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Development of Machine Learning-Based Intelligent COVID-19 Contact Tracing Tools

With the easing of COVID-19 regulations in Alberta, people are gradually back to their normal life. However, we cannot be careless, since there is a possibility for a new variant. The technology could help to prevent the further spread of the pandemic. In addition, in terms of contact tracing, most people's concerns are about privacy and security, where people's data tend to be tracked and used without their consent.

Proposed COVID-19 contact tracing method uses the clustering method, one type of machine learning algorithms that is used to segregate the data into different groups based on their characteristics. In this research, two different types of clustering algorithms, Density-based Clustering (clusters are formed based on the density of the region) and Hierarchical-based Clustering (clusters are formed using a tree-type structure) are used and a comparative study has been conducted between these two algorithms in terms of effectivity and privacy. Experimental results demonstrate that density based

clustering is more reliable and accurate but hierarchical based clustering offers more privacy.

This algorithm would not only be useful to trace potential infections of COVID-19, but it would also, build a process to suppress the spread. In the future, we would like to develop a hybrid model to enhance the efficacy of the tools further in terms of both accuracy and security by exploring more sophisticated Machine Learning (ML) techniques, and it could be useful for other infectious diseases as well.

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