

**Topic for literature review:** “Implementing Machine Learning tools and/or techniques in the reduction of cyberbullying”

**Outline of literature review:**

1. Introduction

The foundation of implementing machine learning tools and/or techniques in the reduction of cyberbullying is data. Machine learning algorithms need data to learn how to identify cyberbullying content, identify factors that are associated with cyberbullying, and develop interventions that can help to prevent cyberbullying.

The objective of implementing machine learning tools and/or techniques in the reduction of cyberbullying is to detect, prevent, educate, and empower students against cyberbullying.

2. Approach:

a. **Detecting cyberbullying:** Machine learning algorithms can recognise text messages, social media postings, and photos. This can detect cyberbullying early and stop it. A machine learning system might recognise text messages containing cyberbullying keywords like "hate," "threat," and "harassment."

b. **Cyberbullying prevention:** Machine learning algorithms can detect cyberbullying risk factors including social isolation, poor self-esteem, and aggression. This data may assist avoid cyberbullying by developing interventions. A machine learning system might identify pupils at risk of cyberbullying based on their social media use or contacts with other students.

c. **Student cyberbullying education:** Machine learning algorithms can produce personalised cyberbullying education materials. These resources may be customised to assist children understand cyberbullying and how to defend themselves. For instance, a machine learning system may create instructive movies or games for a certain student group.

d. **Enabling students to act:** Machine learning algorithms may be utilised to construct cyberbullying reporting systems that make reporting instances straightforward. This helps resolve cyberbullying instances promptly and efficiently. For instance, a machine learning system may recognise cyberbullying material and notify school administrators or parents.

### 3. Challenge in implementing Machine learning tool:

- a. **Data collection:** One of the biggest challenges in implementing machine learning tools for cyberbullying detection is collecting enough data to train the algorithms. This data can be difficult to collect, as it often requires the consent of the users who are being monitored.
- b. **Labeling:** Once the data has been collected, it needs to be labeled as either cyberbullying or non-cyberbullying. This can be a time-consuming and labor-intensive process.
- c. **Bias:** Machine learning algorithms can be biased, which can lead to inaccurate detection of cyberbullying. This bias can be caused by the data that is used to train the algorithms, as well as the way that the algorithms are designed.
- d. **Privacy:** The use of machine learning tools to detect cyberbullying raises privacy concerns, as it involves the collection and analysis of personal data. This data could be used to track users' online activities and identify them as potential victims of cyberbullying.

### 4. Identification of Additional uses of machine learning include:

- a. **Find cyberbullying trends:** Machine learning algorithms can find cyberbullying patterns. This data may help create more tailored cyberbullying solutions.
- b. **Predict cyberbullying:** Machine learning algorithms can identify vulnerable pupils. This information may help these kids get further help.
- c. **Analyse cyberbullying data:** Machine learning algorithms can analyse big datasets. This information may help understand cyberbullying and improve treatments.

### 5. Key findings and discussions

- a. Monitoring
- b. Improvement in the tools
- c. Restrictions

### 6. Conclusion