

Preserving the World's Cultural Resources using High-Resolution Imaging Technologies

Feature

Vol.4



Designation: Important Cultural Property
Location: Ohiroma Chodai-no-ma, Grand Chamber, Body Guards' Room
Title: Tatsuta Fuzoku-zu (Depictions of Life and Customs in the Tatsuta Region)
Artist: Kunai Kano
Date: Shotoku 5 (circa 1715)
Format: Affixed to wall
Technique: Paper and paint on gold leaf background

Each panel is scanned at a resolution of over 1.5 billion pixels.

At the Ide Laboratory of the Graduate School of Engineering, we are developing state-of-the-art imaging technologies to archive digitally numerous cultural properties that are characteristic of the Kyoto area.

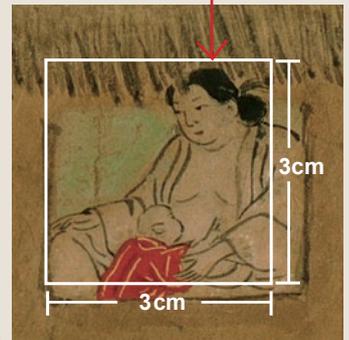
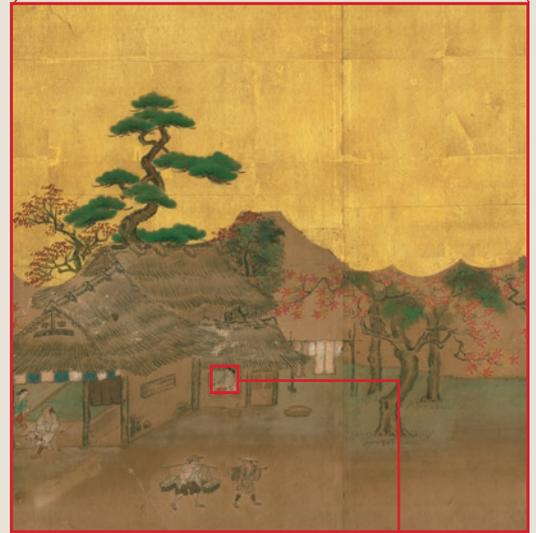
The "Depictions of Life and Customs in the Tatsuta Region" (*Tatsuta Fuzoku-zu* – designated an Important Cultural Property) wall paintings of Nijo Castle (UNESCO World Heritage Site) have been archived as ultra-high resolution digital images that are well over 1.5 billion pixels each. With cooperation from the City of Kyoto and assistance from the Japan Science and Technology Agency, this has proved to be a successful academia-government collaborative research project.

Our new high precision scanner system for cultural assets digitizes large artworks such as those on sliding doors (*fusuma*), and is distinct in its high dimensional and color reproduction accuracy. The digitization process has been carefully developed to minimize its intrusive effects by developing appropriate light sources and minimizing the physical bulk of the scanner itself (the lightest machine is under 30kg). We have also been successful in adding analytical imaging features which enable non-destructive and non-invasive analysis of material composition.

In developing the hardware and software for this integrated scanner system, we are striving to attain greater two- and three-dimensional scientific data from higher resolution images, and utilize this new knowledge for education and research which will ultimately contribute to the appreciation and conservation of our cultural heritage.

We are currently working with institutions in China (Xian), the UK (London), Korea (Seoul) and Egypt (Cairo) to establish a global foundation of collaboration to preserve, utilize, and pass down to the next generation, the world's cultural resources. We hope that this technology from Kyoto – a city of culture and technology – will encourage a renewed global discussion and interest in cultural heritage.

In 2010, we collaborated with the Tokyo National Museum to digitize, on-site, a pair of folding screens depicting the Uji Bridge (*Uji-bashi-zu-byobu*) at 1200dpi. This utilized the world's highest-resolution technologies of the time, at 25 billion pixels.



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