



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.

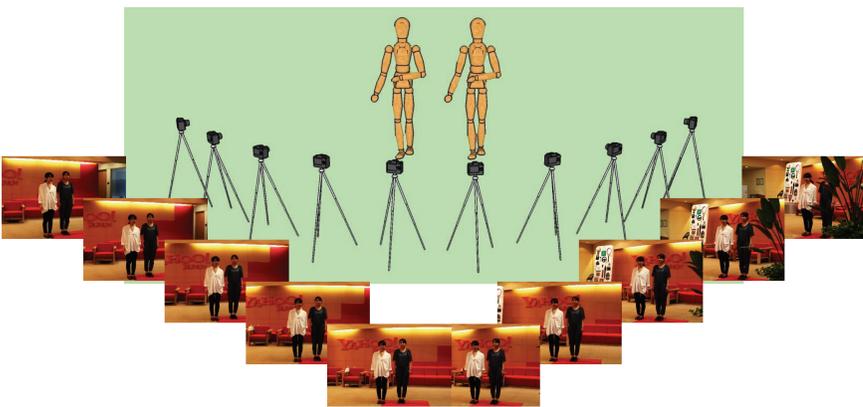
Multi-Resolution Bullet-Time Effect

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.

Zoom-out Bullet-Time



Zoom-in Bullet-Time

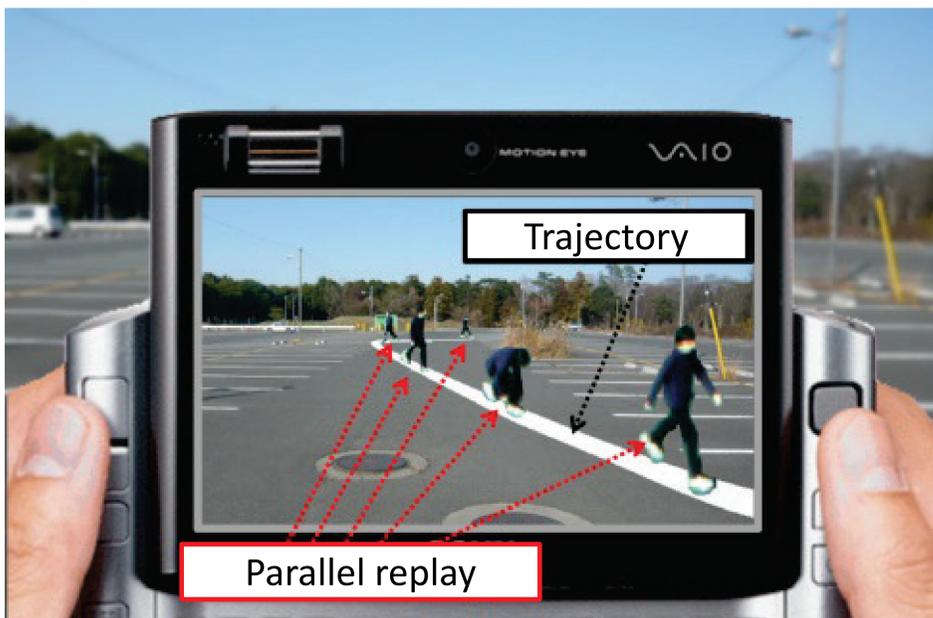


(Left) Capturing multiple-viewpoint images by surrounding cameras.
(Right) Our developed Zoom-in operation for Bullet-Time interface.

Compact Video Expression of Moving Objects at Outdoor Scene

Effective browsing of video recorded by surveillance cameras is one of the most challenging missions because it is a typical problem of high-level mixture of data mining, data browsing, and computer network.

One of our research works achieved in past few years is the proposal of a new Mixed-Reality presentation of spatio-temporal behavior of a moving object in a reviewer's view. The behavior of the moving object was recorded in advance as a sequence of pairs of spatial position and its texture by environmental camera. A reviewer can see parallel replays (Figure) of the moving object so that he/she can shorten the time to browse the behavior. Since large number of simultaneous replays increases the chance of overlapping textures, we propose the method to determine the best number of replays. We also propose an enriched visualization of trajectory of the moving object so that the reviewer can recognize the moving direction of the object easily. We have conducted subject tests on our proposed trajectory visibility and simultaneous replays of the moving object and show the results.



Parallel replay of moving objects and visual aid