Engaging Digital Storytelling: Rigging and Animation for 2D Hand Drawn Characters via Motion Sensing Technology

KUAN-WEN CHEN, JUNE-HAO HOU

Graduate Institute of Architecture, National Chiao Tung University, Hsinchu, Taiwan

In terms of digital storytelling, elements of stories, including visual images, audios, and texts, are provided by story developers and are presented directly to audience, commonly. In modern society, audience are prone to be information receivers instead of information explorers, which in some ways, narrows the room for their imagination and creation. This study aims to propose a distinctive form of digital storytelling which not simply provides audience with opportunities to take the initiative to produce elements of stories, but enables story developers to collaborate with audience to create stories by imagination. Concerned with child educational applications, the design proposed in this study indicate that the storyline is provided by teachers for children to draw original characters by their own imagination and the characters created by children are intended for their following storytelling. Children work on the images of characters they’ve drawn by computer vision processing, subsequently, placing the processed images in the scene of game engine with a view to animating the images of characters.
In this way, children evolve from audience into story developers. Aside from performed in kindergarten, this sort of digital storytelling could also be conducted in elementary school or art museum where projection technology is used to create a life-size space for children immersing themselves in the environment. Via motion sensing technology by Kinect, children engage in characters rigging and animate their original characters to present stories without computer interface. On the other hand, the distinctive form of digital storytelling comparatively reduces the supply of elements, nonetheless, retaining the advantage of digital media that stories are easy to record and to share with other people; also, such distinctive way of digital storytelling helps develop and stimulate imagination and creativity. More importantly, the interaction between storytellers and audience can be promoted for the purpose of fulfilling collective creation and collaborative creation (co-creation), bringing unexpected outcomes of digital storytelling.

Keyword: Human–Computer Interaction, Interactive Environments, Digital Storytelling, Educational Applications, Child Development

• Author(s) Biography (200 words each):

I am Kuan-Wen Chen, the graduate student from National Chiao Tung University, Master of Science in Architecture. In college, I studied at Shih Chien University Department of Communications Design and mainly engaged in digital arts, interactive design, and installation arts. I prefer my projects created in programming since the works would have more properties of real-time and interaction. All the images made up of coding are unique and they are designed to form different chain reactions under different situations, which is very fascinating owing to its unpredictable qualities.

For the past few years, I have taught children graffiti creation. They were guided to picture their own stories in mind and try their best to show the stories by graffiti. With the rapid development of technology, child developmental education has great potential and possibilities in the future. In the process of child development, curiosity and emotional expression play a significant role. What I always want to do is to build connections between children and spatial environment together with other people for the purpose of arousing children’s passion for environmental and social interaction, also, providing the room for emotional expression.

I expect myself to be an explorer, communicator, and connector of design and computer science. Also, I am greatly enthusiastic about digital arts and interactive design and equipped with designing and programming skills.