Abstract

Brain exercises control over other organs of the body. This complex control process, is completed in steps which involves commands issued to the muscles to execute movements, receipt of feedback from sensors reporting the actual state of the musculature & skeletal elements, and inputs from the senses to monitor progress towards the goal. This is made possible by neurons through communicating with each other. Neurons are cells specialised for transmitting and receiving information. Exchange of information between neurons is either in the form of chemical or electrical signals. Electrically information is conveyed in the form of neural electrical signal know as action potential. Hodgkin and Huxley conducted Voltage
Clamped experiments to study mechanism for generation and propagation of action potential in giant Axon of Squid and proposed a simple mathematical model known as HH model. Since information is conveyed through time and frequency of action potential, dynamic range becomes an important criterion for analysis. This paper analyse the dynamic range of the HH model through simulation, for its ability to convey information within and between neurons for effective control by brain over other organs.

**References**

- Claym. Armstrong, "Voltage-Dependent Ion Channels and Their Gating"; Physiological Reviews Vol. 72, No. 4 (Suppl. ), October 1992 U. S. A.
- Alain Destexhe and John R. Huguenard "Modeling voltage-dependent channels"; 2007 UNIC, CNRS, 91198 Gif-sur-Yvette, France.
Dynamic range Analysis of HH Model for Excitable Neurons

Index Terms

Computer Science

Information Sciences

Keywords

Neuron Information Action Potential Voltage Clamp Dynamic Range.