D32 Detecting Linguistic Markers of Religious Extremism in Religious Mosque Sermons: A Case Study of Pakistan

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Learning Overview: After attending this presentation, attendees will better understand the role of religious mosque sermons in the radicalization of youth in Pakistan and forensic computational linguistic analysis for detecting linguistic markers of religious extremism in spoken language.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing multilingual English-Arabic-Urdu analysis of spoken language for detecting linguistic markers of extremism for proactive investigations.

In Muslim countries, there are religious sermons every Friday in the local mosques. The young people that go to mosques are vulnerable to being easily manipulated. It is unfortunate that many local religious clerics can promote extremist views from the pulpit, either on purpose or because they have inadequate knowledge of the religion. Religious extremism has been on the rise as shown by the significant increase in stereotypes related to Islam. Religious extremism has been a huge problem, especially in the context of South Asia. Pakistan is among the top five countries affected by terrorism/violent extremism.[1] A fair share of the growing challenge of youth radicalization in Pakistan is attributed to religious mosque sermons.[2,3] The advantages of using these religious gatherings include communication channels that are informal, large groups, and they are cheap and decentralized.[2,3] Extremist religious communication facilitates brainwashing, radicalization, and recruitment to embrace jihad in other countries.

Despite the initiatives by the government to ban and regulate social media platforms as well as mosque sermons, under the Citizens Protection (Against Online Harm) Rules, 2020, a set of regulations on social media content, the radicalization of youth has been a constant threat in Pakistan. If linguistic markers of religious extremism in real-time religious meetings are detected early, they can be very helpful in preventing an act of terrorism and identifying culprits. This approach calls for the use of specialized software that can play an important part in identifying radicalization communication by detecting warning signals/threats associated with such communication. Machine learning techniques can be used effectively to detect "weak signals" and "digital traces" of "linguistic markers" that characterize the warning signals/threats associated with terrorism or religious extremism. The warning behaviors that have the highest potential to be discovered in text and speech content are "leakage" *(*the communication of intent to do harm to a third party), "fixation" *(*increasing perseveration on the object of fixation) and "identification" (indicates a desire to identify oneself with previous attackers or a terrorist organization).[4-8] Once these warning signals are identified with the help of linguistic markers associated with them, various tools and techniques can be used for speaker identification, speaker profiling, and the prevention of future crimes.[9] Further, mosques where sermons are not radicalizing can also be detected through the recurrent absence of these linguistic radicalization markers, thereby protecting religious freedom.

In order to study the language, Friday mosque sermons were recorded from the local mosques of three different cities for a period of three months for a total of 36 sermons. The speech data was translated from Urdu to English by a bilingual Urdu-English linguist and analyzed using Automated Linguistic & Assessment System (ALIAS).[10] ALIAS was used to calculate quantitative rates for words related to extremism. This helps to determine which key words or phrases show up repeatedly, which is helpful in objectively defining the basic terminology of extremism. Syntactical analysis is also conducted to determine if there is a correlation between the content (extremist thoughts/ideas/messages) and syntax (what is the syntax in extremist vs. non-extremist phrases/sentences). This presentation showcases the results of quantitatively analyzing the language of Friday mosque sermons to identify trending words related to both moderate and extreme versions of Islam and to apply syntactic analysis for differentiating moderate and extreme sermons.

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