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**YOKOHAMA develops system that uses AI to predict values of key tyre characteristics**

YOKOHAMA announced today that it has developed a proprietary system that utilizes AI to predict the values of key tyre characteristics. The Company began using the system this month. YOKOHAMA expects the system’s ability to conduct a large number of virtual experiments will enable it to accelerate new tyre development, reduce development costs, and develop better performing tyres. The system also will make it easier for less-experienced engineers to develop new tyre designs.

The system was developed under YOKOHAMA´s new AI utilization concept, HAICoLab\*, which was launched in October 2020. The system uses AI to predict values for key tyre characteristics based on data input by tyre designers, including specifications-related data for such key tyre design parameters as structure and shape, the physical properties of compounds and other material-related data, and evaluation conditions. The new system reduces the deterioration of AI prediction accuracy that tends to occur during tyre design. As the number and types of possible design parameters differ depending on the tyre’s internal structure, it is necessary to create separate databases used for AI learning according to the tyre’s structural features. The use of such narrowly composed learning data can sometimes reduce AI prediction accuracy. However, the system’s prediction accuracy is improved by transferring AI prediction ability learned in other related areas (transfer learning).

\* An acronym for Humans and AI ColLaborate for digital innovation. It also has the meaning of a laboratory for joint research by humans and AI.

YOKOHAMA is now applying a system it developed in December 2020 that utilizes AI to predict the physical properties of rubber compounds used in its tyres. Using this earlier developed system together with the recently developed system for predicting the values of specific tyre characteristics will enhance YOKOHAMA´s development of a wide variety of new tyres.

HAICoLab is a new concept aimed at fostering digital innovations by facilitating collaborative efforts that merge human inspiration and creativity with the enormous data processing capability of AI. YOKOHAMA aims to acquire new knowledge by creating and collecting data based on hypothetical conditions set by humans and then applying AI to predict, analyze and then search for the most optimal result. YOKOHAMA has been advancing technological developments by using AI in its material and tire design and development processes. For example, in 2017 YOKOHAMA unveiled a new rubber material development technology that applies materials informatics and a tyre design technology that applies informatics technology. Under its HAICoLab concept, YOKOHAMA is using AI to develop innovative products and services as well as processes. Through this effort, YOKOHAMA will contribute to the realization of “Society 5.0”, a future society that will enhance people’s experiences and take advantage of innovative technologies such as AI and IoT, as advocated by the Japanese government’s Cabinet Office.

**HAICoLab conceptual diagram **