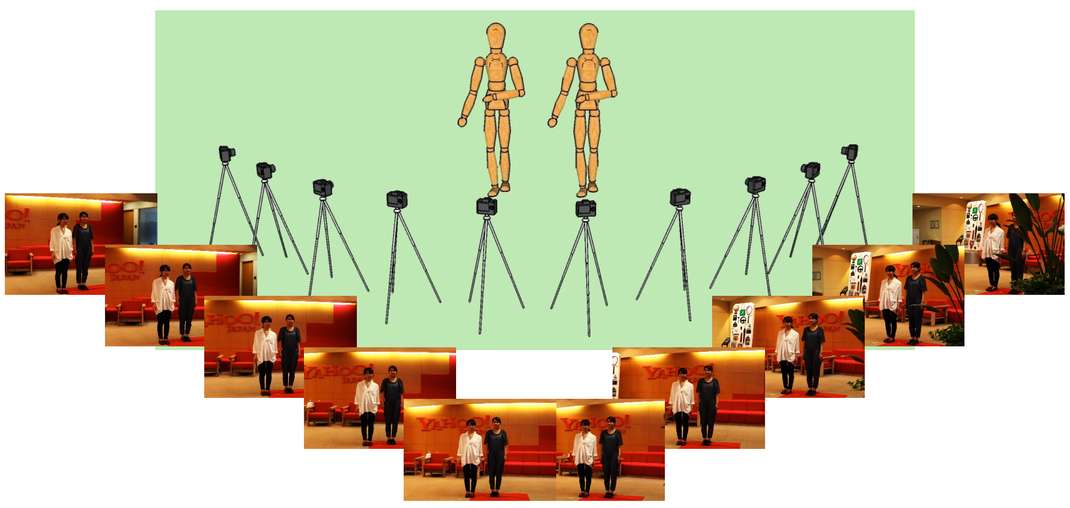
Computational Media Group

Computational Media are advanced information media on which high sensing functionality and huge computing resource over computer network are smartly unified. We aim to feed appropriate information to everyone wherever and whenever it is necessary by the computational media.

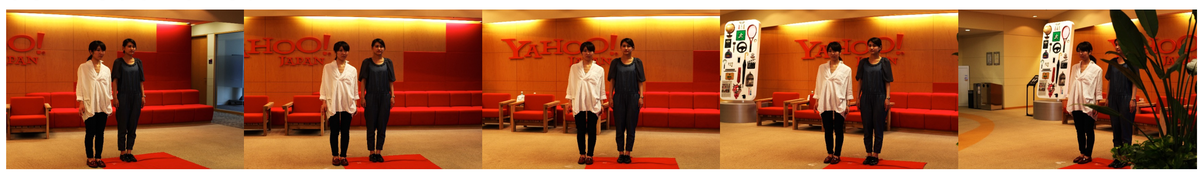
Multi-Resolution Bullet-Time Effect

Bullet-Time is a camera work to make the observer feel like transitioning from side to side by switching multiple-view images capturing an object. The resolution of the captured image is drastically getting higher. When a user observes the detail of a specific region of the high-resolution image using a devices having a small monitor such as smartphone, he/she enlarges the region by using digital zoom effect. We expect that such operation might be used in Bullet-Time browsing, also. However, ordinal Bullet-Time has a problem. If the attention (zooming-in) point is different from the focusing point of the multi-view images, the attention object goes out of the displayed image during switching viewpoint. We realized Bullet-Time effect that can zoom-in the attention object with keeping a watch it using 3D Computer Vision technique.



(Left) Capturing multiple-viewpoint images by surrounding cameras.
(Right) Our developed Zoom-in operation for Bullet-Time interface.

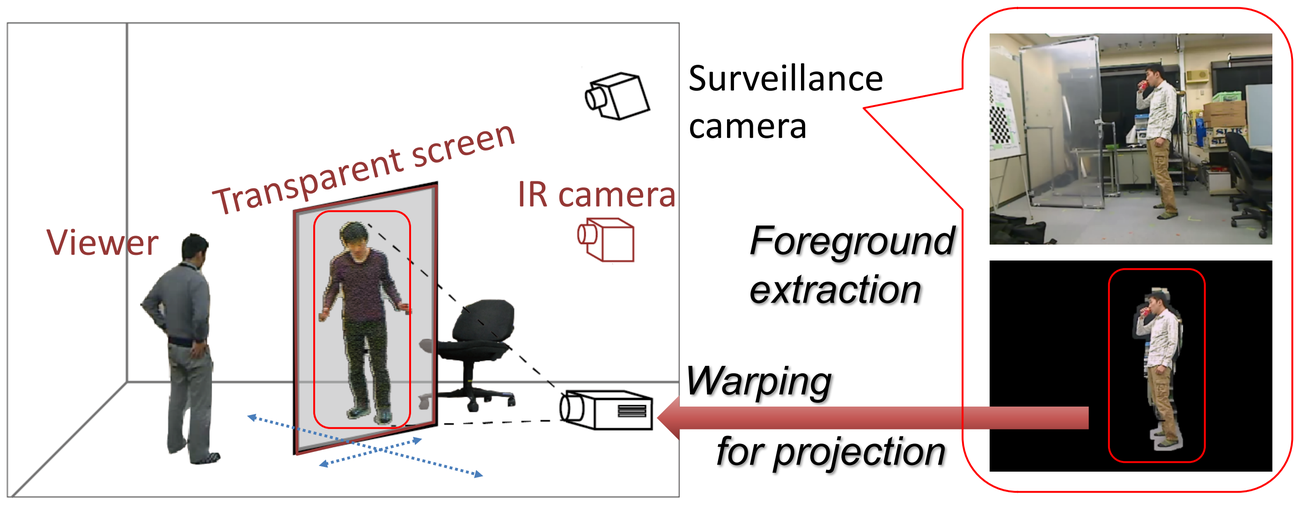
Zoom-out Bullet-Time



Zoom-in Bullet-Time

Full-Scale Visualization of a Person on a Movable Transparent Screen

We propose to visualize pre-recorded activity of a person on a movable transparent screen for in-situ reviewing of his/her activity in augmented reality fashion. Activity of the target person was taken as a video by a surveillance camera. Viewers can watch the activity in the scene as if it happened there because segmented image of the target person was projected onto a human-size transparent screen and other static objects around the target person can be visible throughout the transparent screen. Our final goal is to move the transparent screen by mounting it on a small robot and moves the robot to follow the target person in the video. On the way to the final goal, we currently assume that the viewers move the screen manually so as to pose the screen at the same location of the target person in the video. A tracking method of the transparent screen in the scene is devised by utilizing projector- camera calibration and simple infrared marker tracking.



When a viewer moves the screen,

the system tracks it,

and warp the image to project the target correctly.