The International Conference on Digital Health and Telemedicine 2023

"Enhancing Health Equity and Improving Patient Outcomes: Empowerment Strategies for Patients to Take Control of Their Care and Well-being through Digital Healthcare "

19th – 20th October 2023, Virtual Conference

| Abstract Details | |
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| Abstract Title: | Unveiling Suicide Ideation Detection in Social Media: Leveraging Transformer Models for Enhanced Insights |
| Abstract No: | DIGIHT 2023 A 112 |

## Abstract

Mental health issues such as depression, frustration, and hopelessness can directly or indirectly influence the emergence of suicidal thoughts. Early identification of these thoughts is crucial for timely diagnosis and intervention. Due to the scarce availability of EHR data, suicide notes, or other verified sources, the automated detection of suicidal ideation in social media has gained significant attention in recent years using supervised machine learning and deep learning techniques. These supervised models learn patterns from labeled data, thus ensuring better performance. However, labeling a large amount of data at a high-quality level is time-consuming and challenging. Recently, Transformer-based NLP models have demonstrated state-of-the-art results in several general domain tasks and overcome the issues with labeling tasks. This study contributes to the field by evaluating different transformer models for suicide detection in social media text, an area that has received limited attention due to resource constraints. We employed various transformer models, including BERT (Bidirectional Encoder Representations from Transformers), Albert (A light BERT), Clinical-BERT, and an ensemble approach, and compared them to traditional deep learning architectures like Bi-LSTM and supervised machine learning algorithms. Reddit posts were used as the dataset for this evaluation. The results demonstrate that the transformer models outperformed conventional deep learning architectures and supervised machine learning algorithms, significantly enhancing the detection of suicidal ideation from social media posts. This study highlights the potential of transformer models in advancing the automated detection of suicidal ideation in social media and offers insights into enhancing mental health support in online platforms.

Keywords: suicidal ideation, transformer model, deep learning, natural language processing, social media

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