

Spiking neural P systems

Prithwineel Paul

Institute of Engineering & Management, India

Abstract

Spiking neural networks (SNNs) are an interesting variant of neural networks. It belongs to the category of third-generation neural networks. A new variant of SNNs, i.e., spiking neural P systems (SNPS) was introduced in 2006. The structure and communication mechanism of this model is based on automata and formal language theory. Although it seems difficult for these kinds of formal language theory-based models to have real-life applications, in recent years SNPS have been used in different areas of real-life applications such as pattern recognition, fault diagnosis, computational biology etc. Furthermore, machine learning features also have been incorporated into these models. However, it remains to be investigated whether these models can exceed the performance of traditional spiking neural networks.

Biography

Dr. Prithwineel Paul obtained his B.Sc and M. Sc in Mathematics from the University of Calcutta in 2005 and 2008. He obtained his Ph.D. in Mathematics from Indian Institute of Technology, Madras in the year 2017. Subsequently, he worked as postdoctoral scientist in Indian Statistical Institute, Kolkata, India and Southwest Jiaotong University, Chengdu, China. He is currently working as associate professor in the department of computer science

and engineering in IEM Kolkata, West Bengal, India. His research interests include theoretical computer science, unconventional computing, machine learning, DNA and membrane computing.