The Motion & Music Relationship Model for Dance Performances

- Analyzing Dance Structure Using Motion and Music Sequences -

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In these days, many important intangible cultural properties of the world are being lost because of the lack of successive performers. Digital archiving technology is one of the effective means of preserving these properties. Accordingly, we have started a project for the digital archiving of cultural properties, including these intangible ones. To archive human motions, a method of automatically analyzing the structure of motion is vital. We believe that every motion, including dance, consists of "primitive motions" Particularly for dance motions, we believe these primitives must be synchronized to musical rhythm. Therefore, we are proposing a new method for extracting primitive motions from dance motion sequences. In our method, both music and motion are analyzed, and the resulting structure of the music is applied to the structure of the motion. This method automatically detects the musical rhythm and segments of the original motion, and classifies them into primitive motions. The experimental results confirm that our motion analysis yields the primitive motions in accordance with the musical rhythm.

Publication

[1] T. Shiratori, A. Nakazawa and K. Ikeuchi, "The Structure Analysis of Dance Motion Using Motion Capture and Musical Information," *IEICE Transactions on Information & Systems D-II*, to appear in August 2005 (in Japanese).

[2] T. Shiratori, A. Nakazawa, K. Ikeuchi, "Detecting Dance Motion Structure through Music Analysis," in *Proceedings of IEEE International Conference on Automatic Face and Gesture Recognition*, May 2004.

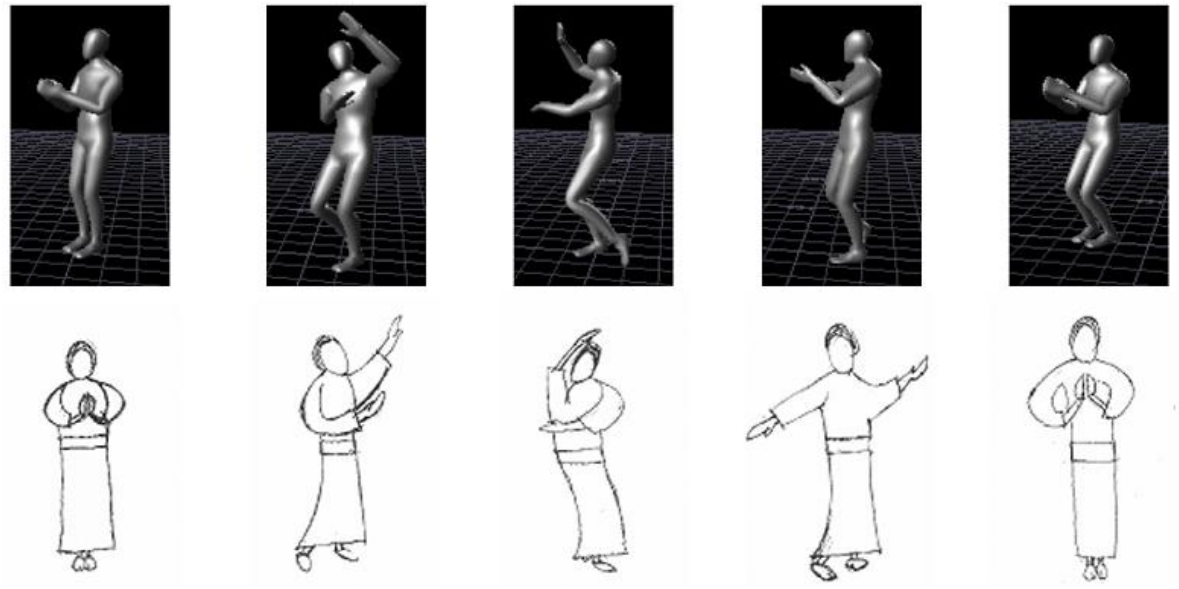

Figure : Result – Extracted Key Poses in Aizu-bandaisan

Upper : Poses extracted by our proposed method Lower : Key poses extracted by dancers