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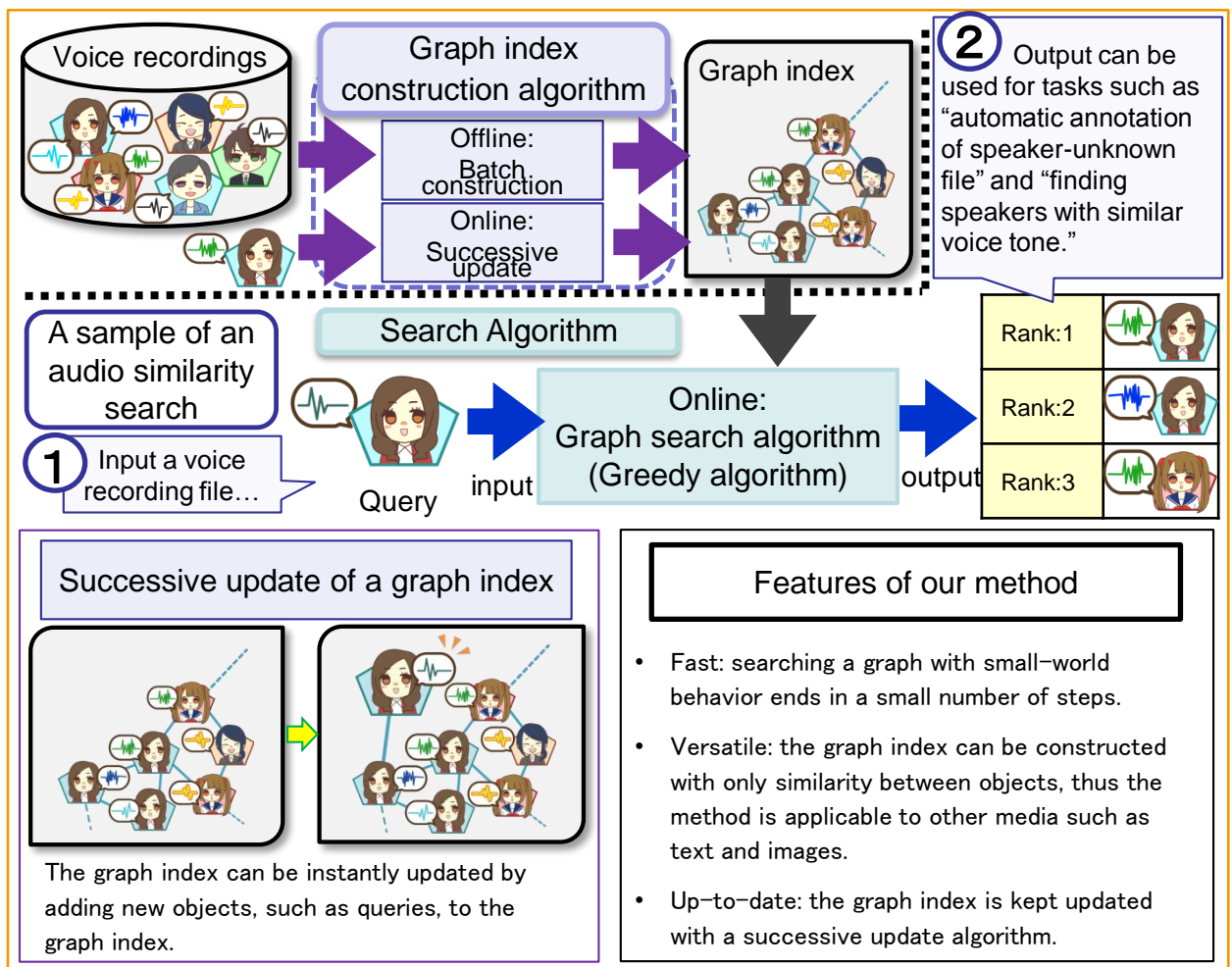
## Finding similar voice recordings in big data

- Graph index-based audio similarity search -



### Abstract

We propose an audio similarity search method for **finding similar voice recordings in a large-scale database** from an input voice recording. The search method is based on a graph index, where each vertex corresponds to a voice recording and two vertices are connected by an edge when they satisfy a certain similarity condition. The graph index shows **small-world behavior**, that is, vertices can be reached from every other vertex by a small number of steps. Hence, searching the graph results in **quick termination of the search process**. Furthermore, since the graph index is constructed based on similarity between two objects, the search method is **versatile** and can be applied to not only audio, but also text and images. The **graph index can be updated successively**, adding new objects, such as queries, to the existing graph index. This successive update algorithm allows users to always search with the most current data.



### References

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- [2] K. Aoyama, S. Watanabe, H. Sawada, Y. Minami, N. Ueda, K. Saito, “Fast similarity search on a large speech data set with neighborhood graph indexing,” in *Proc. Int. Conf. Acoustics, Speech, Signal Process. IEEE*, March 2010, pp. 5358-5361.

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