

The Center for Life Detection
presents

Speaker: Robert Sneddon
Postdoctoral Candidate

Topic: Neural Computation as an Extension of
Information Theory

Date: Thursday, March 7, 2002

Time: 3:00 p.m.

Location: JPL Bldg. 183-328

Abstract:

The concept of "Neural Computation" is based on the assumption that the brain performs computations. However, this notion of brain computation is generally stated in a vague manner or not at all. In the present work, this assumption is stated in a formal, quantitative manner. This yields an implicit definition of the neural code, i.e., "alphabet" in information theoretic terms and "symbol system" in computational terms. Specifically, any element of the information/computation alphabet/symbols must satisfy basic quantitative conditions. These conditions take the form of functional equations which relate the input of a neural circuit to its output. These functional equations are applied to basic neural circuitry -- a thalamic relay neuron. Quantitative predictions of the behavior of thalamic relay neurons were confirmed. This suggests that this theory is an accurate quantitative formulation of basic neural computation.

Questions about this seminar?

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