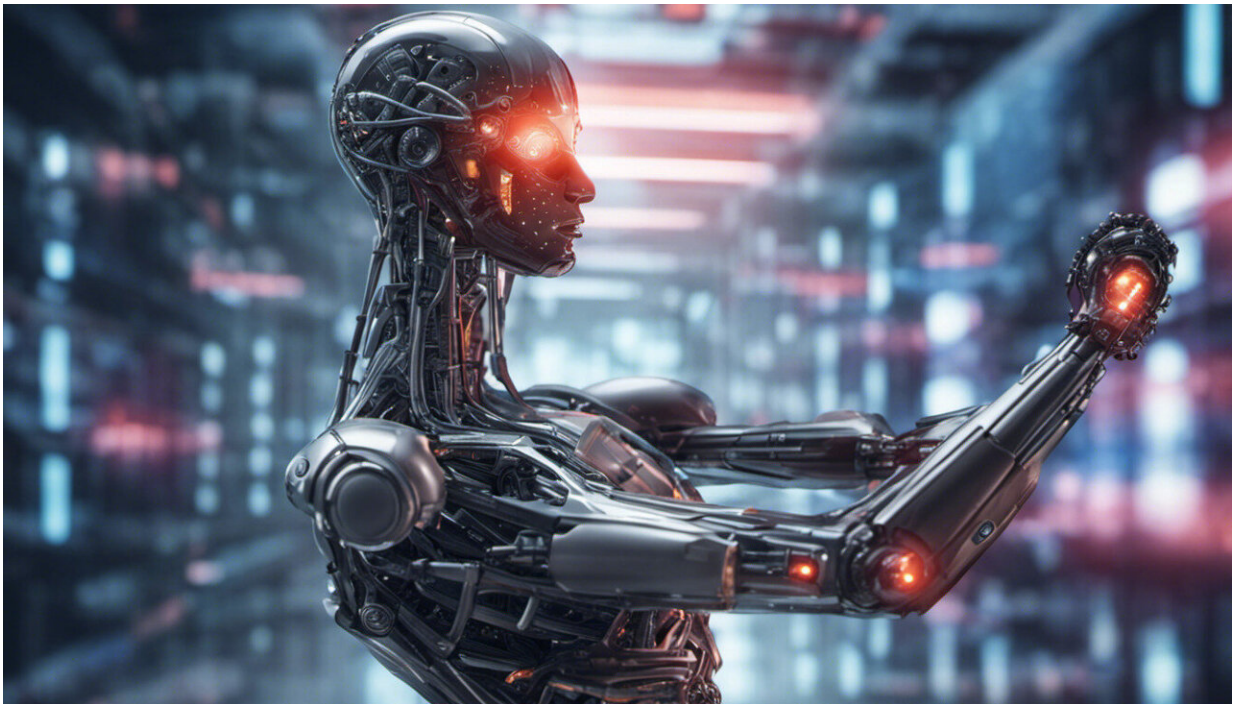


AI technology for safer integrated analysis of data held by multiple organizations

June 23 2023



Credit: AI-generated image ([disclaimer](#))

Collecting sufficient data without distribution bias is essential to improve the performance of artificial intelligence (AI) analysis. AI technology is required to collect data dispersed across multiple institutions and safely perform integrated analysis while keeping certain information confidential, such as personal information and know-how.

Specifically, the use of data is believed to be restricted if personal information is involved and identifiable in the shared data.

A research team has developed a secure AI technology called "non-readily identifiable data collaboration analysis" that shares only abstract data that cannot be readily identified with the original data and allows the integrated analysis of [personal information](#) held by multiple parties, such as companies, [local governments](#), hospitals, and other organizations. Their paper is published in the journal *Information Fusion*.

The team has introduced a framework for the mathematical definitions of readily identifiable data. Thereafter, the team has proposed an integrated analysis algorithm that shares only the abstracted data that cannot be readily identified with the original data. This will enable more data to be used in analysis involving personal information, which, in turn, is expected to significantly improve the accuracy of AI analysis.

Specific applications include disease prediction via estimation of risk factors through the integrated analysis of test and medication data from multiple medical institutions and the enhancement of educational effectiveness through the integrated analysis of student data from multiple [educational institutions](#). This technology is anticipated to facilitate the development of a new platform that gathers high-quality personal information from various institutions while protecting the original data and employing AI for comprehensive data analysis.

More information: Akira Imakura et al, Non-readily identifiable data collaboration analysis for multiple datasets including personal information, *Information Fusion* (2023). [DOI: 10.1016/j.inffus.2023.101826](#)

Provided by University of Tsukuba

Citation: AI technology for safer integrated analysis of data held by multiple organizations (2023, June 23) retrieved 14 May 2024 from <https://techxplore.com/news/2023-06-ai-technology-safer-analysis-held.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.