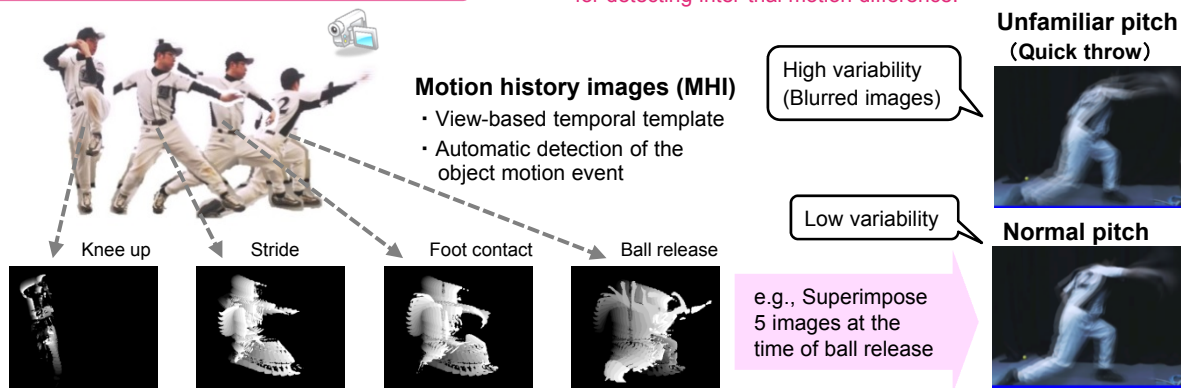


## Abstract

It is essential that we adequately recognize our own bodies and motor states if we are to acquire and improve goal-directed activities such as sports. We have studied effective ways of providing motor information, namely motor feedback techniques, to facilitate motor learning in sports. This study proposes feedback techniques designed to visualize and sonificate certain key features of an action, e.g., the inter-trial motion variability displayed by superimposed images and the temporal order of the motion of body parts given by synthetic sound. We believe that these techniques will help a player to acquire a desired action in sports. We also hope to utilize these techniques in the rehabilitation and entertainment fields.

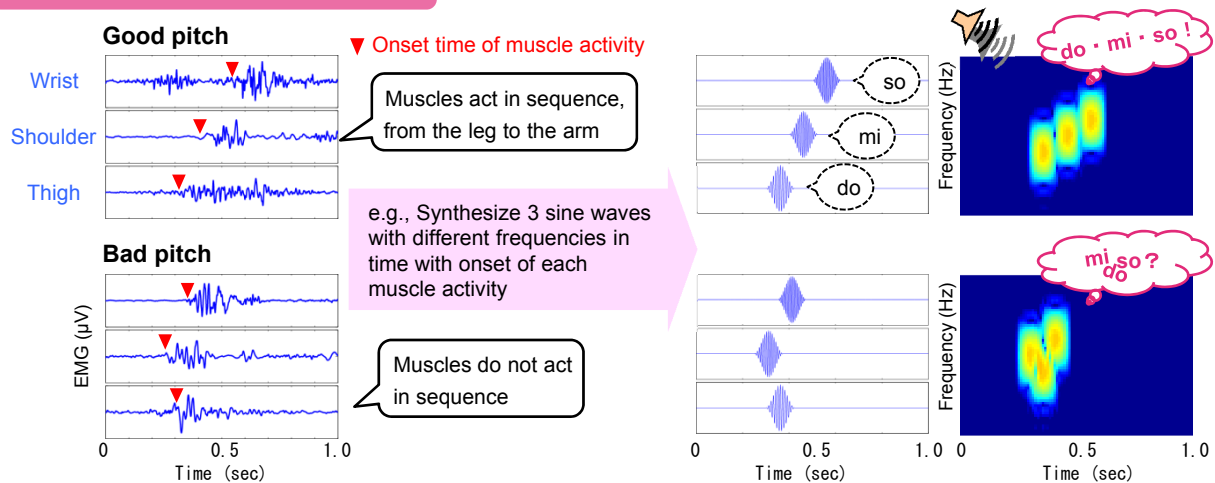
## Visualization of action "variability"

A superimposed image is better than a video stream for detecting inter-trial motion difference.



## Sonification of action "rhythm"

Use of audition enhances recognition of temporal association of body parts.



## Related work

- [1] D. Mikami, T. Kimura, K. Kadota, A. Matsumoto, H. Kawamura, A. Kojima, "A video feedback system providing motions synchronized with reference examples for motor learning," in *Proc. 14th Congress of the International Society of Biomechanics (ISB)*, 2013.
- [2] D. Mikami, A. Matsumoto, K. Kadota, H. Kawamura, A. Kojima, "A Video Feedback System Providing Motions Synchronized with Reference Examples for Motor Learning," *IPSJ Transactions on Consumer System and Device (CDS)*, Vol.4, No.1, April, 2014.

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