Automating Identification of Terrorist Recruitment on Social Media Platforms

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The rise of terrorist organizations in the Middle East, specifically the Islamic State (ISIS), has resulted in a profound increase of lone-wolf attacks and foreign fighter recruiting. Of the 40,000 people recruited, 80% began this process through social media platforms. This demonstrates the need for a fast and accurate solution to prevent radicalization by identifying and removing terrorist social media accounts. Current methods to ban these accounts include crowdsourcing, where profiles are deleted after being reported by enough users. However, ISIS has responded to these methods by creating automated, computer run accounts that regenerate immediately after deletion. Therefore, a computer program must be developed in order to mark profiles at the rate of creation through user data and image and caption content. The proposed algorithm accomplishes this by scoring profiles based on user statistics obtained through web scraping, text analysis through caption characteristics, and image recognition through deep learning. From 200 testing images, the image recognition convolutional neural network successfully found and marked ISIS flags with an accuracy of 93.50%. The overall algorithm, which combined all three parts, was tested against 398 Instagram users and was found to have an accuracy of 90.45%. Implementation of this algorithm into social media platforms could greatly decrease foreign recruitment and prevent numerous lone-wolf attacks.

Awards Won:

Fondazione Bruno Kessler: Award to participate in summer school "Web Valley" in Trento, Italy

Qatar Foundation, Research &amp

Development: Award of $1,000

National Security Agency Research Directorate : Second Place Award "Science of Security" of $1,000