World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:9, No:06, 2015

Computation of Induction Currents in a Set of Dendrites

Authors : R. B. Mishra, Sudhakar Tripathi

Abstract : In this paper, the cable model of dendrites have been considered. The dendrites are cylindrical cables of various segments having variable length and reducing radius from start point at synapse and end points. For a particular event signal being received by a neuron in response only some dendrite are active at a particular instance. Initial current signals with different current flows in dendrite are assumed. Due to overlapping and coupling of active dendrite, they induce currents in the dendrite segments of each other at a particular instance. But how these currents are induced in the various segments of active dendrites due to coupling between these dendrites, It is not presented in the literature. Here the paper presents a model for induced currents in active dendrite segments due to mutual coupling at the starting instance of an activity in dendrite. The model is as discussed further.

Keywords : currents, dendrites, induction, simulation
Conference Title : ICNCN 2015 : International Conference on Neuroinformatics and Computational Neuroscience
Conference Location : London, United Kingdom
Conference Dates : June 28-29, 2015