

Shadow Shooter: 360-Degree All-Around Virtual 3D Interactive Content

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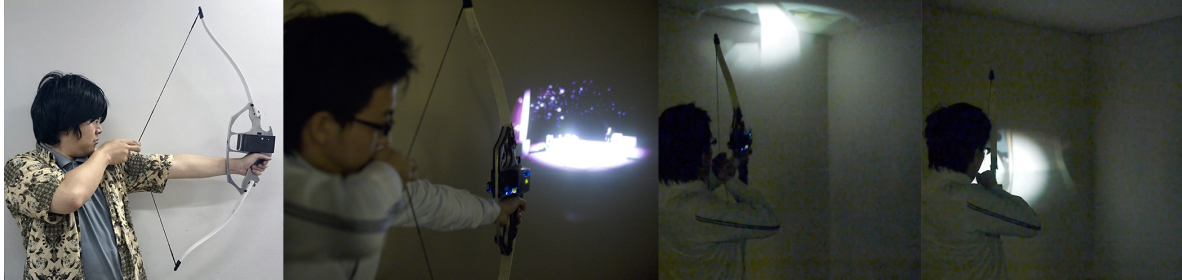


Figure 1: Depiction of Shadow Shooter in use.

1 Introduction

“Shadow Shooter” is a VR shooter game that uses the “e-Yumi 3D” bow interface and real physical interactive content that changes a 360-degree all-around view in a room into virtual game space (Figure 1). This system was constructed by developing our previous interactive “Light Shooter” content based on “The Electric Bow Interface” [Yasumoto and Ohta 2013]. Shadow Shooter expands the virtual game space to all the walls in a room just as in Jones’ “Room Alive” [Jones et al. 2014]; however, it does not require large-scale equipment such as multiple projectors. It only requires the e-Yumi 3D device that consists of a real bow’s components added to Willis’s interface with a mobile projector [Willis et al. 2013]. Thus, we constructed a unique device for Shadow Shooter that easily changes the 360-degree all-around view into a virtual game space.

2 Concept

Our system consists of shooting content that is based on the concept of searching. Shadow Shooter provides 360-degree all-around virtual space, but the projected image is displayed only at the front. Therefore, we set the content such that a player searches for attacking enemies from all directions and shoots them with a bow on virtual images just like shining a flashlight. We also added image content enabling the use of biological motions as well as searching for enemies based on information from their shadows.

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2.1 E-Yumi3D

E-Yumi 3D is based on an archery bow and also includes a mobile laser projector, Windows PC, and a 9-axis sensor. When a player draws e-Yumi 3D, an image determined from the parameters of the 9-axis sensor and the player’s shoulder height and arm length is projected in front of the player. Additionally, the shooting of the 3D bow can be detected from the strain gauges on the bow’s limbs.

3 Result and Conclusion

When a player draws e-Yumi 3D, an image determined from the parameters of the 9-axis sensor and the player’s shoulder height and arm length is projected in front of the player. Thus, the real world direction fits in closely with the virtual world, and the image corresponds to a 360-degree all-around view in a room.

Thus, we successfully constructed Shadow Shooter, which easily changes a 360-degree all-around view into a virtual game space and gives its player a strong sense of reality.

References

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