LabanEditor3: graphical Tool for Editing Dance Notation

Outline

- Introduction
- Methodology
- Use of LabanEditor for Noh plays
- Conclusions & Future work

Introduction (Labanotation)

Labanotation, the most common movement notation system, is widely accepted to record human movements for choreography and dance training [1].


Introduction (LabanEditor)

LabanEditor[2] as an interactive graphical editor for writing and editing Labanotation scores.
Display the CG animation of human body motion corresponding to the Labanotation score


LabanEditor3

LabanEditor3 is LabanEditor version 3

- Virtual environment module allows users to select the 3D virtual environments such as stages and animation character models.
- Dynamic Template Technique
- Motion expression for expression more natural movement.

LabanEditor3 (Demo)
Conversion from Labanotation Scores to CG Animation

- In our LabanEditor system, Labanotation scores can be represented as a simple text format called LND.

Mapping LND to Motion Template

- The template file consists of the relationship between a direction symbol at the particular joint and the rotation and the translation of that joint.

Dynamic Template Technique

- Labanotation can describe any human body movement including even the finger motion.
- But, the resulting score becomes extremely complicated and in that detail level is rarely used.
- Therefore, the fundamental description based on 9 directions in a horizontal plane and 3 directions in a vertical plane has been usually used.

- How to describe and reproduce the stylized traditional dance body motion by using fundamental description of Labanotation.

Dynamic template technique

- In the fundamental description, similar but distinct poses are sometimes defined by the same symbol.
- The idea of the dynamic template technique is to use multiple templates for describing a Labanotation score.
### Dynamic template technique Demo

![Demo Image]

### Motion Expression Control

- The motion expression control module controls the animation of character model from one key frame to the next key frame.
- We implemented a module for controlling the motion by applying a non-linear interpolation, cubic Bezier curve, in order to create natural movement.

\[
f(t) = (1 - t)^3 P_0 + 3(1 - t)^2 t P_1 + 3(1 - t) t^2 P_2 + t^3 P_3
\]

- \( P_0(0,0) \) and \( P_3(1,1) \) is the start and end points, respectively.
- \( P_1 \) and \( P_2 \) are the control points which can be moved freely.

### Results

![Result Image]

![Result Image]
Conclusions

- In this research, we presented the implementation of LabanEditor3 and how to produce the 3D animation of human model corresponding to the Labanotation score in a virtual environment.
- LabanEditor3 successfully describes and reproduces Noh Kata, one of stylized traditional dance body motion, by using the dynamic template files.

Future Work

- Our next step involves the Labanotation functionality and the character animation as follows:
  - Extensions for handling many extensive symbols of Labanotation must be required.
  - The number of Noh Kata which can be handled in LabanEditor must be increased.
  - Other stylized traditional dance must be described and reproduced.

Publication