Bring your body into action in tomorrow's digital world

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Computers restricts the possibilities to use the physical abilities of our human bodies and this is a fundamental problem for our health. Farid Abedan Kondori has studied how to use media technology to bring motion back to our bodies. The techniques he has developed might be key points to enable next generation of new ways to interact with computers. Farid defends his thesis on June 4 at Umeå University.

"Today, we spend lots of time in front of the computers in our daily lives. As a result, we are losing the opportunity to move our body and use our physical abilities. I therefore strongly believe that bringing motion back to our body is extremely important for human well-being," says Farid Abedan Kondori.

Due to the large influx of computers in our daily lives, human-computer interaction has become crucially important. For a long time, focusing on user needs has been critical for designing computer interaction methods. However, new perspective tends to extend this attitude to encompass how human desires, interests, and ambitions can be met and supported. One of the core human values that should be supported is human well-being.

With this way of thinking, Farid Abedan Kondori has worked on developing theories and techniques for exploring interaction methods beyond keyboard and mouse, utilizing the human body. He has investigated different approaches for human motion analysis and the main focus has been on head and hand due to the fact that they are the

most frequently used body parts for interacting with computers.

"My thesis gives an insight into the technical challenges, such as motion complexity, motion resolution, rapid motion, uncontrolled environments and provides new perspectives and robust techniques for providing bodily interaction methods," says Farid Abedan Kondori.

"For example I have developed active motion estimation system that can accurately perform in real-time applications and I have also utilized new 3D sensors to present a direct motion estimation method."

Technical experiments in the thesis includes computer vision-based, marker-less systems to estimate and analyze body motion.

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