

## Introduction to Spiking Neural P System

### **Abstract:**

Spiking neural P systems (SN P systems) are computational devices into the area of membrane computing. SN P systems were first introduced in 2006 by M. Ionescu et al. and are widely studied to the present day use neurons. SN P systems are usually represented as oriented graphs where the nodes represent the neurons and edges represent synapses. We dive into three variants of SN P systems - Axon P systems, SN P systems with communication on request (SNQ P systems) and classic SN P systems - each with its own particularities in rule syntax, rule semantics and output of the result. We are also going to explore the path to Turing equivalent for this computational devices, along with some further restrictions for the sequentiality of such systems.