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Hong Kong to integrate sports technology with biomechanics to enhance swimmers' performance

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To enhance students' practical application capabilities in sports science



A team led by Dr Billy SO, core member of the Research Institute for Sports Science and Technology (RISports) and Assistant Professor of the Department of Rehabilitation Sciences at The Hong Kong Polytechnic University (PolyU) is committed to enhancing the performance of swimmers by integrating sports technology with biomechanics.

To catalyse joint research in the fields of sports science and technology, PolyU RISports and Diocesan Girls' School (DGS) have entered into a Memorandum of Understanding (MoU) to establish the "PolyU-DGS AI Swimtech Laboratory".

Under the agreement, DGS will provide swimming facilities, where PolyU researchers will install equipment for data collection and will arrange student swimmers to participate in a research trial.

This collaboration aims to strengthen research on enhancing elite athletes' performance and talent identifications by more fully unleashing their potential, thereby maximising athletic performance at school level and nurturing more outstanding swimmers for the local community in the long run. It also aspires to promote STEM education and foster a culture of innovation and technology on campus.

The team uses waterproof wearable surface electromyography sensors and an underwater camera system to capture muscle activity of swimmers' arms, shoulders, legs and trunk during start jumps, strokes and turns in freestyle swimming. The system will be tested in the swimming pool at DGS with the participation of its elite student swimmers.

Looking forward, the team will collaborate with PolyU's Department of Computing to integrate video motion analysis and wearable motion inertial sensors to leverage the collected data in developing a novel artificial intelligence model, thereby further enhancing the accuracy of the system.