Abstract

Artificial Immune System (AIS) is a convoluted and complex arrangement derived from biological immune system (BIS). It possesses the abilities of self-adapting, self-learning and self-configuration. It has the basic function to distinguish self and non-self. Negative Selection Algorithm (NSA) over the years has shown to be competent for anomaly detection problems. In the past decade internet has popularized and proliferated into our lives immensely. Internet attack cases are increasing with different and new attack methods. This paper presents a Cooperative Negative Selection Algorithm (CNSA) for Anomaly Detection by integrating a novel detector selection strategy and voting between them to effectively identify anomaly. New introduced mechanisms in CNSA enable it to cover more self region correctly and efficiently. It also reduces computational complexities. Experimental results show high anomaly detection rate with less false positive alarm and low overhead in most of the cases.
A Cooperative Negative Selection Algorithm for Anomaly Detection


Index Terms

Computer Science

Artificial Intelligence
Keywords
Artificial Immune System  Biological Immune System  Negative Selection Algorithm

Anomaly