

## Deep learning and big data technologies for IoT security

### ABSTRACT

Technology has become inevitable in human life, especially the growth of Internet of Things (IoT), which enables communication and interaction with various devices. However, IoT has been proven to be vulnerable to security breaches. Therefore, it is necessary to develop fool proof solutions by creating new technologies or combining existing technologies to address the security issues. Deep learning, a branch of machine learning has shown promising results in previous studies for detection of security breaches. Additionally, IoT devices generate large volumes, variety, and veracity of data. Thus, when big data technologies are incorporated, higher performance and better data handling can be achieved. Hence, we have conducted a comprehensive survey on state-of-the-art deep learning, IoT security, and big data technologies. Further, a comparative analysis and the relationship among deep learning, IoT security, and big data technologies have also been discussed. Further, we have derived a thematic taxonomy from the comparative analysis of technical studies of the three aforementioned domains. Finally, we have identified and discussed the challenges in incorporating deep learning for IoT security using big data technologies and have provided directions to future researchers on the IoT security aspects.