Recent Innovations in Artificial Intelligence and Smart Applications

An ontology towards predicting terrorism events

Zubeida Dawood, Council for Scientific and Industrial Research, South Africa*

https://orcid.org/0000-0002-1081-9322

Carien Van 't Wout, Capgemini, The Netherlands

Abstract

Although there is an increasing amount of information for counter-terrorism operations freely available online, it is a complex process to extract relevant information and to detect useful patterns in the data in order for intelligence functionaries to identify threats and to predict possible terror attacks. Automation is required for intelligent decision-making. To assist with this, in this paper, the researchers propose an ontology-based data access system for counter-terrorism. The system will enable intelligence analysts to perform specialised semantic searches about terrorist events or groups for analysis using an ontology. In this paper, the researchers present the ontology that was created by following an existing methodology for ontology development, and an ontology-based data access system together with all the components used in development (i.e., databases, web-scraper tools, ontology-based data access software, and data sources). Lastly, the ontology is demonstrated by means of use cases with example queries for generating actionable intelligence for operations.