

MR-based Training System of Movie Action Scenes

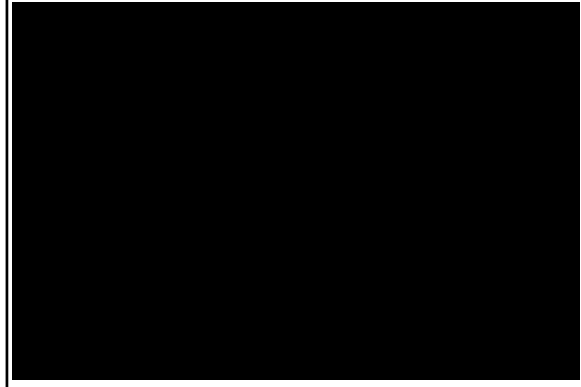
Ryuhei Tenmoku, Ryosuke Ichikari, Fumihisa Shibata,
Toshikazu Ohshima, and Hideyuki Tamura

Ritsumeikan University



Video (MR-PreViz Project)

2



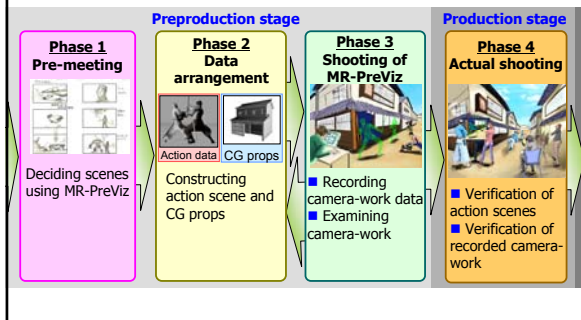
General workflow of filmmaking

3



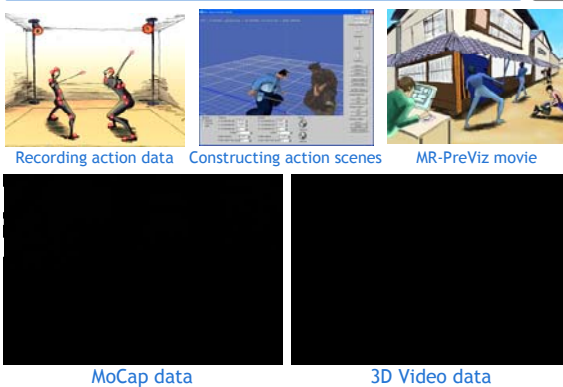
Workflow of filmmaking using MR-PreViz

4



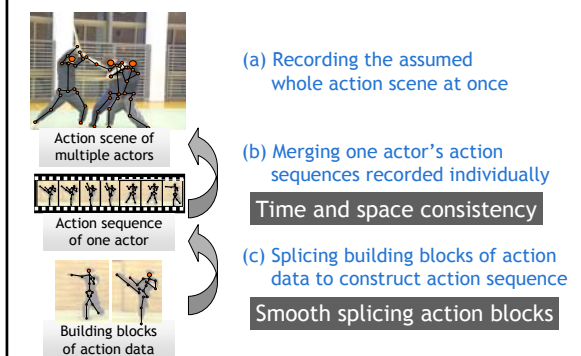
Action data in MR-PreViz

5



Construction methods of action scenes

6



Building blocks of swordfight action

7

- 115 building blocks (43 offence actions and 38 defense actions) of swordfight action were recorded.
- Every data starts and ends in some pre-established poses.
- They were recorded in consultation with a professional swordfight arranger.



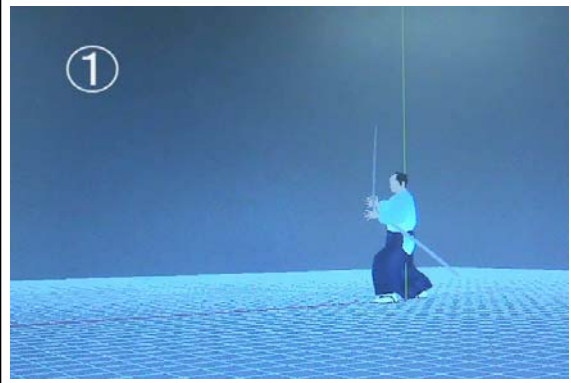
Offense



Defense

Smooth splicing building blocks

8



Adjusting time and space consistency

9

For merging individually recorded action data, adjusting time and space consistency is important.



correct timing and position

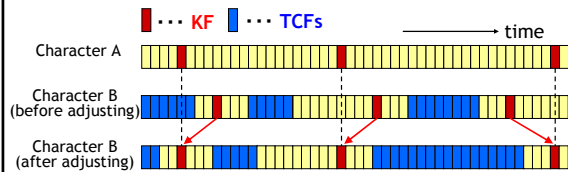


incorrect timing and position

Adjusting time consistency

10

Adjusting action speed so as to accord **KF** (Key Frame) between two characters



KF is a frame in which two characters' actions are intersected.

TCFs (Timing Controllable Frames) are frames don't give uncomfortable feeling when the playback speed is changed.

Adjusting space consistency (1)

11

- Specifying **CP** (contact point) at every key frame
- Parallel translating characters so as to accord **CPs** between two characters



before adjustment



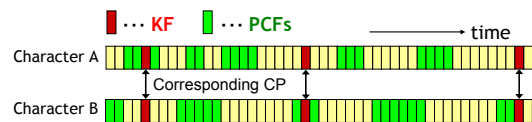
after adjustment

CP is a 3D point in which two character's actions are intersected.

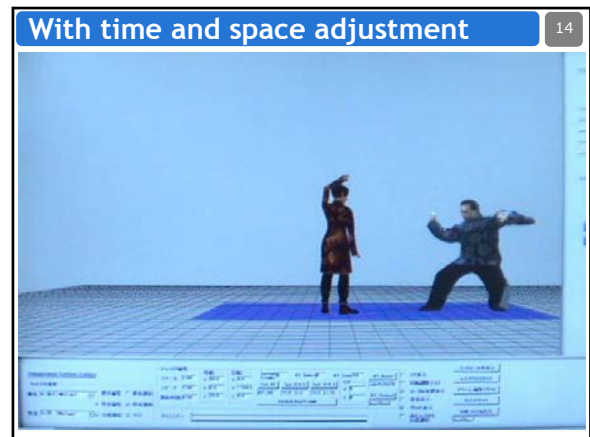
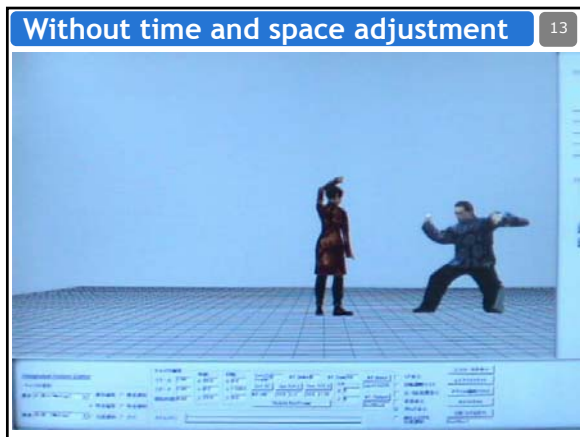
Adjusting space consistency (2)

12

- Specifying **PCFs** (Position Controllable Frames) between two characters
- Parallel translating characters in **PCFs** so as to accord **CPs** between two characters




PCFs are frames don't give uncomfortable feeling when the character moves parallel in a horizontal plane.




MR Action rehearsal system


- The user can run through the swordfight action scenes from the actor's view through an HMD.
- The user can see CG enemies and the sword blade.
- The system evaluates the user's swordfight action.




User's appearance



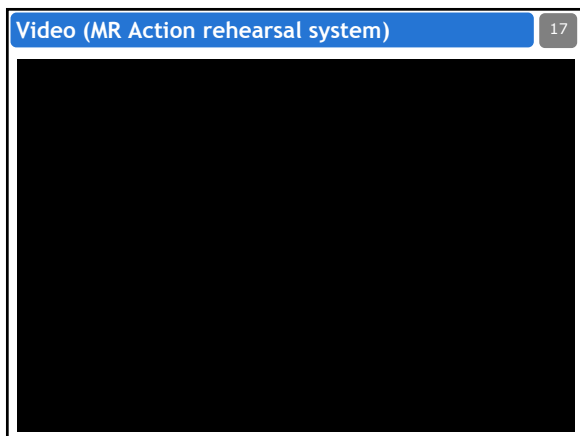
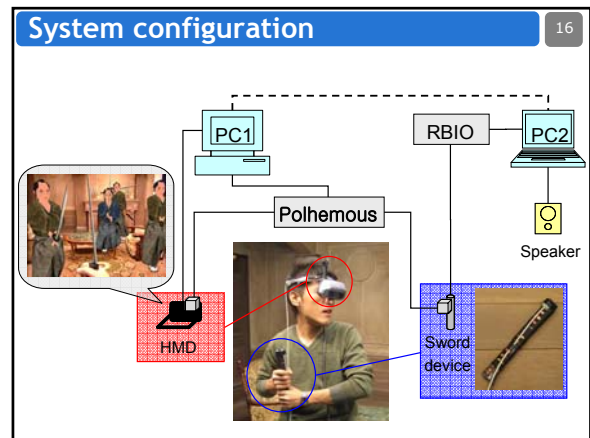
Sword device



Objective view image



User's view image



Summary and future work

18

Summary

- Action data in MR-PreViz project
- Some methods for constructing action scenes
- MR Action rehearsal System

Future work

- Constructing complicated action scenes involving multiple characters
- Improvement of evaluating user's action

Thank you!!

• Discussions & More information

- Ritsumeikan Univ., 1 Suzaku, Nishinokyo, Nakagyo, Kyoto, Japan
- Tel. +81 - 75 - 813 - 8445
- Fax. +81 - 75 - 813 - 8441
- mailto: tenmoku@rm.is.ritsumei.ac.jp
- Web: <http://www.rm.is.ritsumei.ac.jp/MR-PreVizProjectEnglish/top.html>