18 Additional finding beyond the real thing

～Adding information to art using high-definition multiband image～

Abstract

When we observe an object displayed in an art museum, directly viewing it with our eyes is not necessarily the best way, because much information may actually be invisible, such as some microstructure and fine color textures appearing on the object's surface. We have developed a method to detect and visualize such information using a high-definition multiband camera system. It takes six-band images in visible wavelength as well as the corresponding infrared (IR) images at the same viewing angle. Resolution of the captured image is higher than 0.1 mm/pixel. The system enables us to reproduce accurate color of the object. We may even be able to find invisible information such as sketches behind the image by comparing the color image with the IR image. We demonstrate a concept of a new museum navigation system that can greatly enrich our viewing experience, featuring fine surface-image reproduction, hidden information visualization, and interactive viewing functions.

High-definition multiband camera

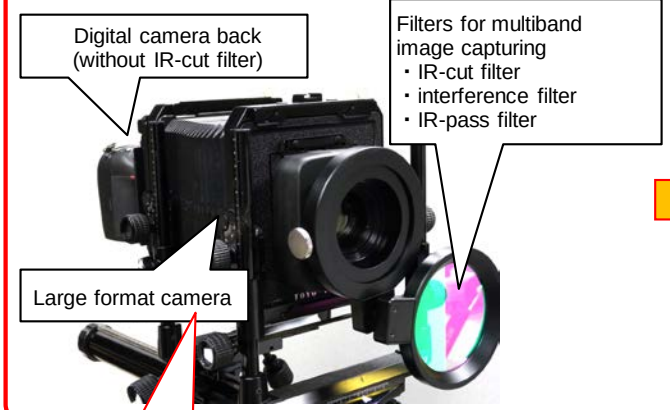


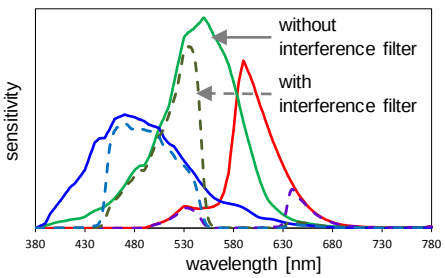
Image reproduction

- High-definition and brighter images than the real object
- Few disparities between visible-and IR images

"Seigani-monzen-zu-byoubu" (Folding screen in The Museum of Kyoto)

Comparison between reproduced color image (left) and IR image (right)

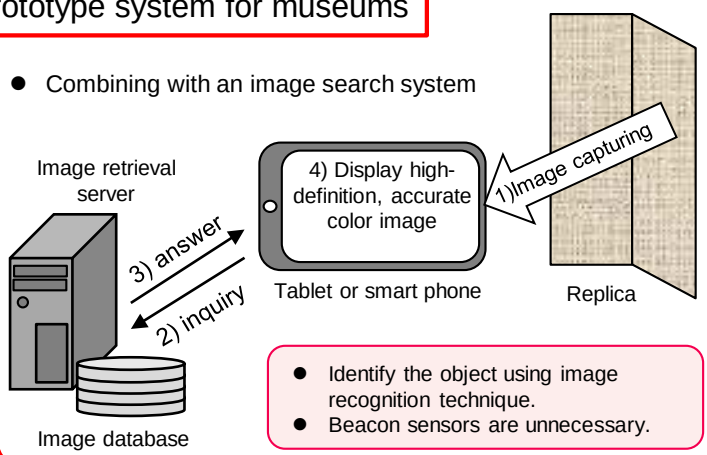
Image of visible wavelength is captured as a six-band image using an IR-cut filter and an interference filter



Spectral sensitivities of the camera system

Prototype system for museums

- Combining with an image search system



- Identify the object using image recognition technique.
- Beacon sensors are unnecessary.

【Reference】

[1] M. Tsuchida, K. Yano, and H. Tanaka, "Development of a high-definition and multispectral image capturing system for digital archiving of early modern tapestries of Kyoto Gion Festival," in *Proc. ICPR2010*, pp. 2828-2831.

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