

Simulation parameters

In this appendix the simulation parameters, consisting of the initial values, the values for the applied current and the weight values for the connectivity matrix, of the simulations used in the paper.

B.1 Validation

B.1.1 C-code validation

B.1.1.1 HH

$$dt = 0.01 \quad (\text{B.1})$$

$$N_{cells} = 288 \quad (\text{B.2})$$

$$V = 0 \quad (\text{B.3})$$

$$m = 0.5 \quad (\text{B.4})$$

$$h = 0.5 \quad (\text{B.5})$$

$$n = 0.5 \quad (\text{B.6})$$

$$I_{app} = \begin{cases} 50, & \text{if } (t \geq 100) \ \& \ (t < 200) \\ 0 & \text{otherwise} \end{cases} \quad (\text{B.7})$$

where

t is the time in ms

B.1.1.2 IO

$$dt = 0.01 \quad (\text{B.8})$$

$$N_{cells} = 480 \quad (\text{B.9})$$

$$V_{dend} = -60 \cdot -5(i\%10) \quad (\text{B.10})$$

$$r_d = 0.0112788 \quad (\text{B.11})$$

$$s_d = 0.0049291 \quad (\text{B.12})$$

$$q_d = 0.0337836 \quad (\text{B.13})$$

$$Ca2Plus = 3.7152 \quad (\text{B.14})$$

$$V_{soma} = -60 \quad (\text{B.15})$$

$$k_s = 0.7423159 \quad (\text{B.16})$$

$$l_s = 0.0321349 \quad (\text{B.17})$$

$$h_s = 0.3596066 \quad (\text{B.18})$$

$$n_s = 0.2369847 \quad (\text{B.19})$$

$$x_s = 0.1 \quad (\text{B.20})$$

$$V_{axon} = -60 \quad (\text{B.21})$$

$$h_a = 0.9 \quad (\text{B.22})$$

$$x_a = 0.2369847 \quad (\text{B.23})$$

$$I_{app} = \begin{cases} (i\%20), & \text{if } (t \geq 200) \ \& \ (t < 250) \\ 0 & \text{otherwise} \end{cases} \quad (\text{B.24})$$

$$w_{i,j} = 0.005 \quad (\text{B.25})$$

where

t is the time in ms

i, j are indexes of the cells