A Collaborative Approach between Art History and Literature via IIIF

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Introduction

This paper describes a collaborative approach of information exchange between art history and literature via IIIF as conducted by two projects: the SAT Daizōkyō Text Database Committee (SAT) and a project to leverage an open dataset of the National Institute of Japanese Literature. This approach is technically similar to that used by previous projects such as TILE and TEI. However, as it has not been easy for them to fully treat the binding of images of a book between Web services, this approach adopts the IIIF (International Image Interoperability Framework) so that both can connect easily and efficiently. After explaining the distinctive aspects of both projects, we will introduce a collaborative solution.

In May 2016, SAT released the SAT Taishōzō Image DB (SATiDB), which includes digital facsimiles of a series of Buddhist images and their interpretations in the Taishō Tripitaka consisting of 12 volumes originally published in 1933. SATiDB provides annotations for about 5,200 Buddhist icons (*busson*) and symbols (*sanmayagyō* and mandala) in the books and several search functions of the annotations with a simple translator from English to technical terms in CJK characters via the Digital Dictionary of Buddhism. As the annotations use a vocabulary of attributes of Buddhist icons, such as hair style, sitting style, type of chair, possessions, etc., which was defined by this project due to the absence of such a vocabulary in the source data, users can also search the objects by clicking a checkbox of one or more term in a list form of the vocabulary (Figure 1).

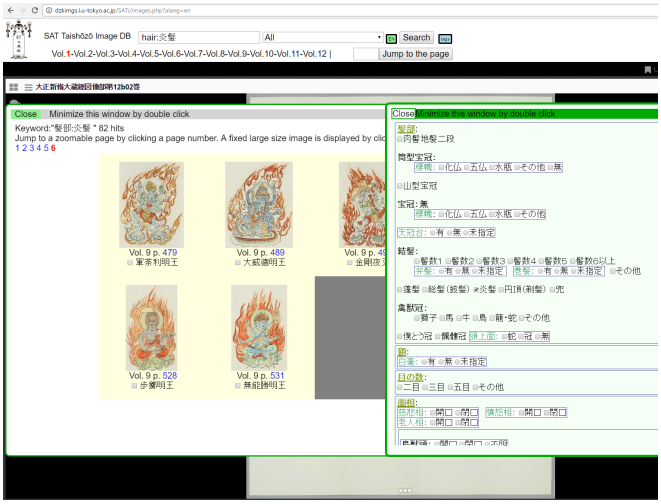

Figure 1. A search result of “burning hair”

As the system is compliant with IIIF, the images and annotations can be leveraged in various ways, even from other web sites. SATiDB has a function to expose several objects in parallel by clicking checkboxes of cropped images by coordination of each object in the search results on the IIIF viewer, Mirador (Figure 2).

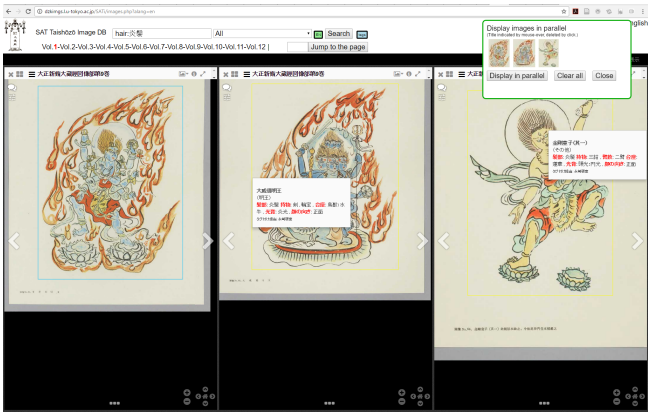

Figure 2. Checked images are displayed in parallel.

The annotations were embedded by forty-three researchers in the field of Japanese art history on a web collaboration system in 2015. We developed the system utilizing RedHat Linux, Apache, PostgreSQL, PHP, jQuery, and Annotorious, which enabled the easy annotation of images. The annotations were stored in PostgreSQL including attributes such as date and responsibility. After input, the data were converted into IIIF Presentation API and distributed with hi-resolution images converted from 60M-pixel images delivered with IIIF Image API. This system provides researchers of Japanese art history with a brand new function to see and compare Buddhist icons and symbols. Many positive comments have been received from the researchers of Japanese art history and the number of visitors of the site was over 12,000 in the first month, but no papers have yet been produced explicitly using this system.

The other project also developed a Web collaboration system to embed transcription of Japanese texts (the issues of such transcription have been described by Nagasaki et al, 2016) line-by-line in the style of IIIF annotation which enables to search images as-they-are via Smart-GS. (Hashimoto et al, 2014) It adopts OpenSeaDragon and its plugins to annotate images with zooming and has a function to convert them into the format of IIIF Presentation API. So far, two premodern woodcut printing books written in cursive Japanese script were completely done by two researchers and available via customized Mirador for right-to-left viewing-direction and vertical texts (Figure 3).

Figure 3. Customized Mirador for right-to-left viewing-direction and vertical texts

Finally, we explain the approach of linking both projects. As one of the two transcribed woodcut printing books includes names of Buddhist saints, we added tags on the names to trigger an event to search the name and prepare a function to request queries to the SATiDB. On the other hand, in the SATiDB, a function to distribute only a list of search results including images cropped by IIIF Image API was implemented to pull search results from other Web sites by use of a form of URL such as:
http://dzkimgs.l.u-tokyo.ac.jp/SATi/key:_*keyword*_

Figure 4. Search result of SATiDB by clicking a red-colored part of transcribed text

As a result, readers– primarily researchers, but laypersons as well– can see images of related Buddhist icons on SATiDB while reading the book. See Figure 4 to understand background of it. This is a typical solution of IIIF and easily applicable for any environment in the digital humanities.

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