

Towards AI-supported records management

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London, December 2022

Overview

AI and Archives

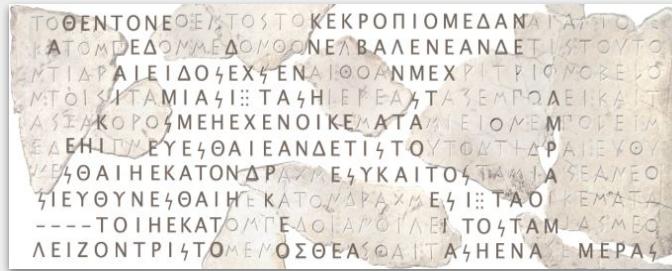
Preconditions and requirements

Going forward

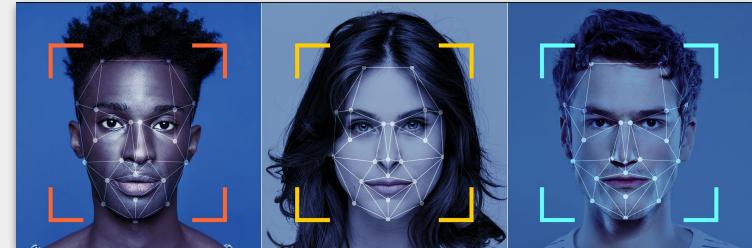
AI and the Humanities



1



2



3

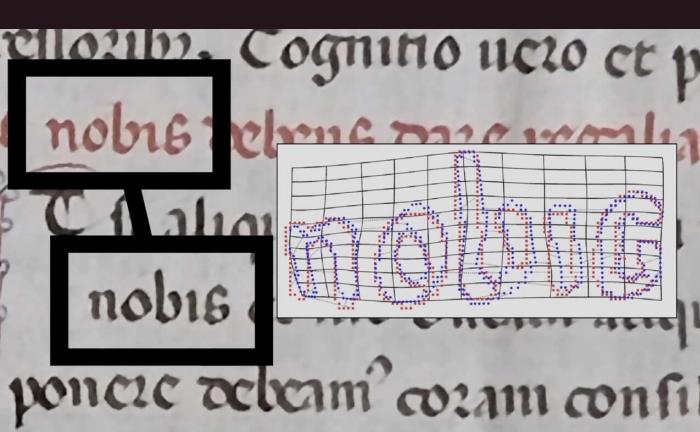
1: Stable Diffusion, Stability.ai

2: Assael et al. "Restoring and attributing ancient texts using deep neural networks" *Nature*

3: Clearview.ai

3

AI and Archives



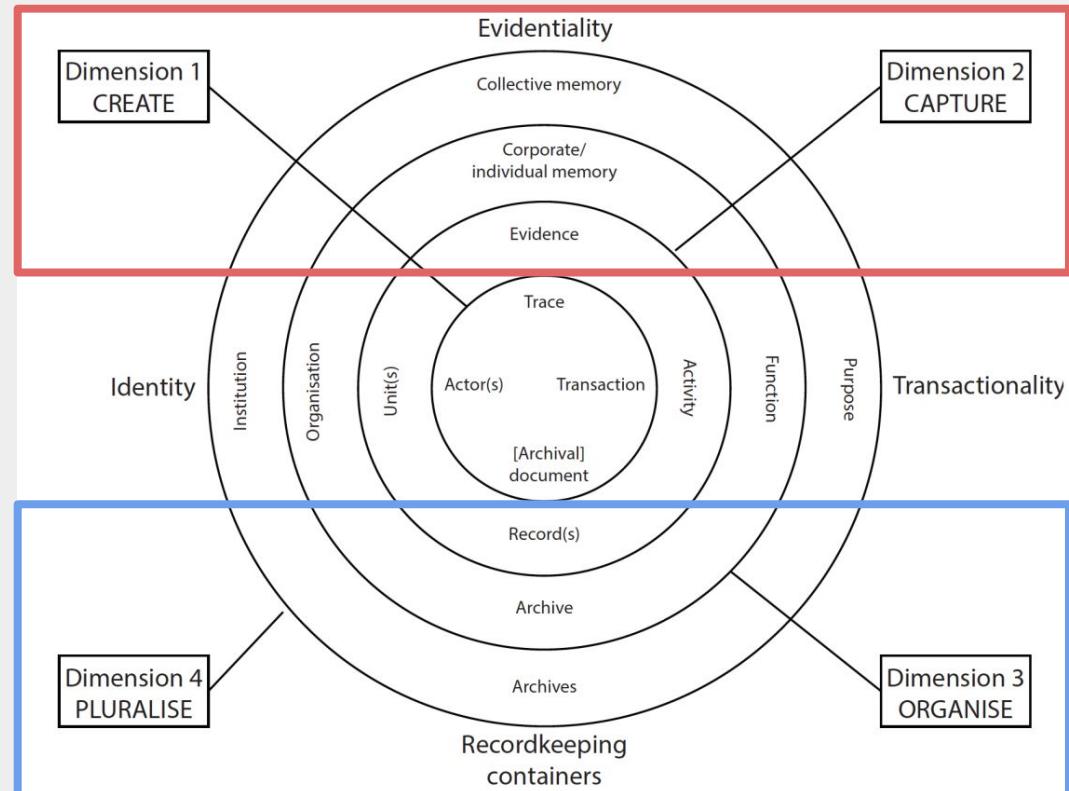
- Open data and models
- Robust multimodal information extraction pipelines (layout, OCR/HTR, entities, relations)
- Transparent workflows (eXplainable AI), towards expert decision augmentation
- Generalise to records management applications in public organizations

AI and Archives

Colavizza, Blanke, Jeurgens, Noordegraaf

"Archives and AI: An Overview of Current Debates and Future Perspectives", 2022

Journal on Computing and Cultural Heritage



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Opportunities:

- **AI is necessary to process large-scale record holdings**
- We need **recordkeeping contributions to the advancement and appropriate use of AI**, by bringing expertise on provenance, appraisal, transparency

Challenges:

- AI reconfigures archives **from aggregates of records to data**. We need **a lasting update of archival theory, practice and infrastructure**
- The automation of recordkeeping processes rests on **trust into AI decisions**. We need **shared ethical frameworks** informed by an understanding of AI impacts and potential

AI and Archives

Challenges

- **Scale**
- **“Dark” archives**
- **Skills gap**



AI and Records Management

Dutch examples



- **Ministry of Finance:** algorithmic discrimination in the childcare benefits scandal (*Toeslagenaffaire*)
- **Ministry of Justice:** est. 400 km backlog for appraisal and selection

AI and Records Management

Challenges

- **Scale:** quality (and speed)
- “Dark” archives: transparency and accountability
- Skills gap: monitoring and infrastructure



Preconditions and requirements

for AI-supported records management

- **Quality of results**
- **Transparency**
- **Accountability**
- **Monitoring and infrastructure**

Preconditions and requirements

for AI-supported records management

- Quality of results: Do AI techniques deliver good enough results? Define 'good enough'
- Transparency: Should AI decisions be 'interpretable' by a human expert? Is the training and evaluation data 'unbiased' and 'well-documented'?
- Accountability: Who is responsible for AI-supported decisions? How to we document AI decisions in records management workflows?
- Monitoring and infrastructure: How do we guarantee fair, fast and high-quality processes over time? How do we embed AI into records management software/infrastructures?

Going forward



- **Develop and release datasets and shared tasks**
- **Engage with open AI challenges**
- **Develop and assess guidelines for AI-supported records management**

Going forward



- Develop and release datasets and shared tasks

Example: an open shared task on the automatic appraisal of government records

- Engage with open AI challenges

Example: curating and documenting AI datasets

- Develop and assess guidelines for AI-supported records management

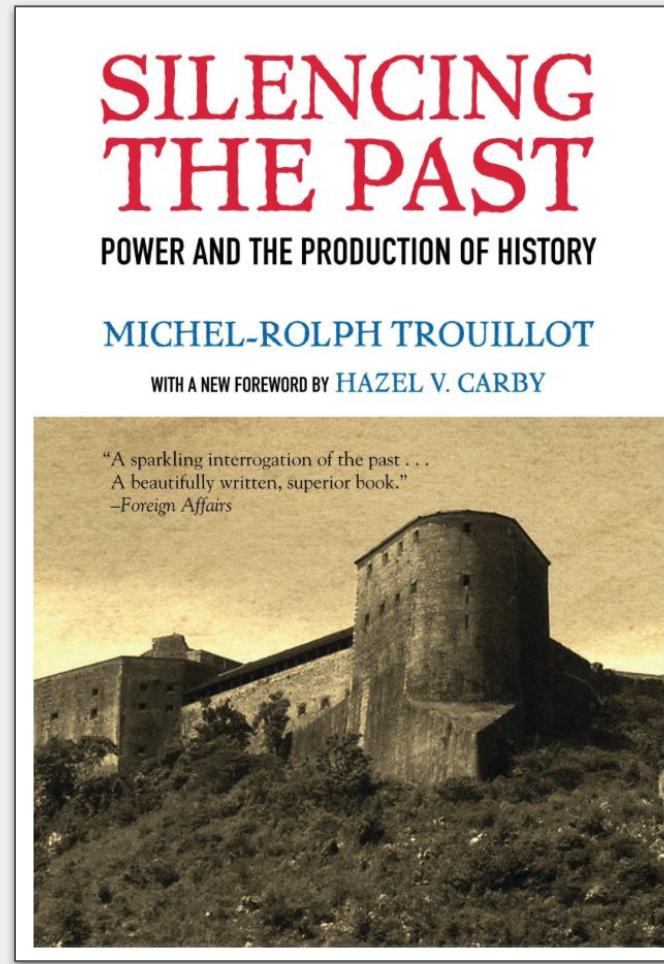
Example: guidelines for recording metadata about AI decisions

Unsilencing colonial archives

Luthra, Todorov, Jeurgens, Colavizza

"Unsilencing Colonial Archives via
Automated Entity Recognition", 2022

Journal of Documentation

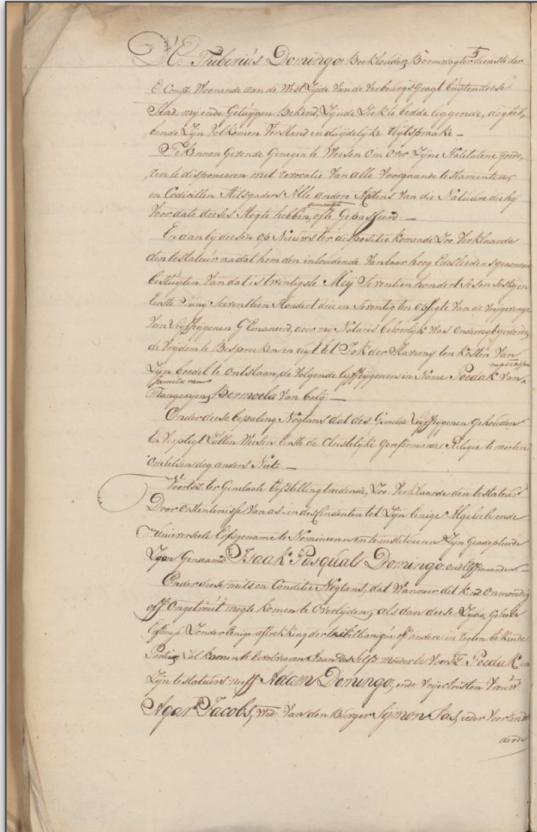


Unsilencing colonial archives

Luthra, Todorov, Jeurgens, Colavizza

"Unsilencing Colonial Archives via
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Journal of Documentation



Expand finding aids to include mentions to all people, named or unnamed

Corpus:

- ❖ **Dutch East India Company (VOC) testament archives**
- ❖ **HTR with Transkribus**

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Results:

1. An ontology of personhood
2. A corpus of 70,000 annotations
3. Baselines for the entity recognition task

Excerpt from VOC testaments:

... zal komen te devolveren Aan desselfs moeder de Voorsz: Poedak en zijn testateurs neeff Adam Domingo:, ende vrijechristen Vrouw: Agar Jacobs, wed: van den Burger Sijmon Sas, ieder Voorende derde ...

Enslaved

Free(d)

Unspecified

English translation:

... will belong to the mother of the aforementioned Poedak and the testator's nephew Adam Domingo, and the free Christian woman Agar Jacobs, widow of the citizen Sijmon Sas, each for one third ...

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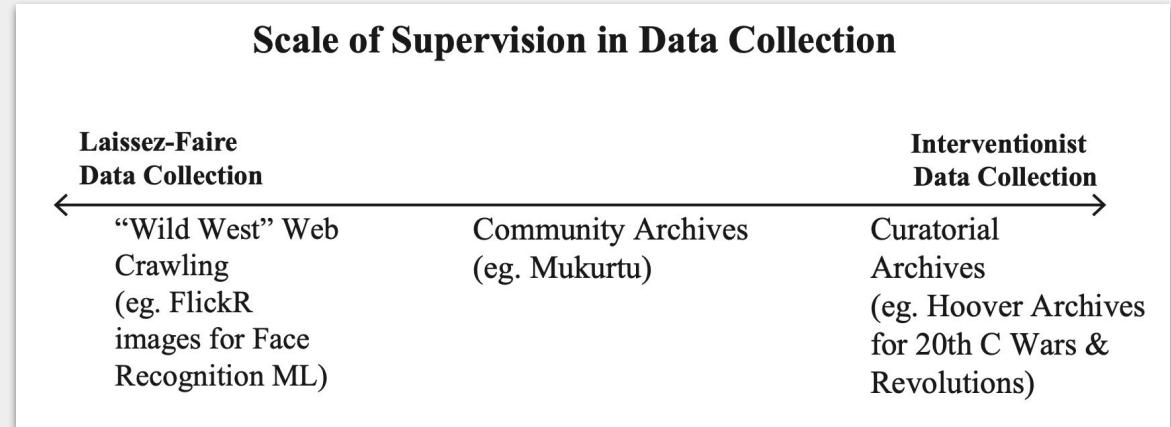
Journal of Documentation

Challenge: offensive language in historical sources hinders access by non-experts

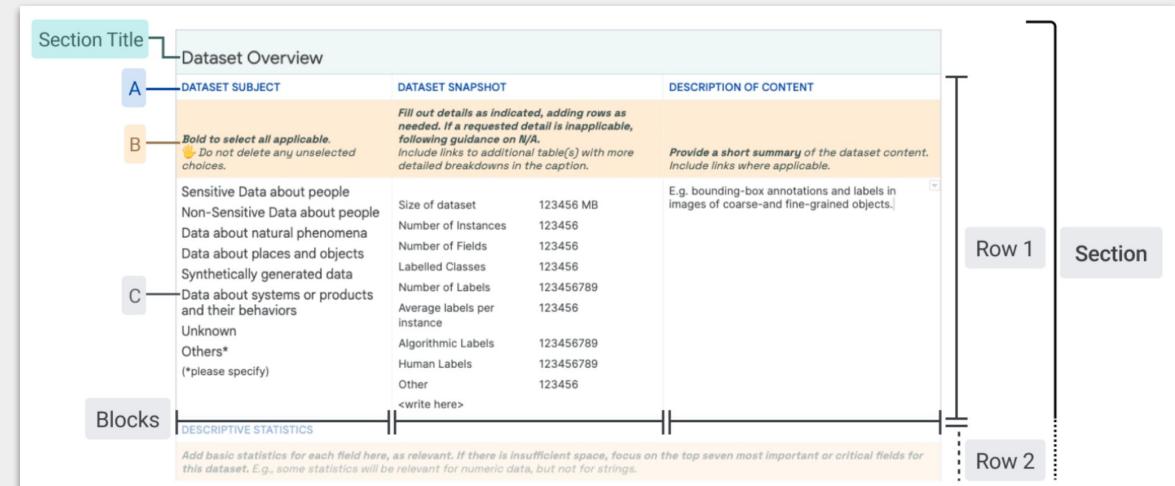
Opportunity: develop inclusive finding aids for the National Archives of the Netherlands

- Provide original as is
- Facilitate access by enriching finding aids via non-offensive lexicon expansion
- Evaluation with both experts (e.g., historians) and non-expert communities

Curating and documenting data



Curating and documenting data



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Unsilencing Colonial Archives via Automated Entity Recognition		
Dataset Download	Related Publication	Colonial archives remain difficult to access due to significant persisting barriers such as biases to be found in historical findings aids, such as indexes of person names, which perpetrate silences by omitting to include mentions of historically marginalized persons. In order to mitigate such limitations and pluralize the scope of existing finding aids, we propose using automated entity recognition for content based indexing. To this end, we contribute a fit-for-purpose annotation typology and apply it on a specific genre of the colonial archive of the Dutch East India Company (VOC). We release a corpus of nearly 70,000 annotations as a shared task, for which we provide strong baselines using state-of-the-art neural network models.
Authorship		
PUBLISHER(S)	INDUSTRY SECTOR	DATASET CURATORS
Nationale Archief, University van Amsterdam (UvA), Emerald Publishing	Academic	Mrinalini Luthra, UvA, 2022 Konstantin Todorov, UvA, 2022 Leon van Wissen, UvA, 2022 Charles Jeurgens, UvA, 2022 Giovanni Colavizza, UvA, 2022
DATASET ANNOTATORS		
Emma Louise van der Hage, UvA, 2022 Jonas Guigonnat, UvA, 2022 Silja de Vilder Coombs, UvA 2022 Yolien Mulder, UvA, 2022 Roos Blieleveld, UvA, 2022		
FUNDING	FUNDING TYPE	DATASET CONTACTS
Dutch Science Foundation (NWO), grant number: NWA.1228.192.108, CREATE, UvA funds	Public Research Funding	mrinalini.luthra@gmail.com g.colavizza@uva.nl
Motivations		
DATASET PURPOSE(S)	KEY APPLICATIONS	PROBLEM SPACE
Research Purposes Machine Learning Training, testing and validation	Machine Learning Entity Recognition	This dataset was created for training entity recognition models to create more inclusive content based indexes on the collection of VOC testaments. See accompanying article (in peer review currently).
PRIMARY MOTIVATIONS INTENDED AND/OR SUITABLE USE CASE(S)		
Provide ground truth for training entity recognition models on colonial archives		
ML Model Evaluation & ML Model Training for: - Entity detection - Attribute detection		
Uses of Dataset		
SAFETY OF USE	CONJUNCTIONAL USE	KNOWN CONJUNCTIONAL USES AND DATASETS
Research Use	Safe to use with other datasets	-
METHOD	SUMMARY	KNOWN CAVEATS
Entity Recognition	An entity recognition and classification model can be trained	This dataset contains a proportionally low number of organizations because of incomplete annotations.

Going forward



Questions

- **Quality of results**
- **Transparency**
- **Accountability**
- **Monitoring and infrastructure**

What to do

- **Develop and release datasets and shared tasks**
- **Engage with open AI challenges**
- **Develop and assess guidelines for AI-supported records management**

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