

## **Detecting child grooming behaviour patterns on social media (2017)**

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### **Executive Summary**

Online paedophile activity in social media has become a major concern in society, as Internet access is easily available to a broader younger population. One common form of online child exploitation is child grooming, where adults and minors exchange sexual text and media via social media platforms. Such behaviour involves a number of stages performed by a predator (adult) with the final goal of approaching a victim (minor) in person. This project presented a study of such online grooming stages from a machine learning perspective. We characterised such stages by a series of features covering sentiment polarity, content, and psycho-linguistic and discourse patterns..

More than 10 thousand lines from real online grooming conversations were used to train and test an Artificial Intelligence software to automatically identify each of the stages of predator behaviour from chat conversations. To do so, we made use of Natural Language Processing and Machine Learning techniques. Natural Language Processing techniques were used to extract multiple linguistic features from the conversations, such as sentiment, readability, complexity, etc. Machine Learning techniques were then used to build classifiers based on these linguistic features. Our tests showed good results in automatically classifying chatlines into various grooming stages, obtaining an average classification accuracy of 84.7% for all stages.

These results demonstrate the feasibility of using psycho-linguistic and discourse features for the automatic detection of online grooming stages. This opens new possibilities for addressing predator grooming behaviour online, where policing organisations can act in a preventive way by addressing grooming at early stages or in a reactive way by avoiding/intervening in the approach stage. We believe that the work in this project has the potential to also open new possibilities into understanding the victim entrapment cycle.