Development of child abuse response and decision making support system employing AI

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Screen from the AiCAN application for tablet computers. Credit: Advanced Industrial Science and Technology

Child abuse has continued to rise in recent years, with the number of child abuse reports reaching 133,778 cases in FY2017, or some 12 times the FY1999 level. However, there is an extreme shortage of staff, especially child welfare officers, working at child guidance centers, and

difficulty in responding to increasing duties is pointed out.

Child guidance centers manage information mainly using paper due to security considerations, and information is shared among staff members and related organizations by telephone, e-mail, fax, etc. However, improvement of information management and sharing methods is an urgent issue. In addition, much information is unknown when abuse is reported, which makes it very difficult even for experienced staff members to make prompt decisions that take into account factors such as the severity of abuse, likelihood of recurrence, and the need for temporary protection.

Artificial intelligence (AI) can predict the future with high accuracy in typical cases that have occurred before, by checking against huge numbers of past cases. Therefore, it is anticipated that use of AI to obtain future suggestions from past cases will provide effective judgment materials for abuse response and decision making. Particularly in light of the current situation where around 40% of child welfare officers at child guidance centers have less than three years work experience, the use of past knowledge in decision making is also considered highly significant from the viewpoint of human resource development.

Summary

The researcher has developed a system that uses AI to support child abuse response and decision making of child guidance centers. Field testing using this system in Mie Prefecture has started in July 2019.

The developed support system consists of the "AiCAN (Assistance of intelligence for Child Abuse and Neglect)" tablet application, a cloud database ensuring secure data storage and sharing, and probabilistic modeling and other data analysis AI developed by AIST. Six years

content of abuse information that was handled using paper at child guidance centers was digitized, and real-time analysis using AI such as machine learning and probabilistic modeling can be performed with the developed system. When a new case is reported, the newly entered child data for that case is used to immediately present estimates such as the severity of [abuse](#) and likelihood of recurrence based on the analysis of existing data. This enables use of past knowledge to support prompt decision making by the child guidance center. Furthermore, the application enables users to record information even at visitation sites and other locations, and realizes prompter and more efficient data sharing and accumulation within the [child](#) guidance center and with related organizations.

This system was achieved by using the results of the "Future AI and Robot Technology Development Project/ Next Generation Artificial Intelligence Technology Area/ Research and Development of Technologies for Artificial Intelligence Which Can Mutually Understand with Humans" projects commissioned by the New Energy and Industrial Technology Development Organization (NEDO).

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