

CN 510 - Principles and Methods of Cognitive and Neural Modeling

Assignment # 4

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Shunting Networks

This assignment asks us to examine equations designed to model competitive networks of n neurons as they approach equilibrium. We are given the following equations:

$$dx_i dt = -Ax_i + BI_i - \sum_{j \neq i}^n I_j \quad (1)$$

$$dx_i dt = -Ax_i + (B - x_i)I_i - x_i \sum_{j \neq i}^n I_j \quad (2)$$

$$dx_i dt = -Ax_i + (B - x_i) \sum_{k \in D} D_{ki} I_k - (C + x_i) \sum_{l \in E} E_{li} I_l \quad (3)$$