A New Approach to Protecting Data: The Intricacies of AI and Differential Privacy

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The growing need for socially responsible AI and machine learning algorithms has brought about discussion for the best techniques to mitigate these concerns. This issue can be explained from increasing privacy worries within the current data driven world. AI and machine learning algorithms are at the heart of this problem as they are harder to adapt to the long list of regulations that data and privacy are facing. A common proposition is differential privacy, our findings support this solution and delve into the specific frameworks that have the best long-term approaches.

Keywords—component, formatting, style, styling, insert (key words)

# Introduction (*Heading 1*)

Privacy and its constantly changing meaning affect all of us. Developments in technology and AI have led to an extensive problem without an easy fix. Over the past decade the world has made strides in the privacy sector with heavy legislature and regulations attempting to tackle the problem head on. Specifically, AI and machine learning algorithms have to be addressed in order to prevent breaches of personal information and sustain a world where the customer does not become the product.

Currently there is research surrounding differential privacy and different approaches within this concept. Most of the solutions involved are based on an algorithm which after the personal data has been collected it stores or releases it in a manner that protects people's privacy. Database manipulation is the go-to with modern methods such as randomization algorithms, machine learning techniques to protect data, or other anonymization methods. There are lots of ways to achieve these, hence why the current research has many discrepancies.

These listed approaches are not perfect however and each of them come with their own drawbacks. The major issues attached to the current solutions would be too much computational need, unperfected algorithms, or over specific algorithms that don’t cover all of the needed bases. Even with these issues, a huge amount of progress has been made and has shown where the real challenges lie.

The rest of the paper is structured as follows: In Section 1, we discuss the best current methods, in Section 2 we discuss our takeaways and how these influenced our approach, in Section 3 we will discuss the implementation of our frameworks, in Section 4 we will discuss the results and what they mean.

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