

CODH Seminar 2020-08-05

"Collection of Facial Expressions" and "Kaokore Dataset"

Data-driven art history research
and
possibility of collaboration with machine learning

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Agenda

1. Self-Introduction
2. Collection of Facial Expressions (KaoKore) and KaoKore Dataset
3. Making process of KaoKore (How we made KaoKore)
4. KaoKore and Art History Research (Why we made KaoKore)
5. Expectation of Collaboration with machine learning

Self-Introduction

- Chikahiko Suzuki
 - Project Assistant Professor of ROIS-DS Center for Open Data in the Humanities (CODH)
 - Project Researcher of National Institution for Informatics (NII)
- <http://codh.rois.ac.jp>
- <https://researchmap.jp/chsuzuki>



Chikahiko Suzuki
(鈴木 親彦)

Modified on: 02/07

Research Background

- Humanities Researcher
 - Digital Humanities, Art history, Cultural Resource Study
- Not “Machine Learning” Researcher
 - If some of you expect all talks directly concern with machine learning, I apologize in advance...
 - I will talk about possibility of collaboration from the viewpoint of humanists.

Collection of Facial Expressions (KaoKore)

- What is Collection of Facial Expressions (**KaoKore**) ?
- **Kao** 顔 means face, **Kore** コレ is an abbreviation of Collection in Japanese.
- KaoKore is an image collection of Japanese art works focusing on facial expressions.
 - Each facial expression image has basic metadata: Status, Gender, Direction, information of Original work, and Tag (Various Keywords).
 - Gathered images of pre-modern art works from multiple organizations in Japan.
 - 8845 facial expressions in this time.
- About KaoKore (in Japanese): <http://codh.rois.ac.jp/face/>
- KaoKore: <http://codh.rois.ac.jp/face/iiif-curation-finder/?lang=en>

Content providers of original artworks of KaoKore

- Dataset of Pre-Modern Japanese Text (National Institute of Japanese Literature and ROIS-DS Center for Open Data in the Humanities)
 - <http://codh.rois.ac.jp/pmjt/>
- Digital Collection of Keio University Libraries (Keio University Media Center)
 - <http://dcollections.lib.keio.ac.jp/en>
- Kyoto University Rare Materials Digital Archive (Kyoto University Library Network)
 - <https://rmda.kulib.kyoto-u.ac.jp/en>

Asset Search page of KaoKore

Collection of Facial Expressions

日本語 / English 顔コレ作業アカウント Help List

Search

テーマ

顔貌 (8845)

性別

男 (6830) / 女 (1976) / 不明 (39)

向き

四分の三 (5176) / 横 (2771) / 正面 (102) / 不明 (11) / 後 (782)

身分

貴族 (3996) / 武士 (2877) / 庶民 (794) / 化身 (792) / 僧侶 (300) / 動物 (20) / 神職 (10) / 不明 (56)

原典

伊勢物語 (32) / 伊勢物語絵巻 (85) / 厳島縁起 (17) / 宇津保物語 (479) / 浦島太郎 (44) / 朧ほしおりさうし (260) / 転寝草紙 (11) / 花鳥風月 (53) / 雁の草子 (15) / 咸陽宮 (104) / 妓王 (75) / 熊野権現縁起 (67) / 車僧絵巻 (53) / 御所まと (35) / 五節淵酔之屏風絵 (180) / 西行物語 (86) / 狭衣 (21) / ささやき竹 (112) / [三十六]歌仙 (36) / 四十二の物あらそひ (153) / しつか (259) / 酒吞童子 (450) / しゅ天童子 (172) / しゅてんとうし (359) / 水宮けい (144) / 住吉物語 (121) / 大職冠 (288) / 玉たすき (9) / 玉水物語 (17) / 依藤太 (148) / 長恨歌絵巻 (90) / 付喪神絵巻 (149) / 土くも (99) / 常盤の姫 (23) / ときはのうは (33) / ともなが (246) / 判官都ばなし (42) / 火おけのさうし (20) / ふくろふ (38) / 文正草子 (831) / ふんせう (147) / 弁慶物語 (64) / 辨慶物語 (26) / 法妙童子 (106) / まんぢう (38) / みなつる (37) / 虫物語 (111) / 後三年合戦絵 (414) / 源氏物語絵巻 (322) / 源氏物語団扇帖 (255) / 源氏物語絵屏風 (230) / 前九年軍記 (201) / 源氏物語屏風 (200) / 狂言絵 (159) / 大橋の中將 (131) / 大黒舞 (117) / 唐糸草紙 (109) / 富士の人穴草子 (102) / 勸修寺八幡宮縁起 (98) / 八幡大菩薩御縁起 (73) / 小敦盛 (55) / 十二類絵巻 (53) / 鳳閣見聞図説 (47) / 羅生門 (41) / 杉山肥前掾人形芝居小屋前の図屏風 (38) / 三十六歌仙像 (36) / 時代不同歌合絵巻 (36) / 巷間芸能絵尽 (30) / 十六夜日記 (27) / 小男の草子 (24) / 扇の草紙 (23) / 詩歌仙 (12) / 本朝八優集 (8) / 伊勢物語図 (8) / 常盤木 (7) / 雛屋立圍絵入書巻 (4)

制作年

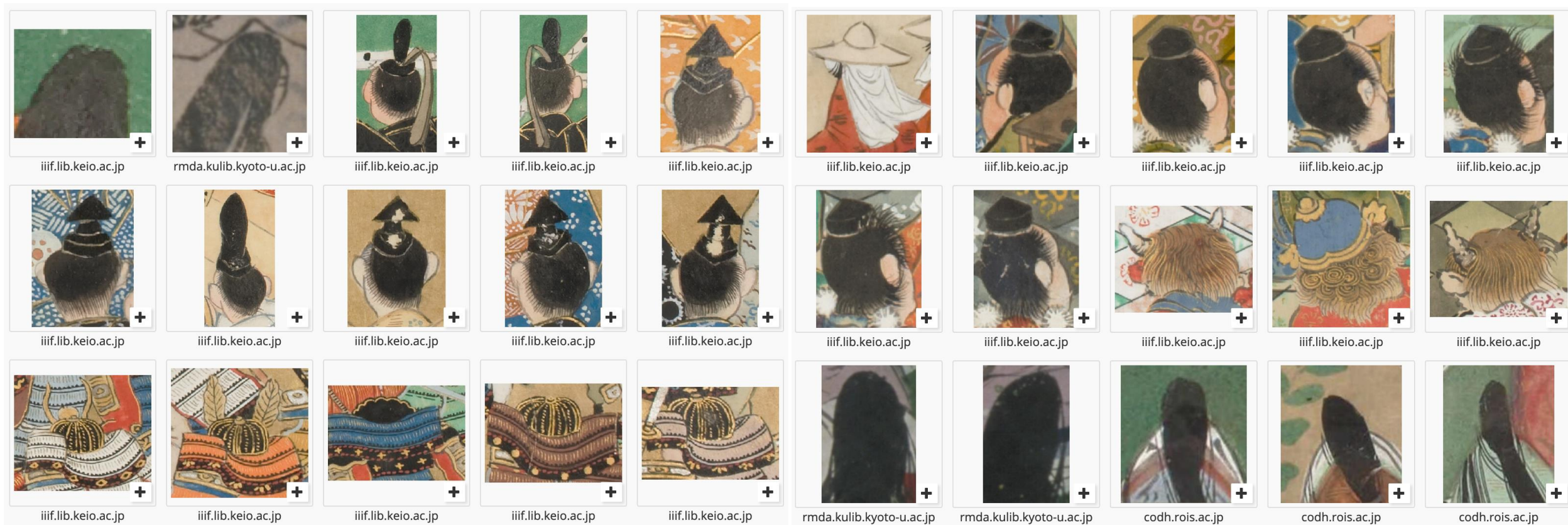
Facial Expressions on KaoKore

- Search result: 身分(Status)=武士 (Warrior)



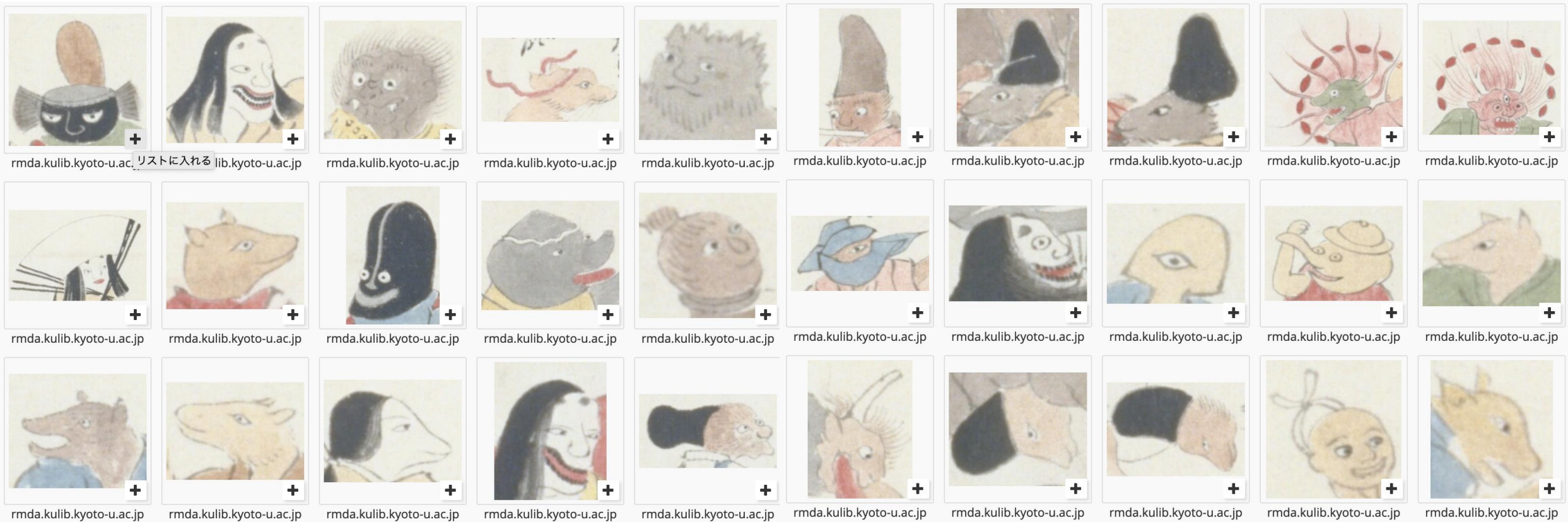
Facial Expressions on KaoKore

- Search result: 向き (Direction)=後ろ (Back)



Facial Expressions on KaoKore

- Search result: タグ(Tag)=付喪神 (Tsukumogami; Spirits of disordered object)



KaoKore Dataset

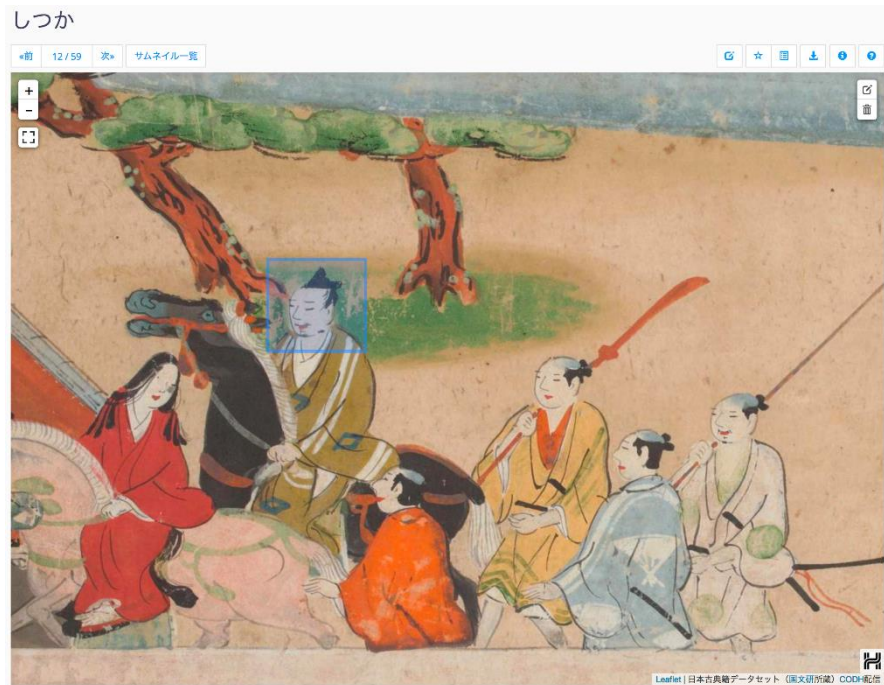
- Dataset derived from KaoKore in a format convenient for machine learning.
 - <http://codh.rois.ac.jp/face/dataset/index.html.en>
- Contans
 1. Location information (URL) of facial expression images (256x256 size each), as a text file
 2. Attribute information (metadata) as a text file
 3. Labels and splits for machine learning, as a CSV file
- *Technical detail will be explained on Yingtao's talk.
- KaoKore dataset has only location information of images, not image data itself. Because we don't want to reduce access to contents providers, and we want to support them to further data publication.

Making process of KaoKore

- We cropped images from digitized Japanese artworks publicly available from multiple organizations.
- We take advantage from IIIF (International Image Interoperability Framework).
 - <https://iiif.io/>
- We use IIIF Curation Platform, which is developed by CODH.
- IIIF Curation Platform enable us to crop images from the world's IIIF-compatible websites and handle metadata.
 - <http://codh.rois.ac.jp/icp/index.html.en>

Bordered and cropped every facial expression on artworks

- This is simple work, but hard manual work!
- Japanese artworks, especially Emaki 絵巻 (picture scroll) has a lot of scenes. And each scene has many facial expressions.



キュレーションリスト



× 全てクリア

📄 エクスポート

📄 JSON

閉じる

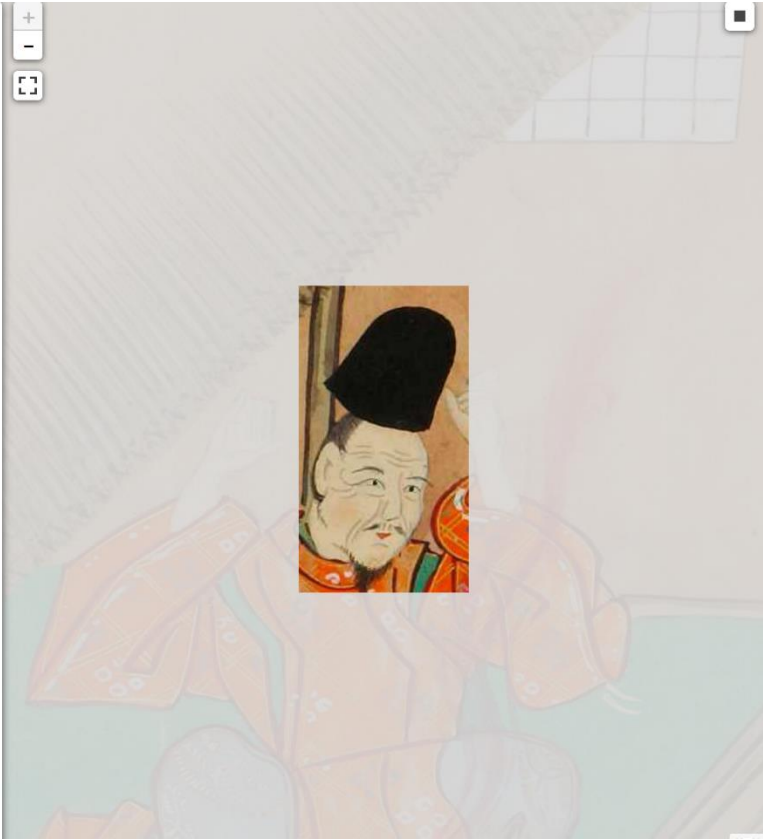
Add metadata to every facial expressions

- This is also hard work, and not simple work.
- We need to check references of art history many times.

Curation Metadata (Canvas 2) ×

Metadata ▼

label	value	
テーマ	value string ▼ 顔貌	×
性別	value string ▼ 男	×
身分	value string ▼ 貴族	×
向き	value string ▼ 四分の三	×
原典	value string ▼ 浦島太郎	×



Metadata label

- 性別 Gender: 男 male, 女 female, 不明 unknown
- 身分 Status: 貴族 noble, 武士 warrior, 化身 incarnation
- 向き Direction: 前 front, 後 back, 横 portrait, 4分の3 three quarters
- 原典 Original works

KaoKore and Art History Research

- Why we take trouble to make KaoKore?
- We CODH aim to promote data-driven research in humanities..
- We art historians compare details of art works for identification of painters.
 - This is basic method of style comparative studies in the art history field.
 - The founder is Giovanni Morelli Italian art historian, politician and doctor in 19th.
- We have used “scissors and paste” in manual way, so image collections can not be share or reuse easily.
 - I show example...

Example of traditional way of research

- Art historian compared facial expression cropped from two art works for identification.
- Red block is painting identified the painter “Awataguchi Takamitsu” 粟田口隆光.
- Blue block is unknown work.



Aizawa, Masahiko (2016).
“Ishiyamadera engi emaki shoukai”.
Ishiyamadera engi emaki shusei,
Chuokouron bijutsu shuppan,

KaoKore and Art History Research

- There is a limit to share and reuse with research based on manual works.
- KaoKore give us shareability and reusability of cropped images in digital way.
- We can create derivative image collections from KaoKore and share on the internet.
 - If other researchers want to check whole original works, they can follow a link on derivative curation.
- Art historians can discuss based on research data.

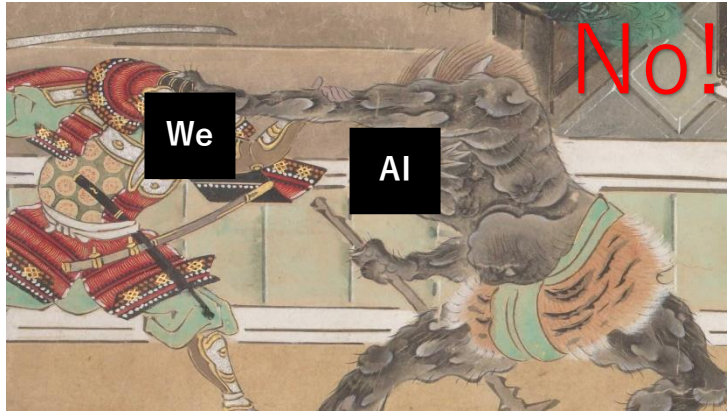
Expectation of Collaboration with Machine Learning

- I have a lot of expectation from the viewpoint of humanists.
- First and most important to me is creating basic research data.
- Creating basic data of KaoKore is hard work.
 - Image recognition about facial expression on Japanese artworks can be a great help.
 - Of course, increasing the number of facial expression images will provide rich training data for machine learning.

Expectation of Collaboration

- Machine learning may be able to visualize unconscious decisions of art historians.
- When we compare facial expressions, we always discuss about “Typical expression of the painter or artwork”.
- Actually this is ambiguous.
- Typical expression characterizes the artwork, but is not the most frequent expression in the artwork.
- I imagine, some kind of image recognitions help us to make objective indicators of our decisions.

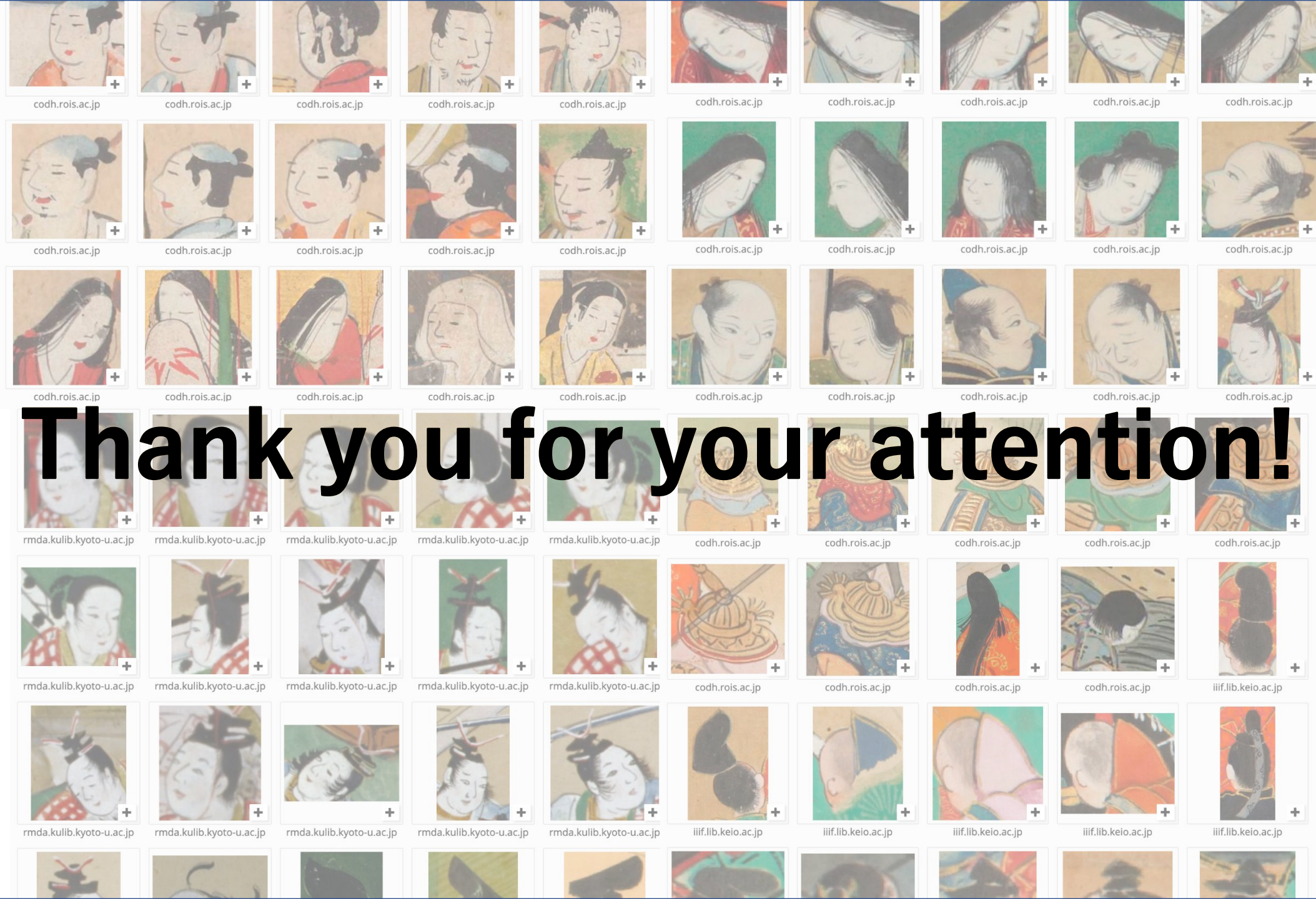
- We don't want to race against machine learnings.
- We don't want to use machine learnings as Oracle.



- We want to collaborate and cooperate with machine learnings.
- We hope KaoKore dataset is one of the triggers for collaboration.



*All these images are on KaoKore. Please check their real facial expressions.



Thank you for your attention!