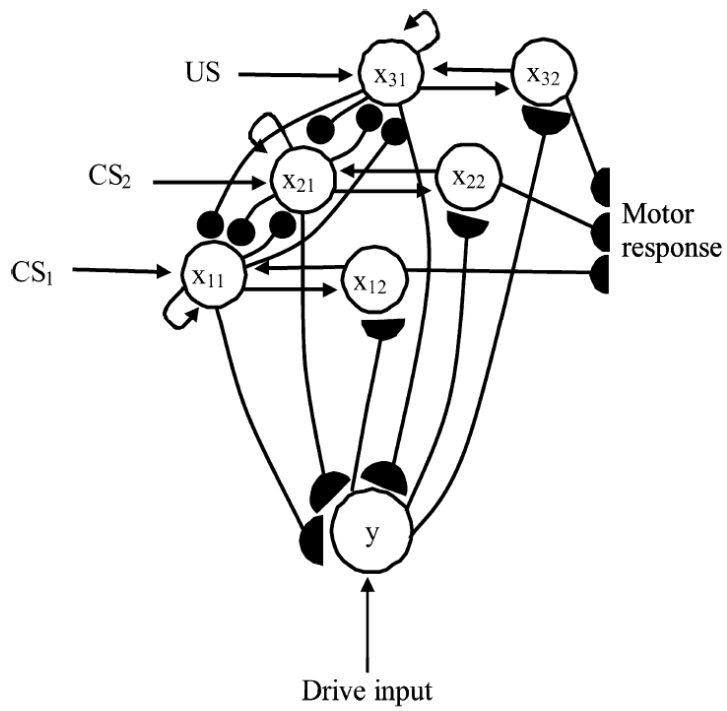
$$\begin{aligned} \frac{dx_1}{dt} &= -ax_1 + I_1, \\ \frac{dx_i}{dt} &= -ax_i + bx_1w_{1i} + I_i, i = 2, \dots, n, \\ \frac{dw_{1i}}{dt} &= x_1(-cw_{1i} + x_i), i = 2, \dots, n. \end{aligned}$$

#### 3.2 Low-level Models

##### 3.2.1 A Generic Neural Network Model

##### 3.2.2 Adapted to Emotion as a Motivator of Behaviour

Levine's model



Network used to simulate attentional effects in Pavlovian conditioning.

Figure 2: Pavlovian conditioning neural network architecture.

## 4 Discussion

## References

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