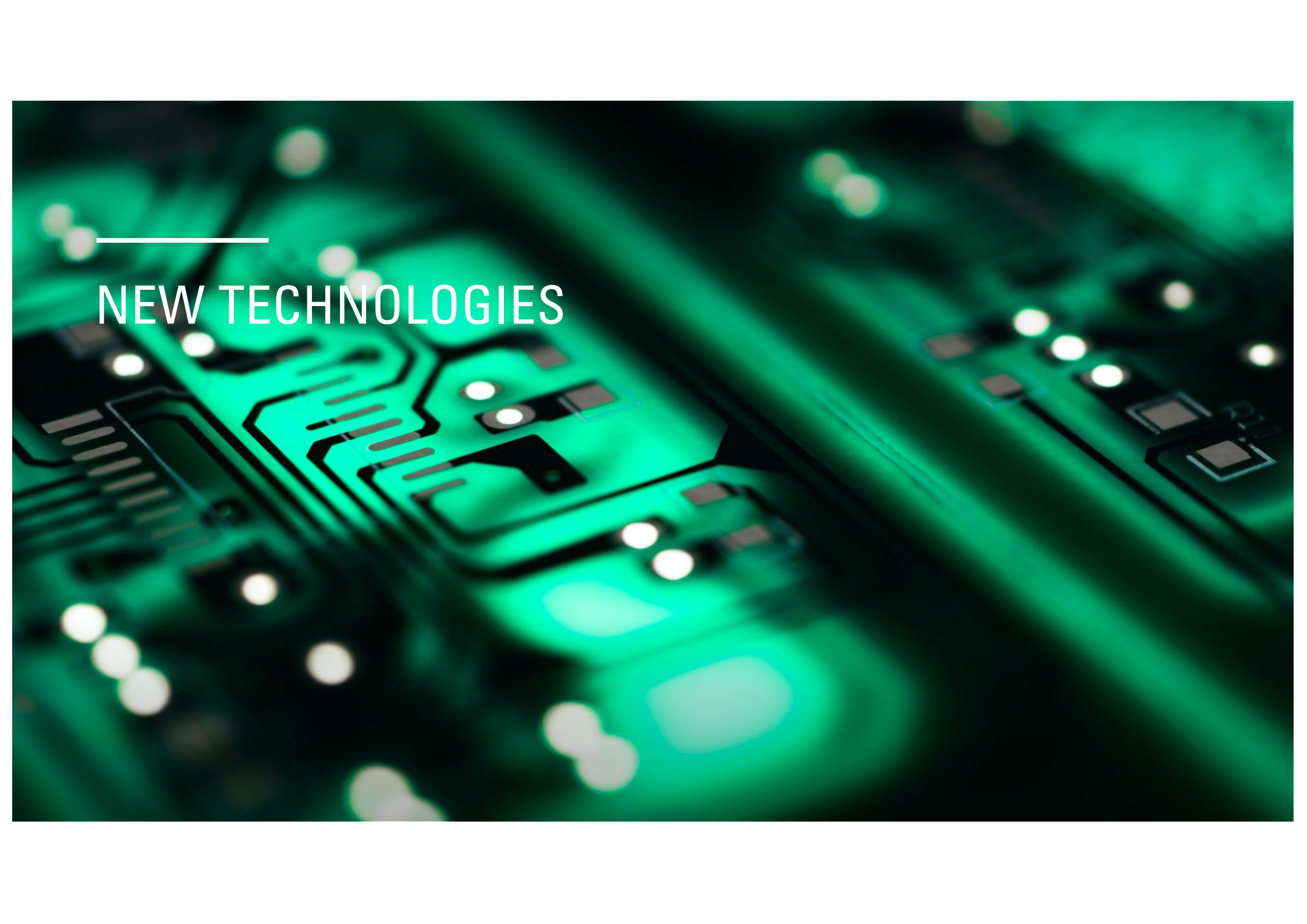

NEW TECHNOLOGIES



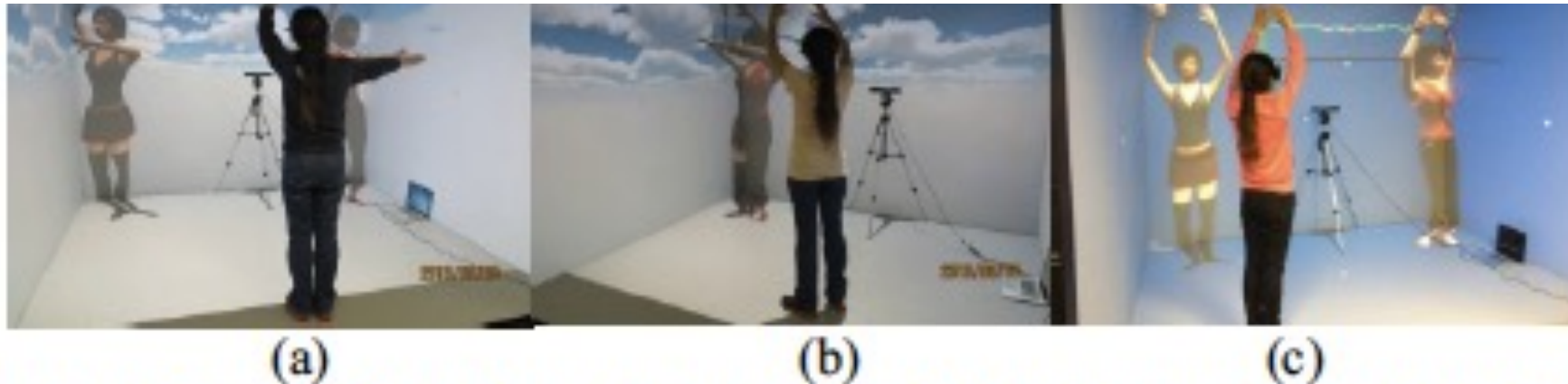


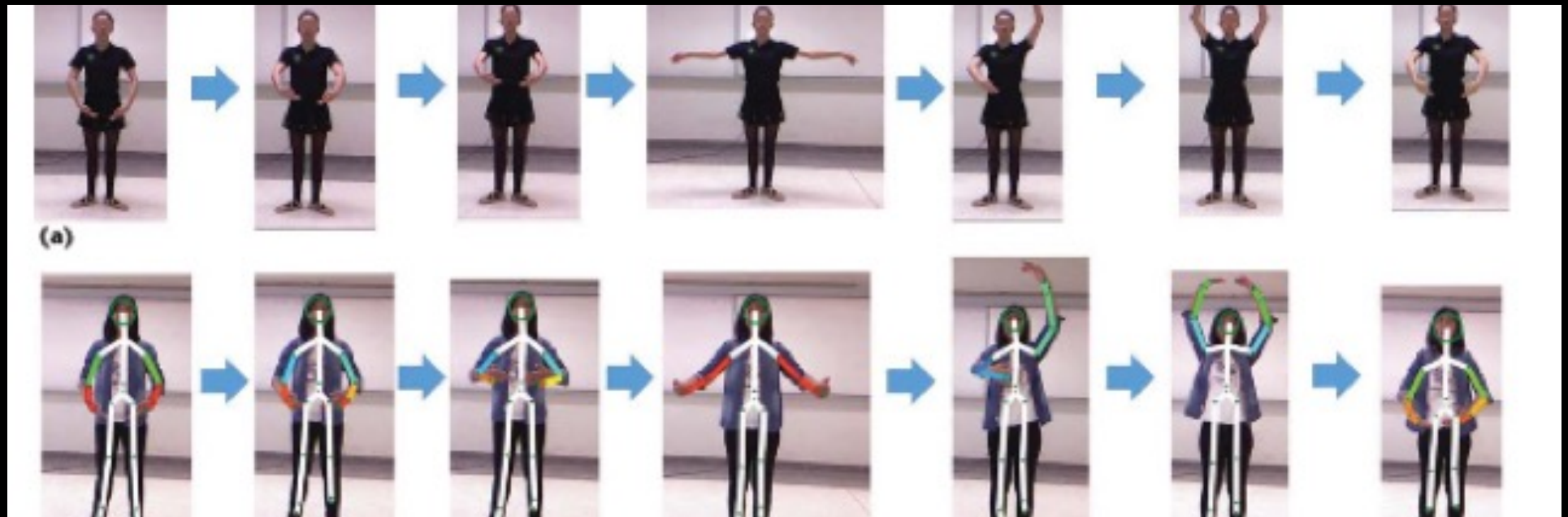
Figure 5. Illustration of (a) side-by-side feedback, (b) overlay feedback, and (c) the feedback of score curve.

—◆— average score

VIRTUAL ENVIRONMENT CAVE (CAVE AUTOMATIC VIRTUAL ENVIRONMENT)

1. CAVE

- the machine first has to detect all the different movements and compare them with the movements of the teacher projected on the wall.
 - students have the possibility to receive feedback after but also during the performance.
 - When feedback is provided during the performance, it is called “concurrent feedback” and when it is given after the performance, it is called “terminal feedback”.
-



FEEDBACK IN FORM OF SKELETON

ADVANTAGES

01

Different kinds of feedback

02

Skeleton and colour table are used to help the student visualise easily where he did a mistake

03

Students can work whenever they want because they do not need a “real” teacher

04

CAVE recognises a move as soon as you have done it one time => CAVE will be able to give the student concurrent feedback as soon as the move is recognised.

DISADVANTAGES

CAVE environment shows some difficulties to capture the different movements that involve bending backward.

Students have to face the camera to receive their feedback

QUESTIONS

- What is your general feeling about this CAVE environment?
 - In your opinion, is this CAVE appropriate for dance students?
 - What do you think about the feedback? (2 types of feedback: during the performance and after the performance/In colour)
 - According to you, is this feedback better than the one given by a teacher during the class?
-

QUESTIONS

- Have you already been in a CAVE environment? If yes, on which occasion?
 - Would you like to train in a CAVE like this one? Why or why not?
 - Do you think that the CAVE environment is a good way to communicate? Is the communication between the virtual teacher and yourself a good one in this environment? Why/why not?
 - Do you have any comments to add?
-

2. VIRTUAL REALITY DANCE TRAINING SYSTEM USING MOTION CAPTURE TECHNOLOGY

- Like the CAVE, VR also projects a virtual teacher on a wall so that the student can imitate it.
 - Students **need to wear a capture suit** so that their movements can be registered by the VR
 - the system collects data to compare the performance of the teacher with the students' performances.
 - If students think that the virtual teacher is going too fast, they can **change the speed** of the demonstration.
-

VR

- the VR applications offer different kinds of feedback:
 - Immediate Feedback:
 - In this case, the movements the student is making are captured in real time while practicing and they are represented on the screen just next the virtual teacher. The student is thus represented in form of cylinders of different colours. If a part is coloured in red, it means that this part is wrongly positioned.
 - Score report:
 - The score report is given at the end of the performance. It is general feedback of the whole performance.
 - Slow motion replay:
 - It is a sort of replay where the student can see where and when he/she made errors.
-

ADVANTAGES AND DISADVANTAGES

- 3 kinds of feedback
- Students can slow down the animation if they want
- Students have to wear a capture suit so their movements can be registered and then compared with those of the teacher

QUESTIONS

- Have you ever used a VR? If so, was it in a dance context?
 - What is your general feeling about this VR?
 - In your opinion, is this VR appropriate for dance students?
 - To be alone?
 - What about the space?
 - What do you think about the feedback?
 - 3 types of feedback
 - In colour
 - According to you, is this feedback better than the one given by a teacher during the class?
 - Do you think the VR is a good way of communicating with the student?
-

QUESTIONS

- Would you like to train in a VR like this one? Why/why not?
- Do you have any comments to add on this VR?

VIDEOTRACE: A DIGITAL ANNOTATION TOOL

- Usually, students can perform only one or two times before receiving feedback from the teacher. In order to give feedback, teachers have to remember each detail of the performance. But sometimes memory plays tricks on us
 - **Digital Annotation tool** allows users (teachers and/or students) to capture videos and to write notes on them (for example their thoughts). These videos can be saved, re-viewed and commented again and again.
 - Thanks to VideoTrace, students and teachers have the opportunity to see a performance as many times as they want and don't have to remember everything.
-

VIDEOTRACE

- VideoTrace offers you the possibility to slow down the video if it is too fast or if you want to watch something in more details, a special gesture for example.
 - The user also has the possibility to completely stop the video to show something on the screen.
 - To show something on the video, the “finger tool” can be used. It will appear if you move the cursor. This can help teachers to show correctly a mistake to the student for instance.
-

VIDEOTRACE

- this VideoTrace is not a technology that allows students to work during their free time with an avatar or a teacher projected on a wall.
 - The goal is to allow students and teachers to focus completely on the performance but without having to remember each mistake or each little detail. Thanks to VideoTrace, teachers can watch the video again to give full feedback and students can watch their performance again to see where they have made mistakes.
-

QUESTIONS

- Have you ever used an annotation tool? If so, was it in a dance context?
 - What is your general feeling about this VideoTrace?
 - Do you like the possibility of watching again and again your performance after having done it? Why/why not?
 - Do you think it could be useful to watch the performance again? Do you think it could help you to detect where you have made a mistake and why?
 - Do you think it would be good for the teacher to focus entirely on your performance and watch the video later to give you detailed feedback? Or do you prefer to receive feedback about technique, emotion, musicality at once during the class?
 - Do you think this annotation tool is an advantage in the way of communicating between the teacher and the student? Why/why not?
 - If I were offering an annotation tool to your school, would you use it? Why/why not?
-

THE WEB-BASED ICT (INFORMATION AND COMMUNICATION TECHNOLOGY) APPLICATIONS

- Students' reflections on their work are important (in a lot of dance classes students have to write assessments about their reflection on their work. These assessments are part of the exams)
 - ICT was created to help students to reflect on their work.
 - One ICT application which is used to help students in their process of reflection is called [DiViDU](#)
 - [DiViDU](#) is a video-based learning environment => students have the possibility to film their performance
 - Thanks to video recordings, students can watch their performance as much as they want and can reflect on it easier (without having to memorise every gesture or mistake) => Like with VideoTrace
-

ICT/ DIVIDU

- In the DiViDU environment, teachers can give students reflection questions and give them criteria to pass the assignment.
 - The fact of editing a video helps student choosing a starting point in their analysis.
 - According to teachers: this kind of facilitation is really useful because “When you are dancing in the studio, you have the mirror, of course, and that is a very immediate reflection in real time, but there is not enough time for the mind to translate what you see” (Leijen, 2008).
 - According to students, comments made by teachers in class became more meaningful in the course of self-evaluation.
 - to watch their performance again give students the opportunity to better understand teacher’s feedback
-

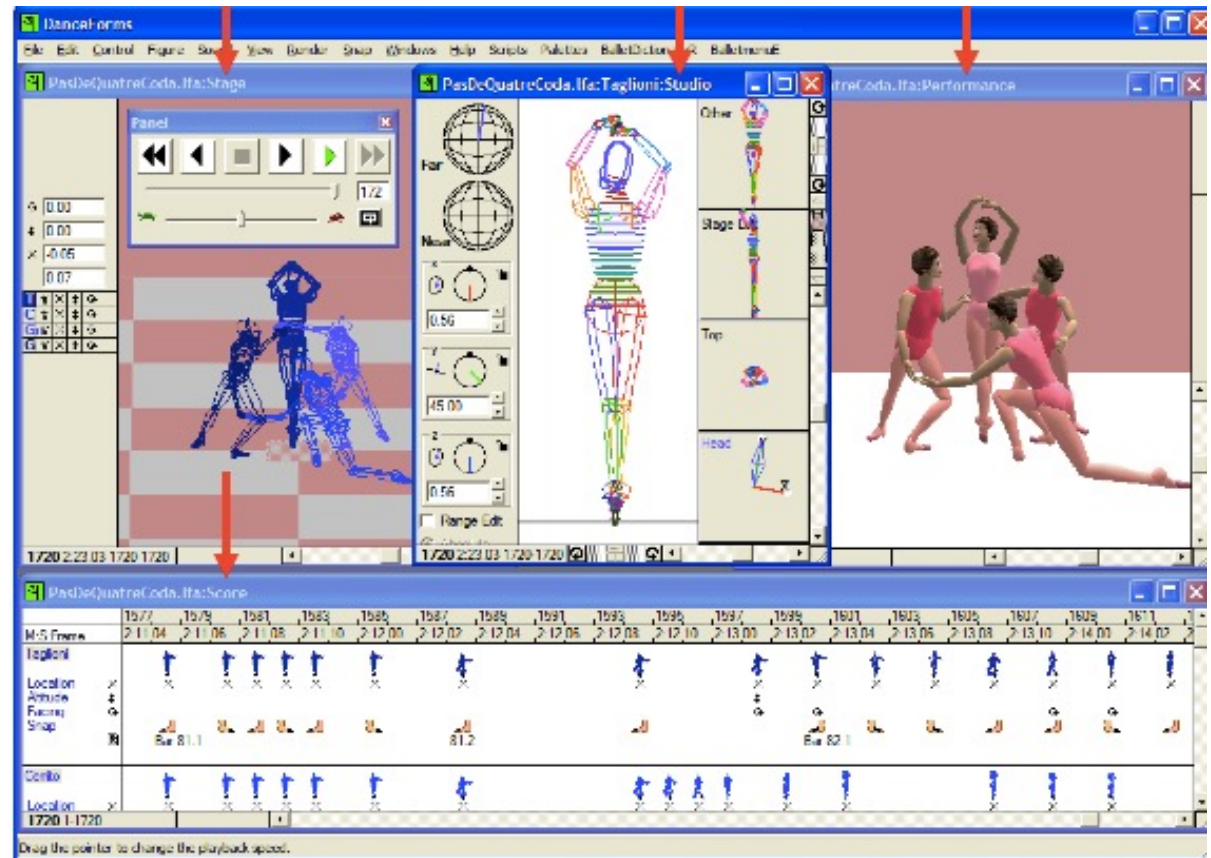
QUESTIONS

- Did you have to write assessments about your work during your dance studies?
 - If you had to write such assessments, would you have liked to have a technology like DiViDU? Why/why not?
 - If you did not have to write such assessments, have you ever used something like this DiViDU application in another context?
 - Do you think DiViDU could help students to write reflection assessments on their works? Why/why not?
 - Do you think this kind of annotation tool gives the opportunity to students and to teachers to communicate better than if it was only an oral communication?
 - Do you agree with the fact that if dance students have the possibility to watch their performance again it can help them to better understand the feedback?
-

DANCEFORMS

- It is “choreography software designed with dance teachers and choreographers”
 - both male and female dancers in non-anorexic looking bodies.
 - DanceForms allows students and teachers to record the performance
-

- The “Stage” on the upper-left, the “Studio” on the middle, The “Performance” on the upper-right and the “Score” beneath the three other windows.
- In the “Studio” teachers design each dancer’s position
- in the “Stage” each dancer has to be correctly placed in relation with all other dancers.
- The “Performance” window allows teachers or student to watch the real performance and compare it with the other data they have.
- The “Score” gives each dancer’s position. Each dancer has a line. His/Her positions are all represented there.



DANCEFORMS

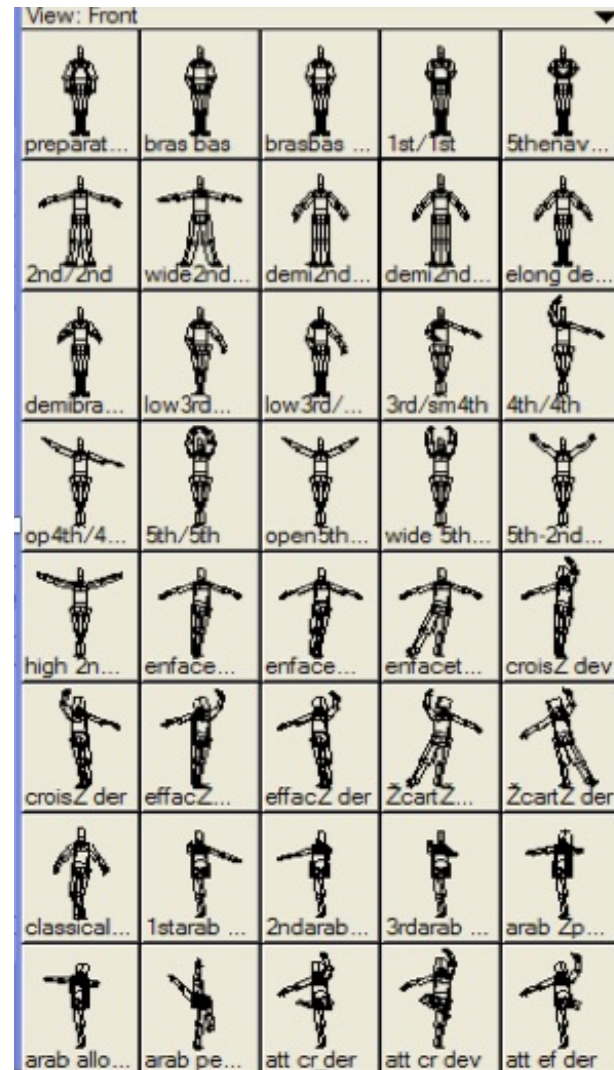
- A user guide is provided
 - “2 Minute Sound Files” are also provided. Inside this folder there are sound files “each containing 2 minutes of metronome beats at slow to quick tempi.”(Ryman, 2004).
 - uses a dancer-friendly terminology. It makes the software more accessible intuitive for dancers who use the technology.
 - in 3 different languages: English, Russian and Italian:
-

DANCEFORMS

- Ballet moves are listed **in alphabetical order** in the software program. For example, if you are an English dancer and you are searching for the movement “FullContretemps” you will go to the English terminology under the F letter and there you will find “FullContretempsE”.
 - Then, to see the movement of a “FullContretempsE”, the student or the **teacher just has to click on the item and watch the movement.**
 - The animations to show these movements are built “**from palettes** of basic ballet positions” (Ryman, 2004).
-

DANCEFORMS

- This is a **Palette** with some movements of dance.
- There are 8 palettes like this one in DF
- However, if the user does not like the representation of a movement on the palette, he can also modify it.



CHANGES MADE BY THE USER
ARE THEN SAVED IN THE
PALETTE.



QUESTIONS

- What is your general feeling about DanceForms? Do you like it? Why/why not?
 - Do you think it is great to be able to compare the real performance you see in the “Performance window” with the “Stage Window” where you can see the correct place of each student?
 - Do you think it could help you to see where you have to be placed and how in relation with other students (in the Stage window) before starting to dance? Why/why not?
 - Do you like the possibility to create your own movements thanks to DanceForms? (the possibility to change a position from the palette and then save it with your changes, like the first Arabesque I showed you)
 - If I were offering DanceForms software to your school, would you use it? Why/why not?
 - Would you like to add any comments?
-