

Improve individual skills supported by BigData

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Credit: University of Tsukuba

Running is one of the most popular sports. However, not many runners have received formal training on running. Associate Professor Shinichi YAMAGIWA of the University of Tsukuba and his colleagues have

developed a system for improving running skills based on big data analysis.

Dr. YAMAGIWA, Associate Professor Yoshinobu KAWAHARA of Osaka University and Mizuno Corporation have jointly developed a technology that instructs the ideal running motions based on "[big data](#) of motions" collected by monitoring motions during running via sensors and videos.

The research team analyzed the [running](#) motion data of about 2,000 runners possessed by Mizuno by using the [artificial intelligence](#) technique and expressed them in numerical skill values. They discovered that the movements of the elbows, knees and ankles differed between high-rank marathon runners and beginners. Based on the findings, a technology called "skill grouping" was developed for assisting runners improve their skills by displaying the effects of the movements in easy-to-understand scores.

Skill grouping can also be used for time-sequential health care and motor capacity control such as during conditioning and rehabilitation. As it converts movements into objective values, it will enable information devices that have been difficult to generalize to be developed and is thus expected to lead to development of [health care](#) tools in the era of the Internet of Things such as mobile-phone application. Another possible application of skill grouping is to assist transmission of traditional performance arts and design skills. Skill grouping is expected to realize a new system of artificial intelligence supporting "transmission of traditional skills", which is one of globally urgent issues.

More information: Shinichi Yamagiwa, Yoshinobu Kawahara, Noriyuki Tabuchi, Yoshinobu Watanabe, Takeshi Naruo, Skill Grouping Method: Mining and Clustering Skill Differences from Body Movement BigData, *Proceeding of International conference on BigData* 2015, IEEE

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