# Chapter 15
# Entropy Based Identification of Fake Profiles in Social Network:
## An Application of Cyberbullying

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## ABSTRACT

*Cyberbullying is a felonious act carried out against the victim by sending harassing/ embarrassing/ abusing information online. Normally offenders create fake profiles in order to hide their identity for unscrupulous activities. Assuming a fake identity is very harmful as the real picture of the offender is not visible, and also it can become difficult to entrap them. Sometimes, some trustworthy friends can also take advantage of the fake identity in order to harm the victim. Culprits can reveal victim's personal information like financial details, personal history, family, etc., and along with it, he can harass, threaten or blackmail the victim using fake profiles and permeates that information on the social network. So, it is necessary to resolve this issue. In this article, the authors used the concept of entropy and cross entropy to identify fake profiles as entropy works on the degree of uncertainty. Also, this article shows the comparison of proposed method with the existing classifiers.*

## INTRODUCTION

Cyberbullying is the online fight against the victim in order to show the power by unfair means. Offender sends unacceptable material in the form of text, images, videos and audios as well. They normally take the help of online social networks for doing such types of illegal activities as the information diffuses very fast and reach to large number of audience on social network which may harm the fame of victim. This may put the victim into depression or he may commit suicide. Normally the offender creates fake identity for executing such types of unlawful activities in order to save himself by hiding the identity. The mischievous behaviour on social media is normally created by the fake profiles with different alias in order to hide the identity. So, it needs to be identified and controlled so that no one could harm by this in the context of reputation, fame and also life.

The study showed that the chances of cyberbullying were approximately seven times higher between current or former friends and dating partners than between young people who had neither been friends nor dated each other. "A common concern regarding cyberbullying is that strangers can attack someone, but here we see evidence that there are significant risks associated with close connections," said Diane Felmlee, Professor at Pennsylvania State University, in the US. "Competition for status and esteem can be one reason behind peer cyberbullying," Felmlee added. In addition, lesbian, gay, bisexual, transgender, and queer (LGBTQ) youth were four times as likely as their heterosexual peers to be victimised on a cyber platform. Friends, or former friends, are particularly likely to find themselves in situations in which they are struggling for the same school, club, ranks and or sport positions and social connections (Cyberbullying more common among friends, dating partners, 2016).

According to the Centers for Disease Control and Prevention (CDC), suicide is the third leading cause of death which estimates up to approximately 4,400 deaths every year out of which at least 100 suicide attempts are committed among young people. More than 14 percent of high school students have considered suicide and nearly 7 percent have attempted it (Bullying Statistics. Anti-bullying Help, Facts and more, 2016).

Nobullying.com is an online forum aimed at educating, advising, counselling and all importantly, helping to stop bullying, in particular, cyber bullying. You can read so many real stories regarding cyberbullying on this site. We would like to discuss few of them which will clear the purpose of this paper. Ryan Patrick Halligan was a 13-year-old student in Vermont, USA. Ryan Halligan was bullied by his classmates in school as well as cyber bullied online and committed suicide at the innocent age of 13. There were no criminal charges filed following Ryan's death because there was no criminal law at that time (Nobullying, 2015). Megan, Missouri woman struggled with attention deficit disorder and depression because of her over weight. A person

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