

1100-92-273

Ronald C Anderson* (ronald.c.anderson@ieee.org), 3102 4th St, Apt 176, Lubbock, TX 79415. *A Neuronal Network Model of the Turtle Visual System*. Preliminary report.

Understanding interactions among neurons in the brain is a challenging biological and computational endeavor. Tools from mathematical modeling and computer simulation offer excellent prospects for unraveling relationships among these cells in biological networks. This preliminary report presents a synthesis of retina, lateral geniculate, and visual cortex region models into a biologically-inspired simulation of the freshwater turtle visual system. The underlying cellular components of each model are based on the Hodgkin-Huxley equations for neuron action potentials. Using this model, we seek an understanding of how synaptic connectivity within and among the regions may influence visual stimulus perception. A principal conjecture is the lateral geniculate can serve a retinal noise canceling function in the stages of visual processing. (Received February 09, 2014)