

Abstract: Previous research in supervised and unsupervised anomaly detection normally employ a static model of normal behaviour (normal-model) throughout the lifetime of the system. However, there are real world applications such as swarm robotics and wireless sensor networks where what is perceived as normal behaviour changes accordingly to the changes in the environment. To cater for such systems, dynamically updating the normal-model is required. In this paper, we examine the requirements from a range of distributed autonomous systems and then propose a novel unsupervised anomaly detection architecture capable of online adaptation inspired by the vertebrate immune system.