



Arvest: an open source tool for multimodal document network analysis

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#1
What is Arvest?

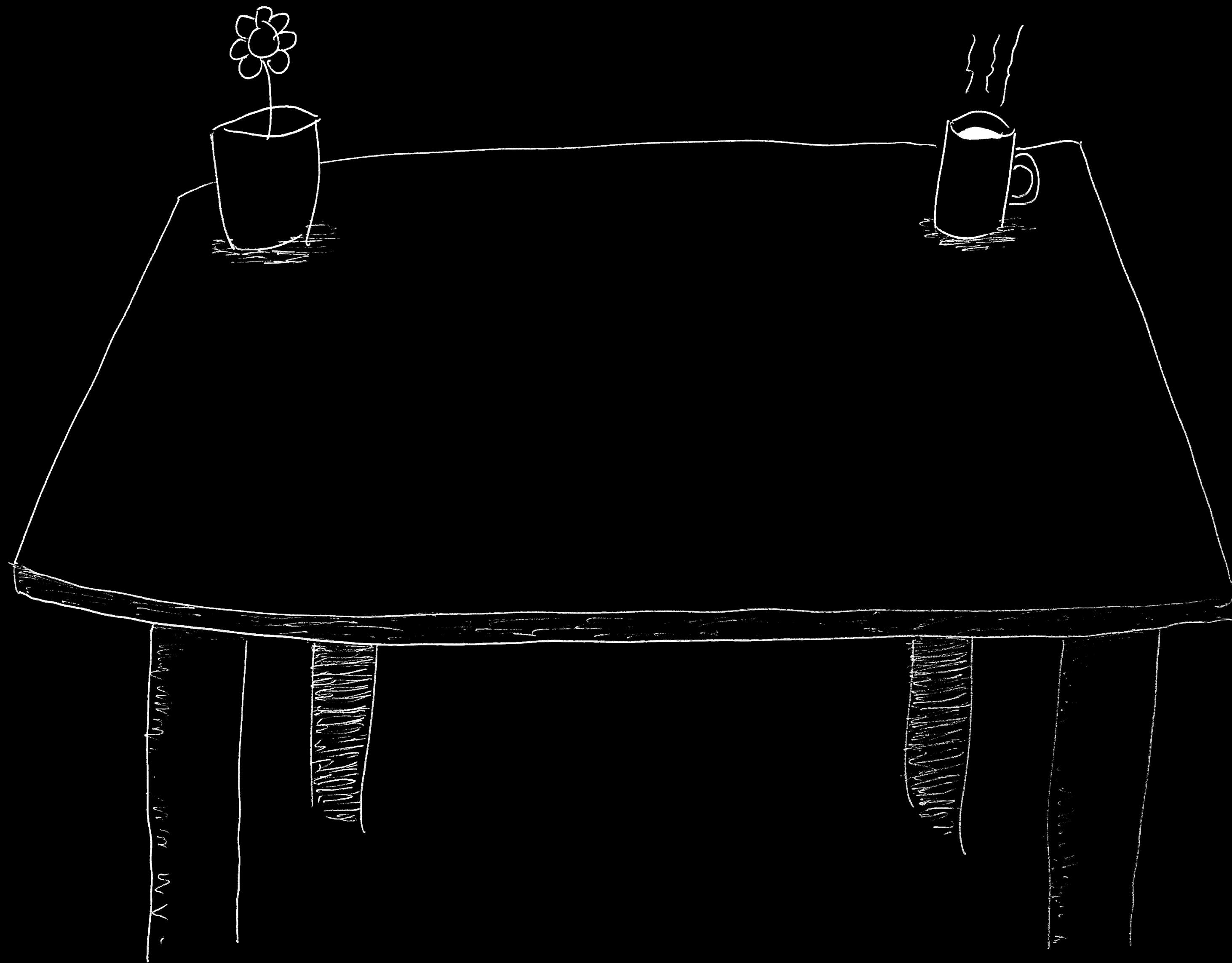
Arvest

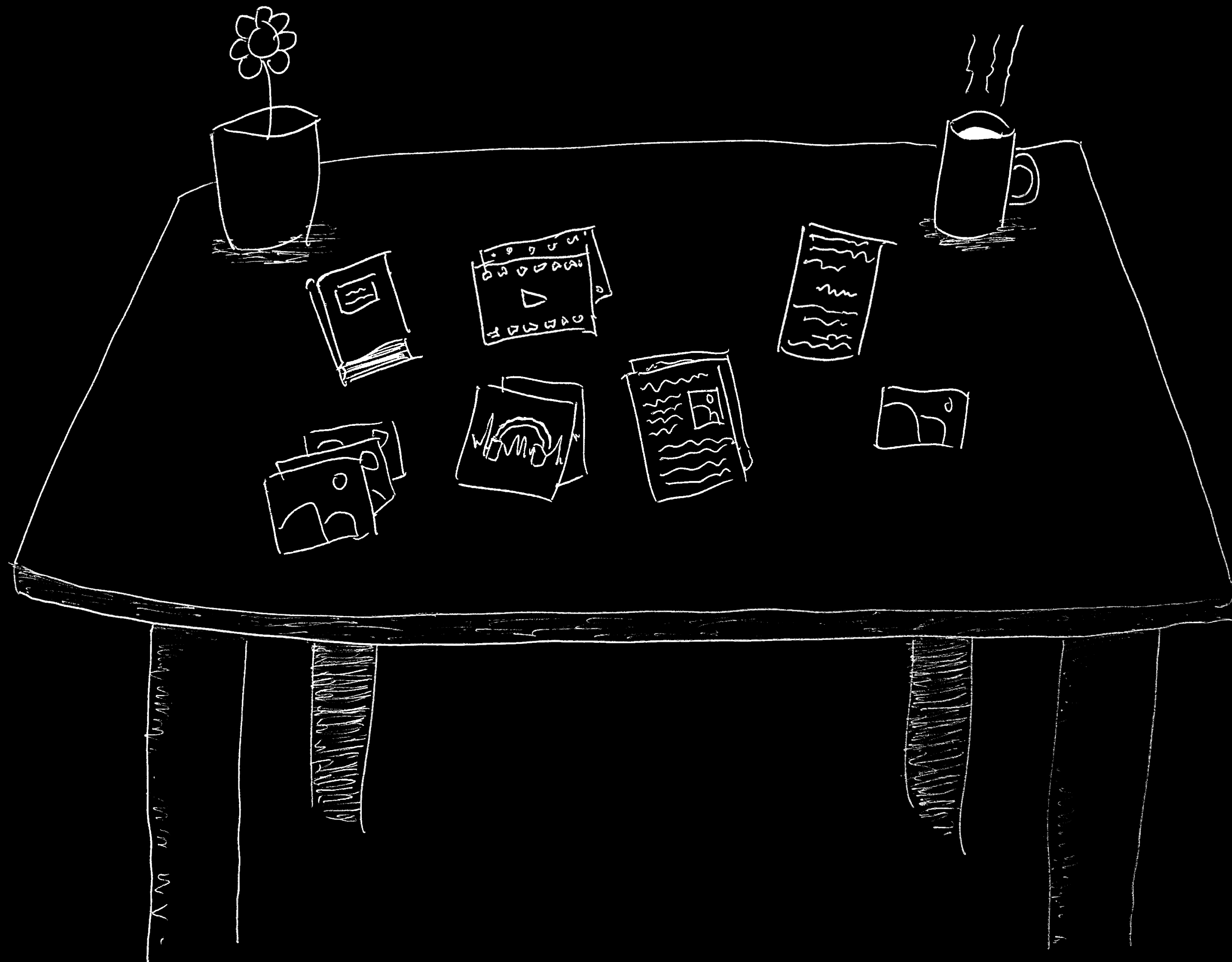
Data in context

ABOUT

SANDBOX

DISCUSS



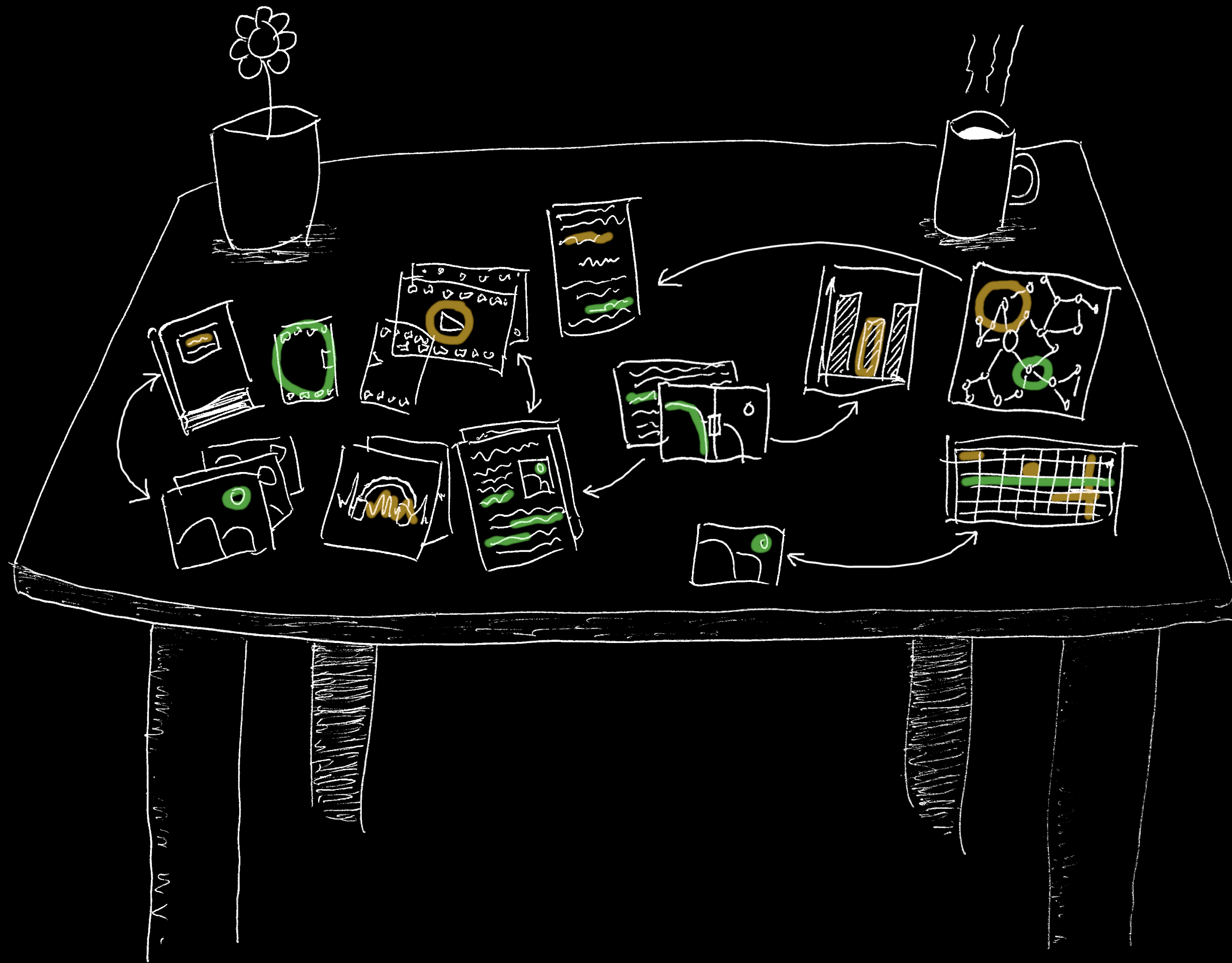








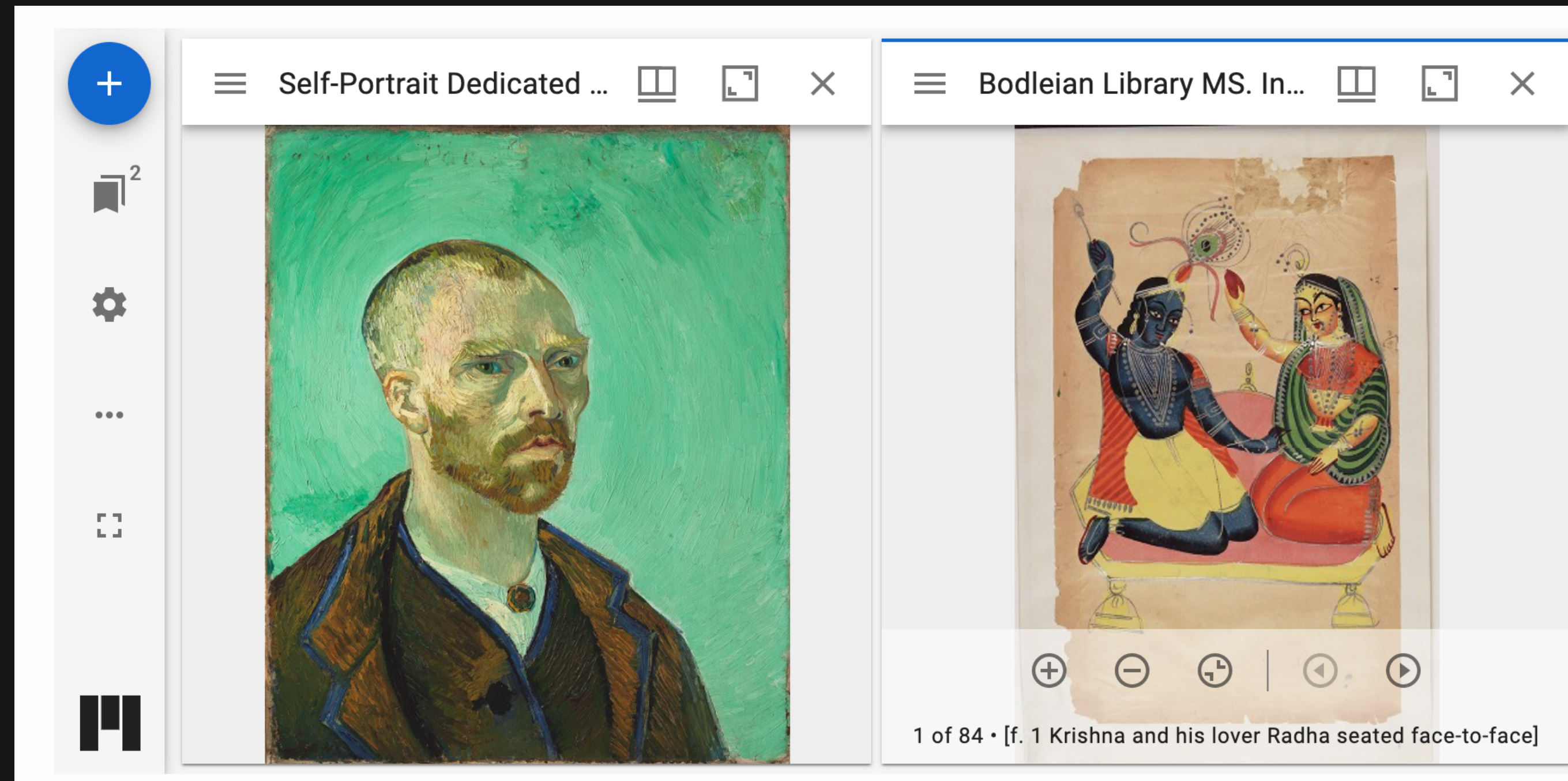






IIIF

- International Image Interoperability Framework
- Presentation API: lightweight JSON format
- Millions of digital objects available from collections all over the world.
- Allows for citation, annotations and metadata.
- Image only



Hakanai – Compagnie AMCB

Annotations

Filter...

- [Fiche technique](#)
- [Storyboard](#)
- [Dossier de présentation](#)
- [CARNET : Couverture](#)
- [CARNET : Octobre 2012](#)
- [CARNET : Octobre 2012 \(2\)](#)

Dispositif

Showing 8 annotations

01:14 / 02:45

1 of 1 · Hakanai

New annotation

TARGET

STYLE

START

0 1 4

END

0 1 14

IMAGE CONTENT

Image URL

TEXT CONTENT

B I

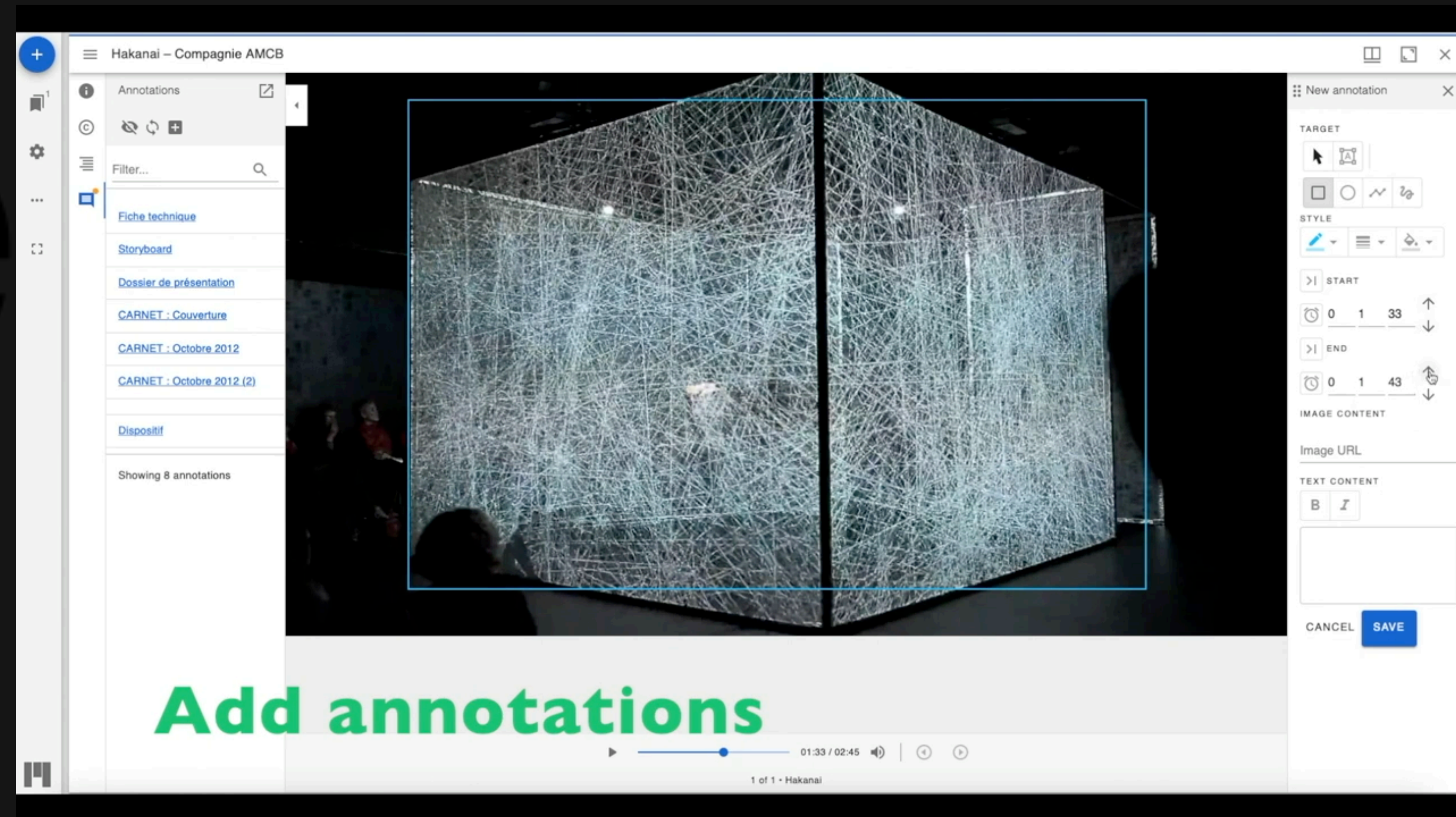
My Annotation

CANCEL SAVE

Prototype

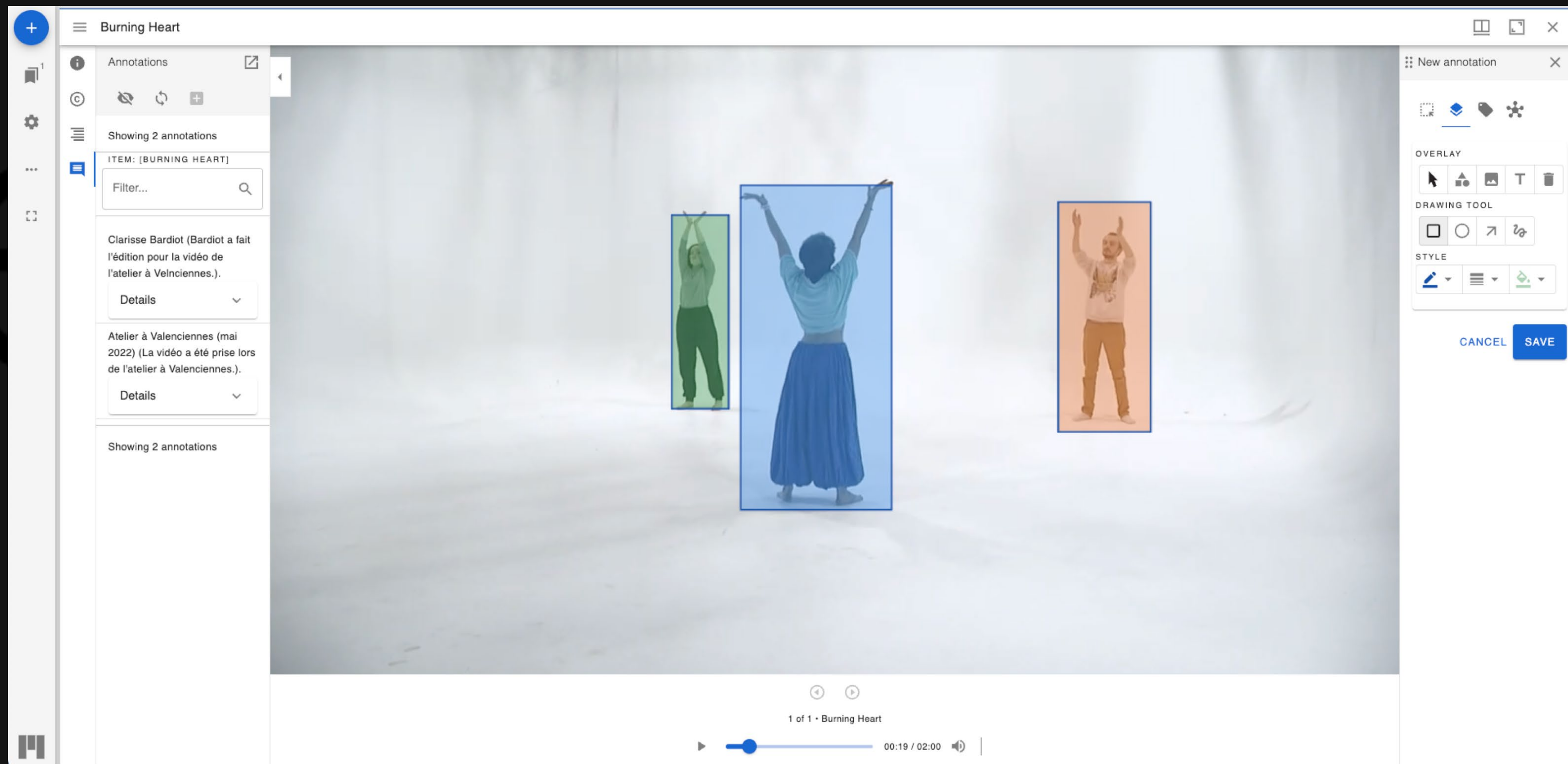
MemoRekall to Arvest

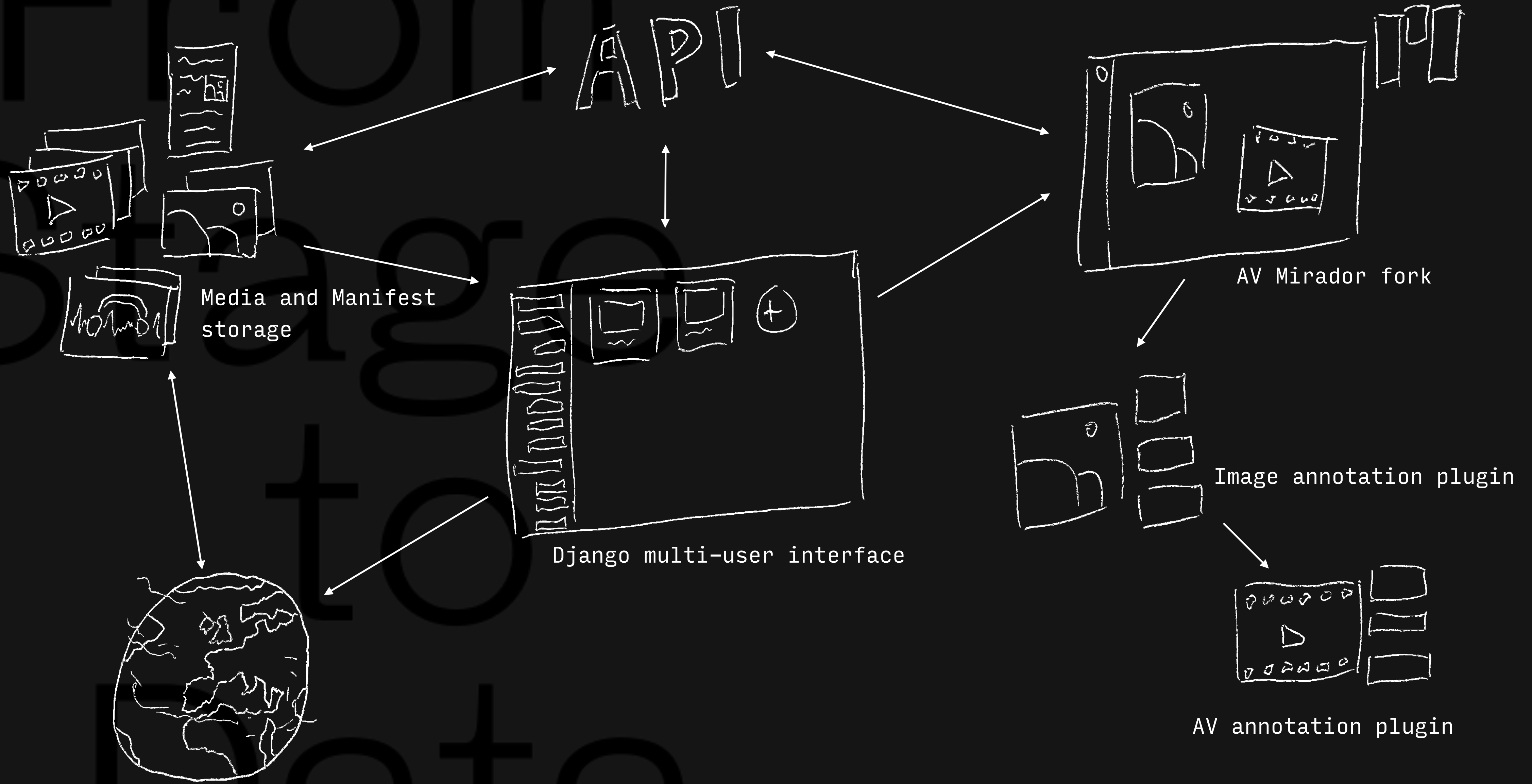
- MemoRekall: video annotation app in development since 2015.
- 2023: development of a prototype for Arvest (IIIF Conference 2023).
- Video playback in Mirador.
- Video annotations.



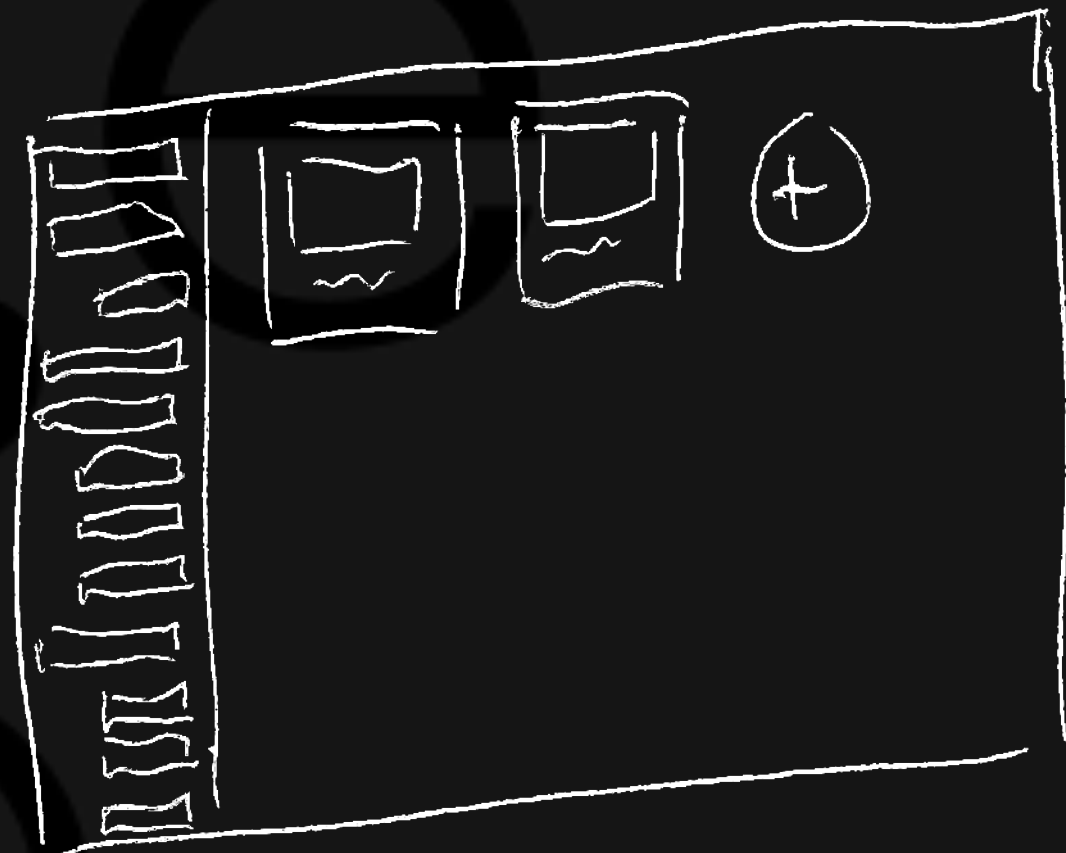
#2

Architecture & Features





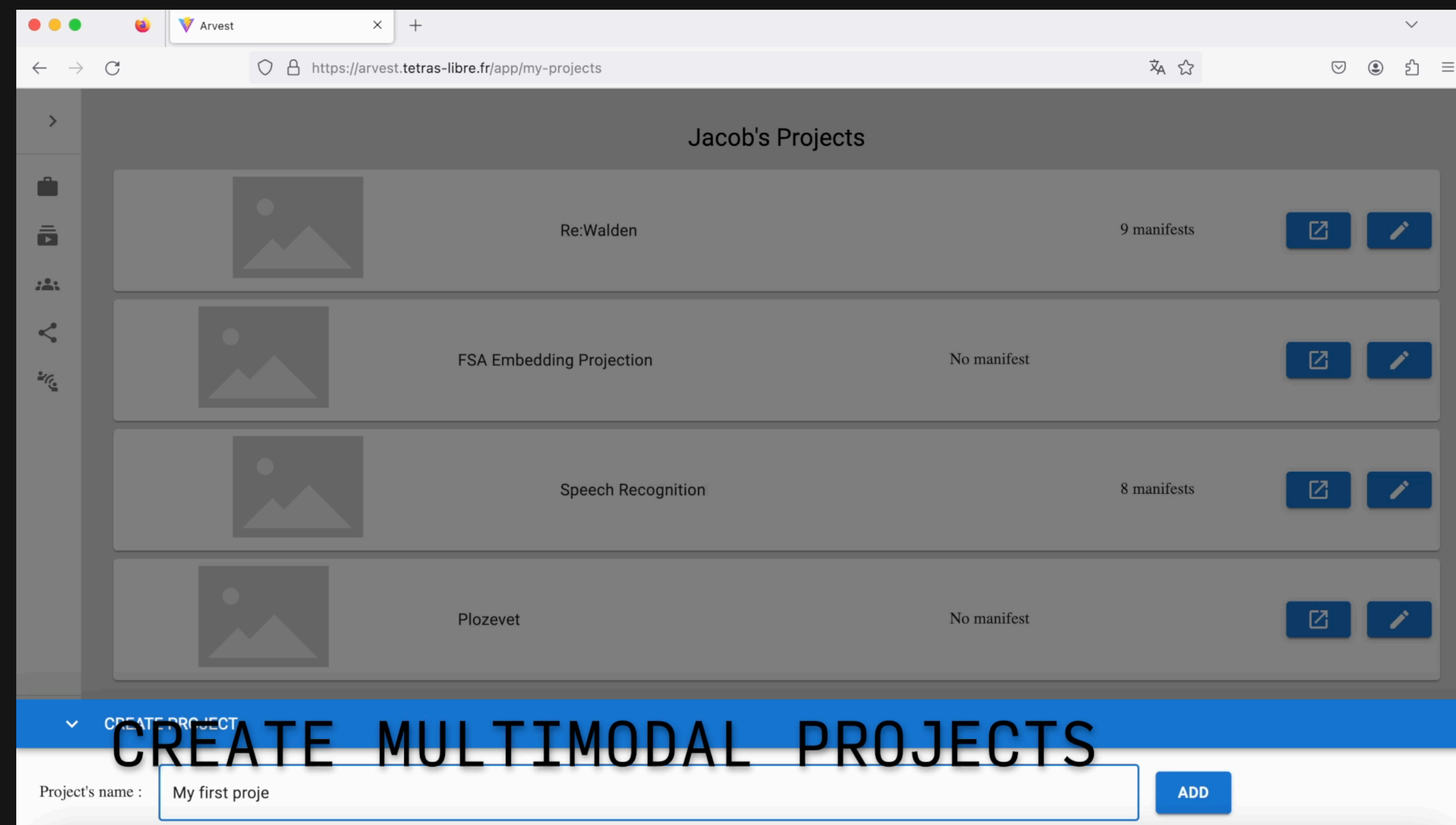
From Staggered to Data



Django multi-user interface

Multi-user environment

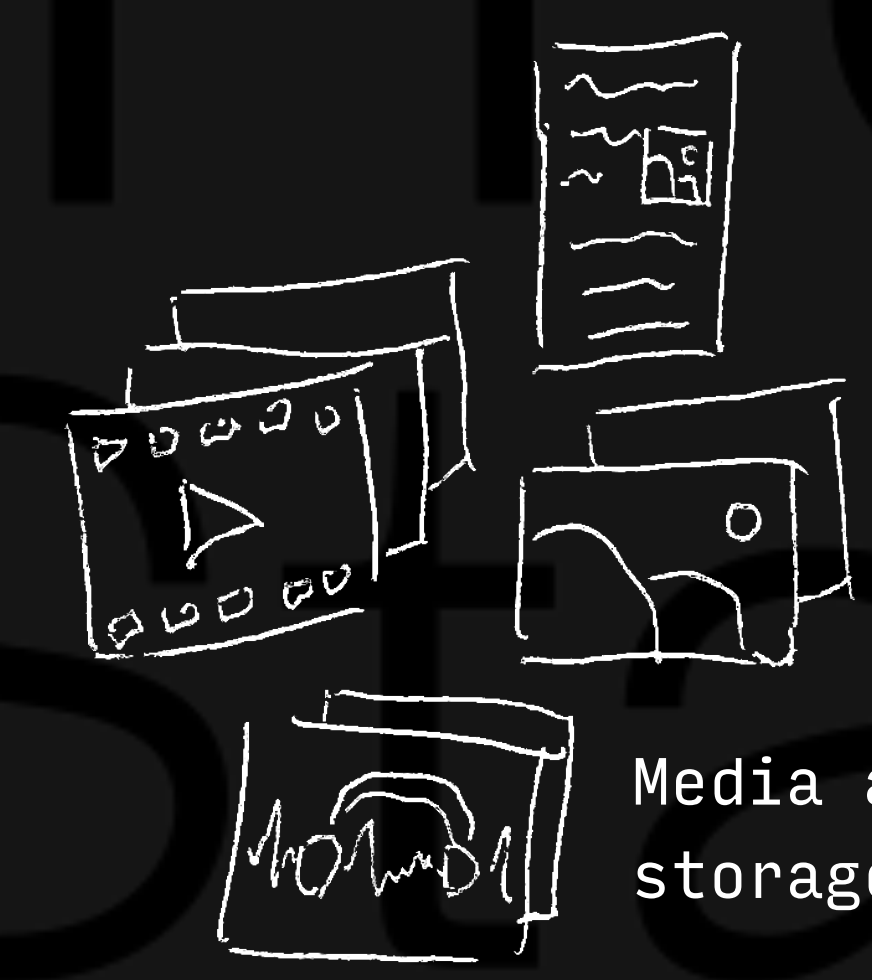
- Built in Django.
- User-friendly: create an account for free and start using IIIF.
- Stocking of media, Manifests and video files (PeerTube).



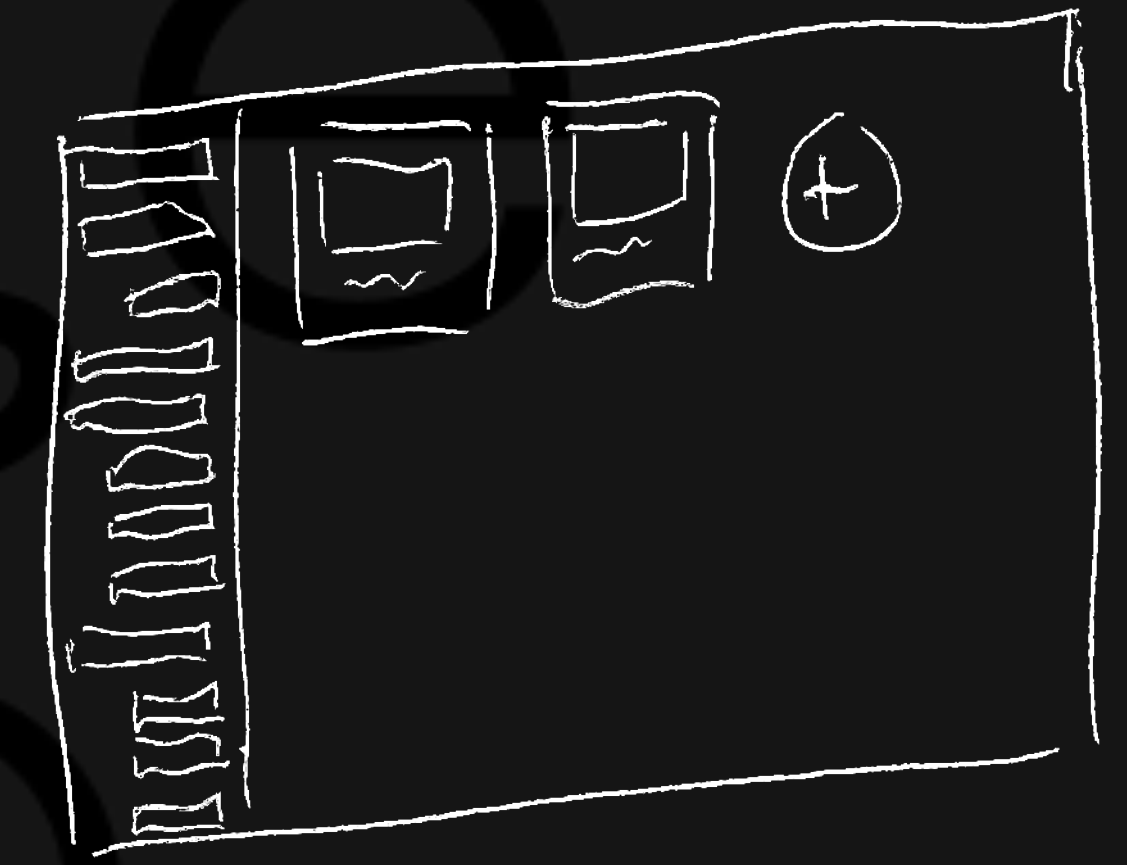
<https://github.com/SCENE-CE/mirador-multi-user>

<https://arvest.tetras-libre.fr/>

From



Media and Manifest storage



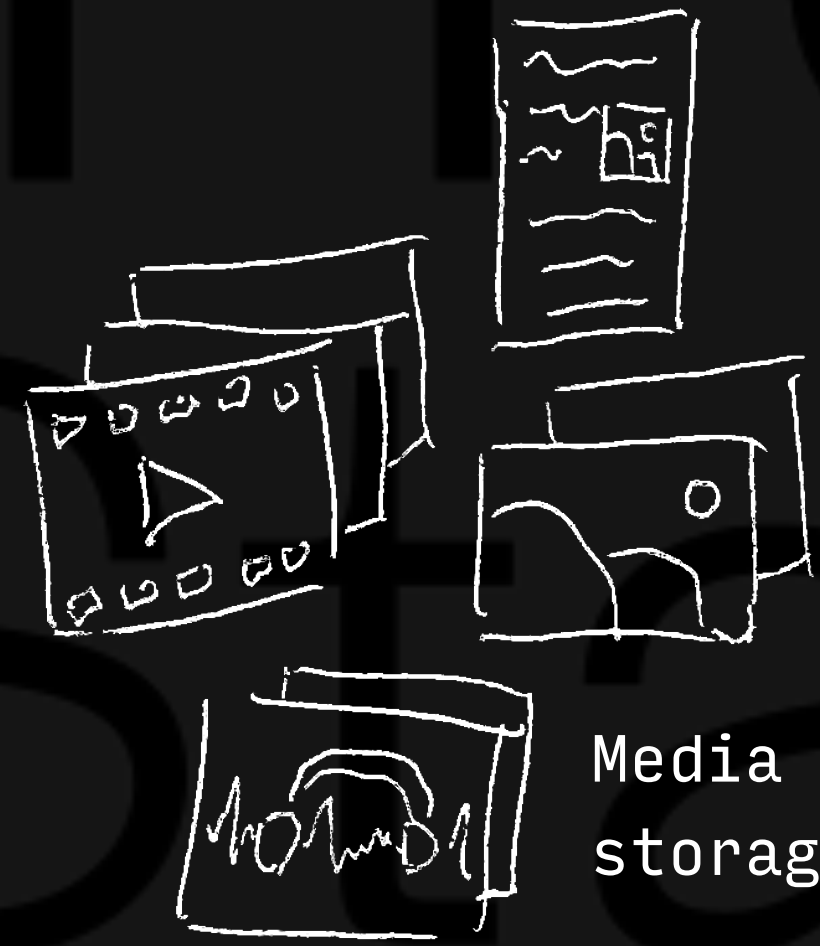
Django multi-user interface

Data

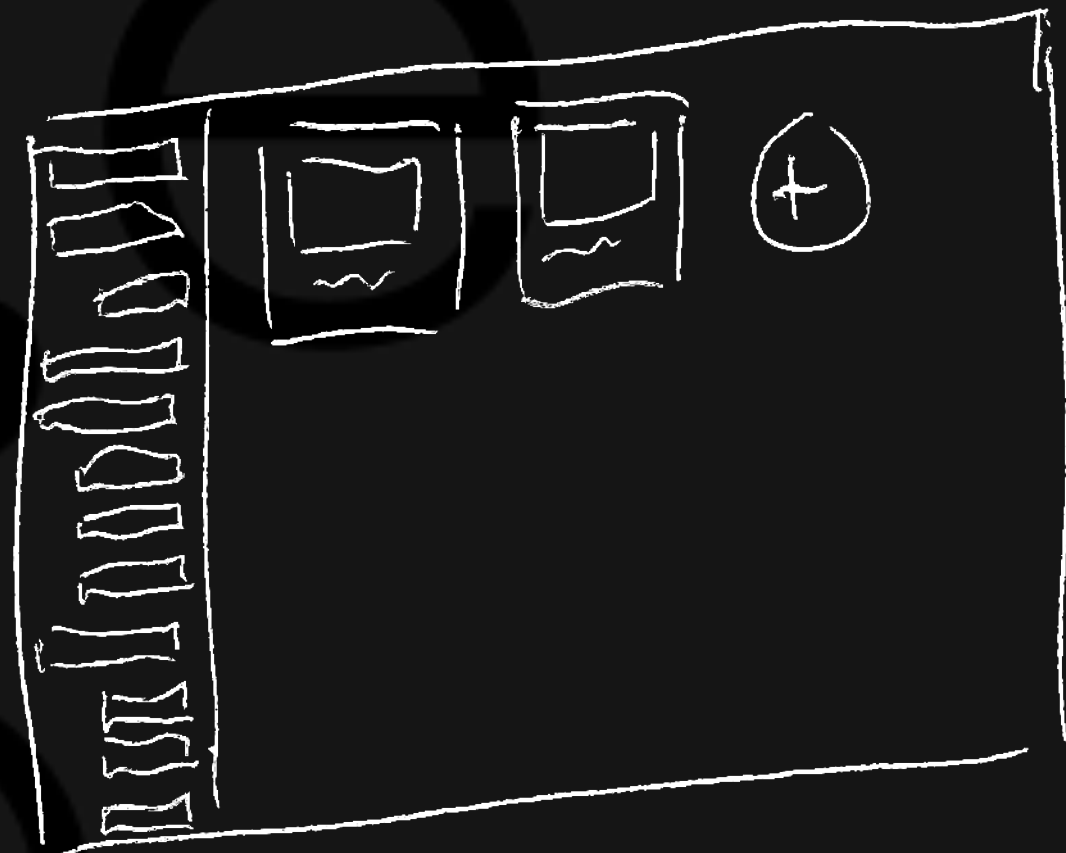
The image displays a digital workspace divided into two main sections. The left section, titled "01 - Manual Network Configuration", features a central network diagram with numerous nodes and connecting lines. A sidebar on the left contains a search filter set to "alma" and several expandable sections: "Alma Ballet Workshop Photos.", "Alma Ballet Exercises.", and "Alma Ballet Laban Notations.", each with a "Details" dropdown. Below these, it indicates "Showing 3 annotations". The right section, titled "Alma Ballet Exercises", shows a video player. The video frame displays a dance studio with several people. Below the video is a list of exercise titles: "Compromis 1", "Solitude", "Compromis 4", "Prendre son temps", "Solitude 2", "Solitude 3", "Compromis 3", and "Compromis 2". Below the list, there are two text annotations: "Clarisse Bardiot (Bardiot a fait l'édition pour la vidéo des travaux des étudiants du Alma Ballet.)" and "Sébastien Hildebrand (Hildebrand a fait la prise de vue et le montage pour la vidéo des travaux des étudiants du Alma Ballet.)", each with a "Details" dropdown. A Labanotation diagram is visible below the video frame. At the bottom, a video control bar shows a play/pause button, a progress bar at 00:11 / 06:45, and a volume icon. The text "1 of 1 - Alma Ballet Exercises" is displayed at the bottom right.

Multimodal projects

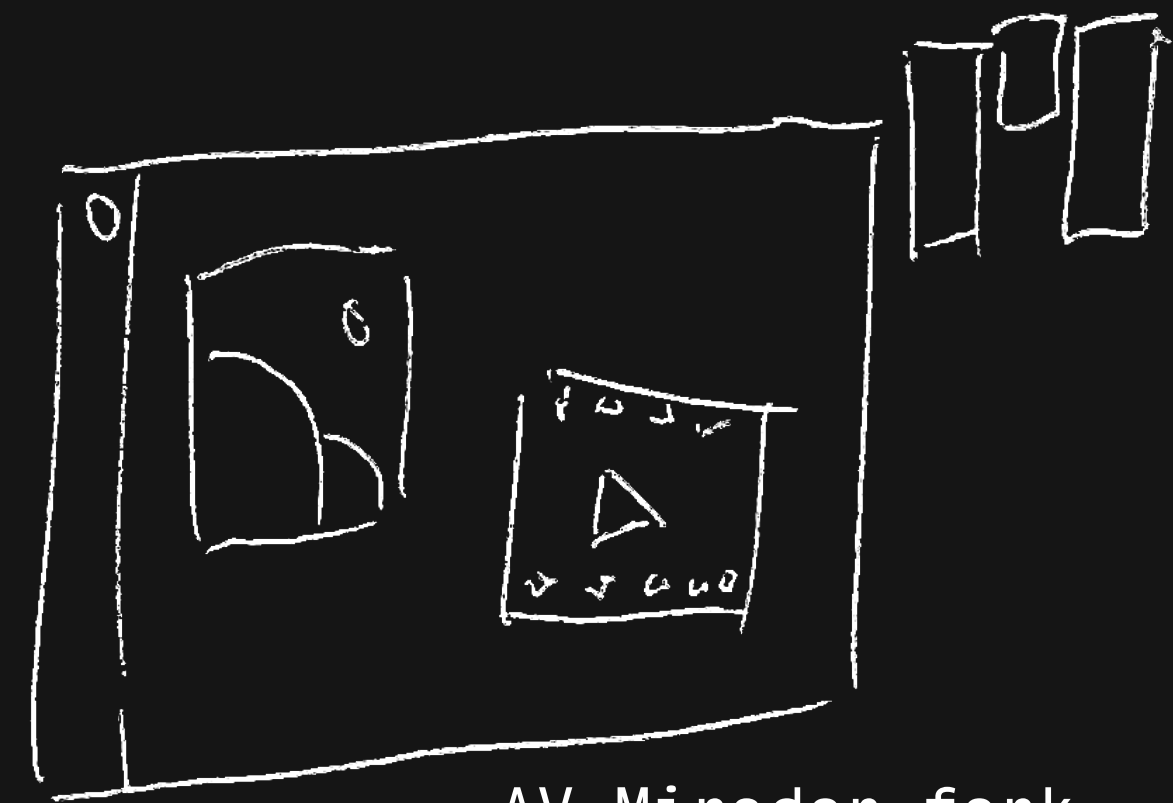
From
Storage
to
Data



Media and Manifest storage

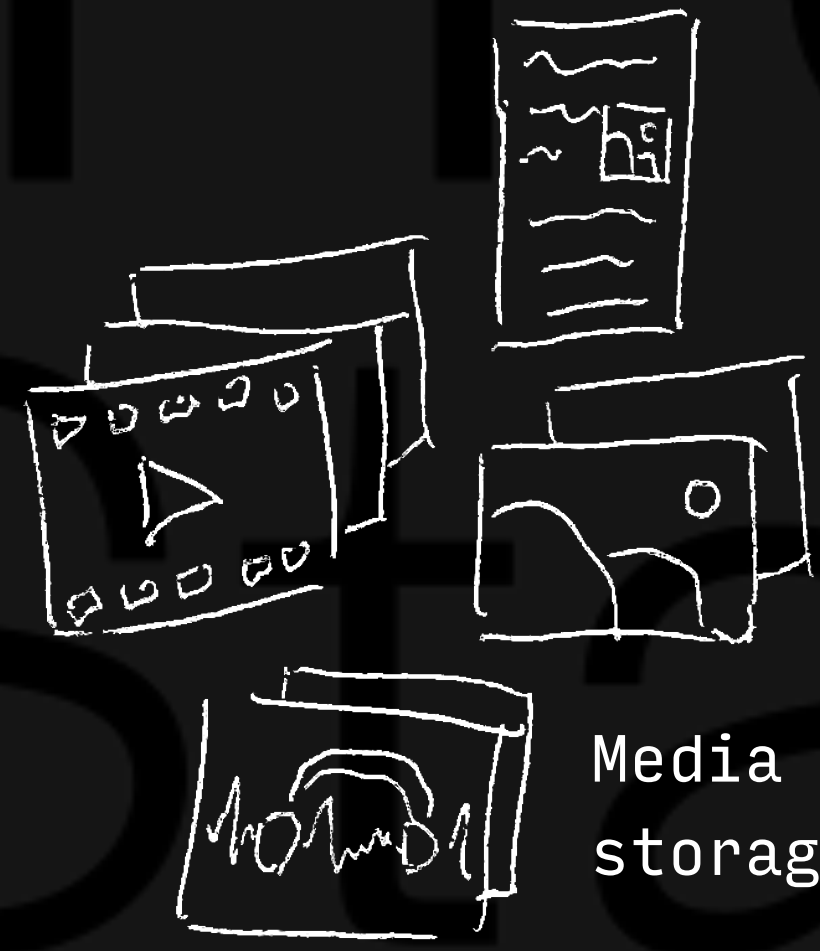


Django multi-user interface

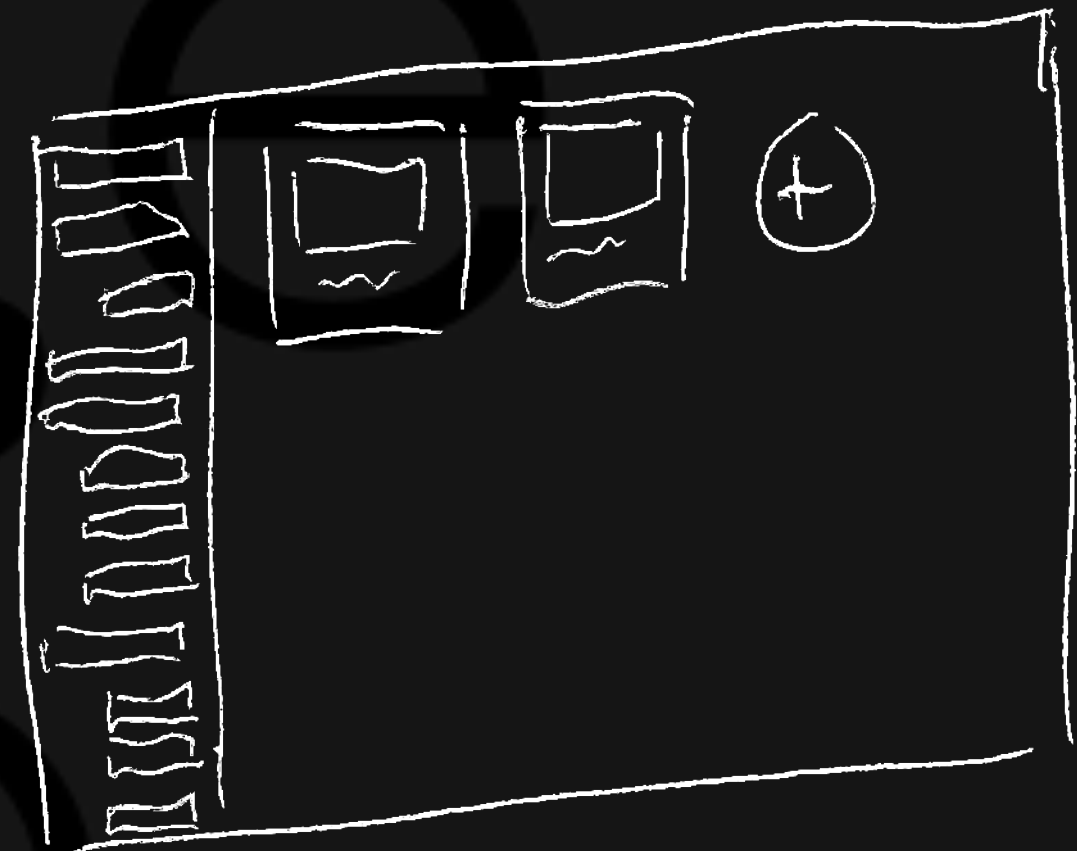


AV Mirador fork

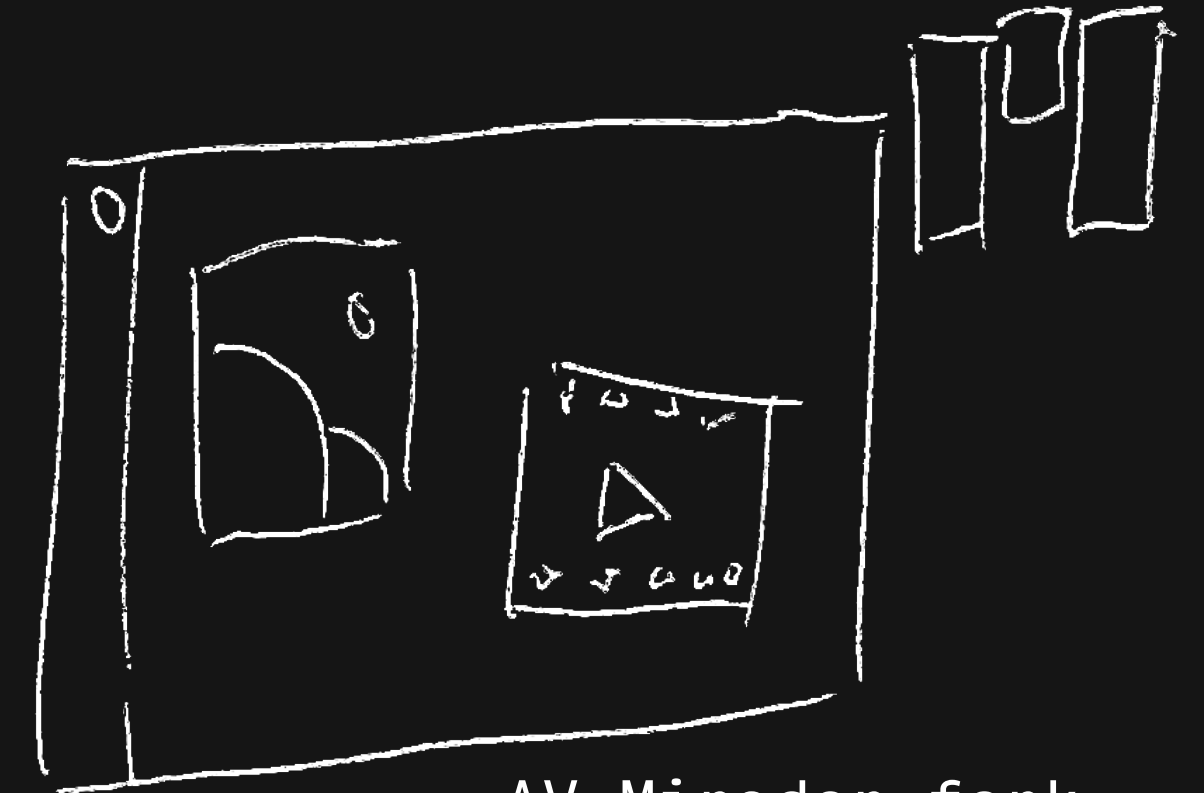
From
Storage
to
Data



Media and Manifest storage



Django multi-user interface

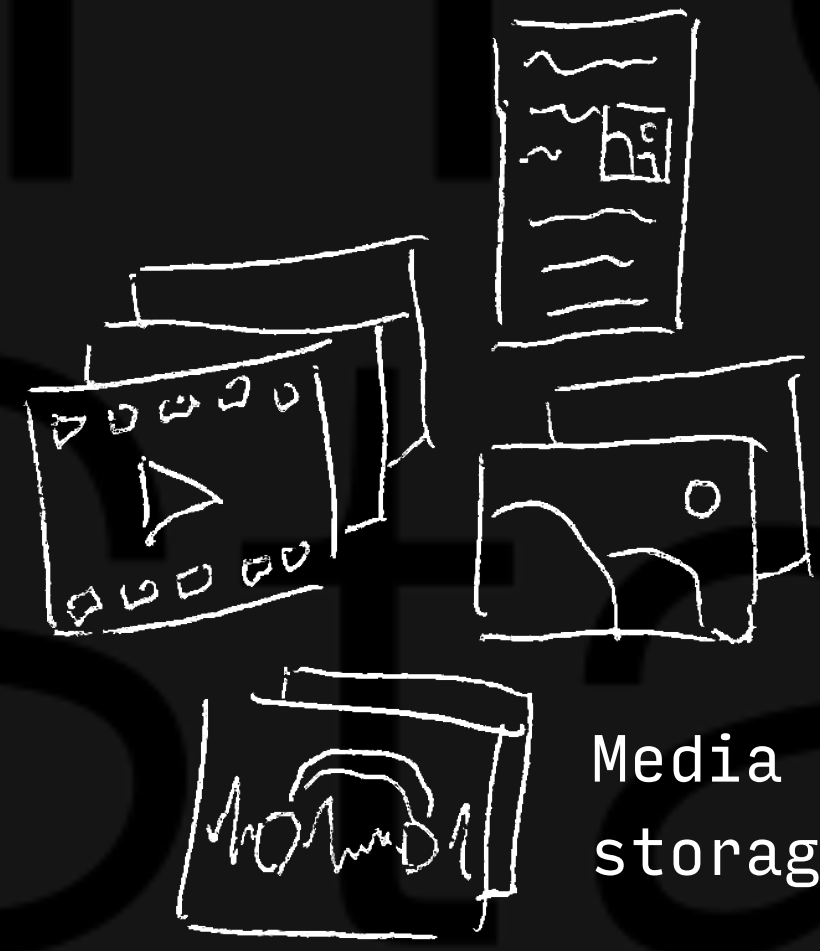


AV Mirador fork

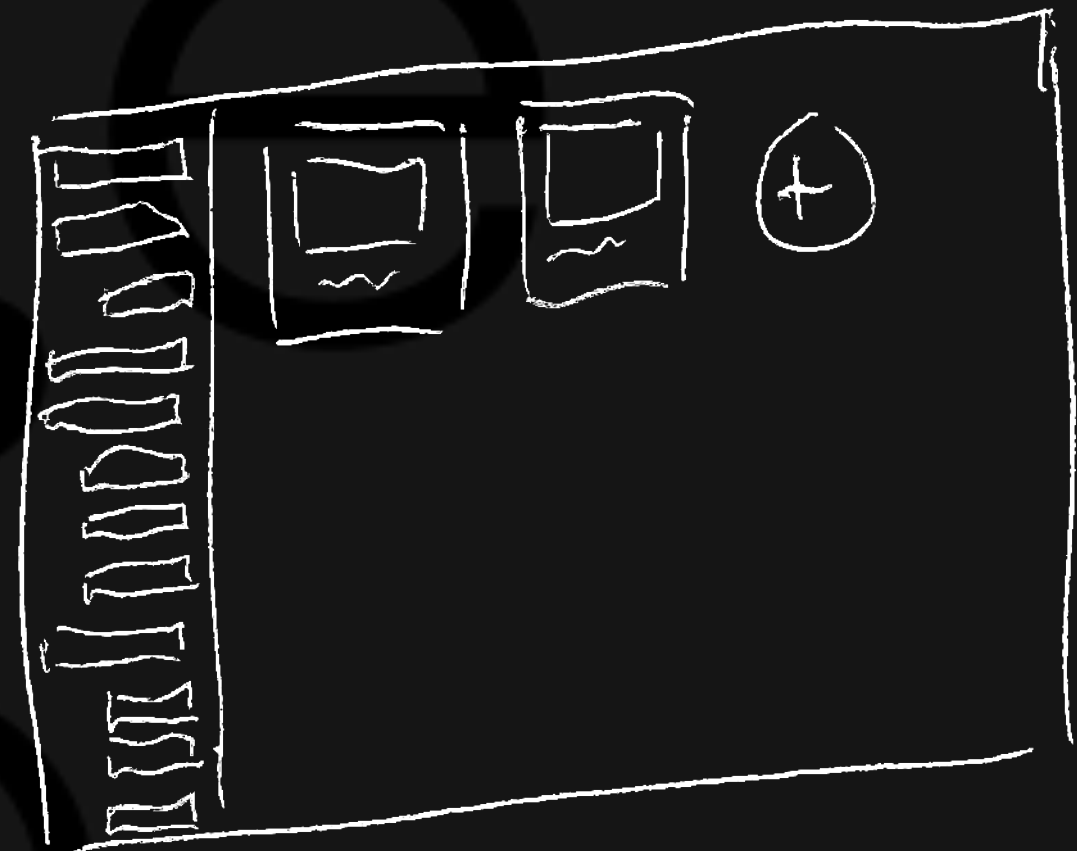


Image annotation plugin

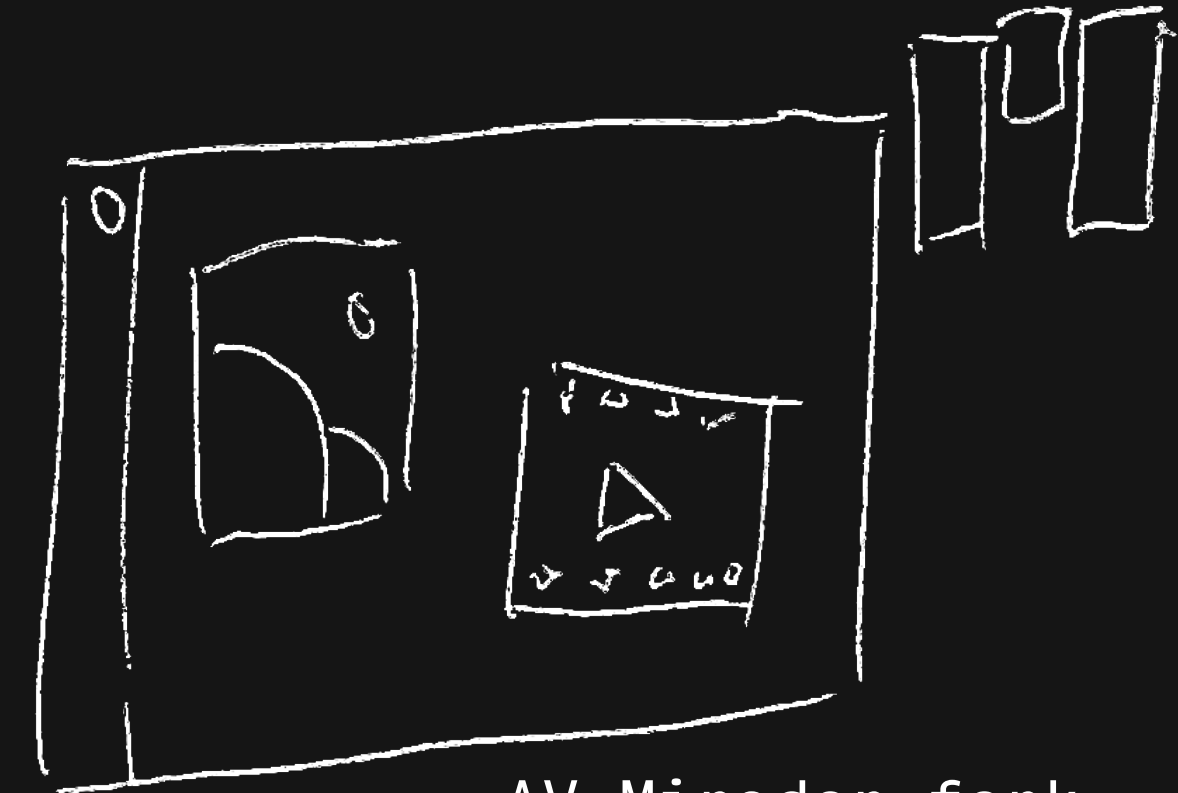
From
Stagger
to
Data



Media and Manifest storage



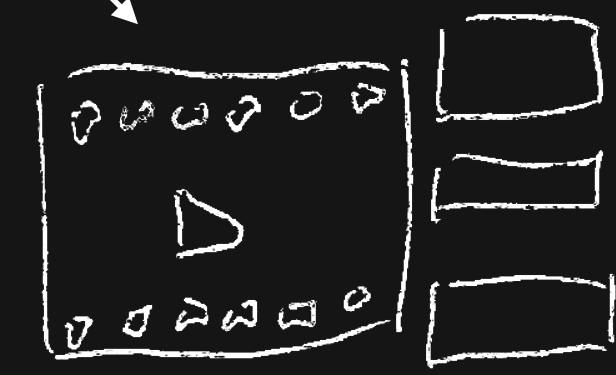
Django multi-user interface



AV Mirador fork



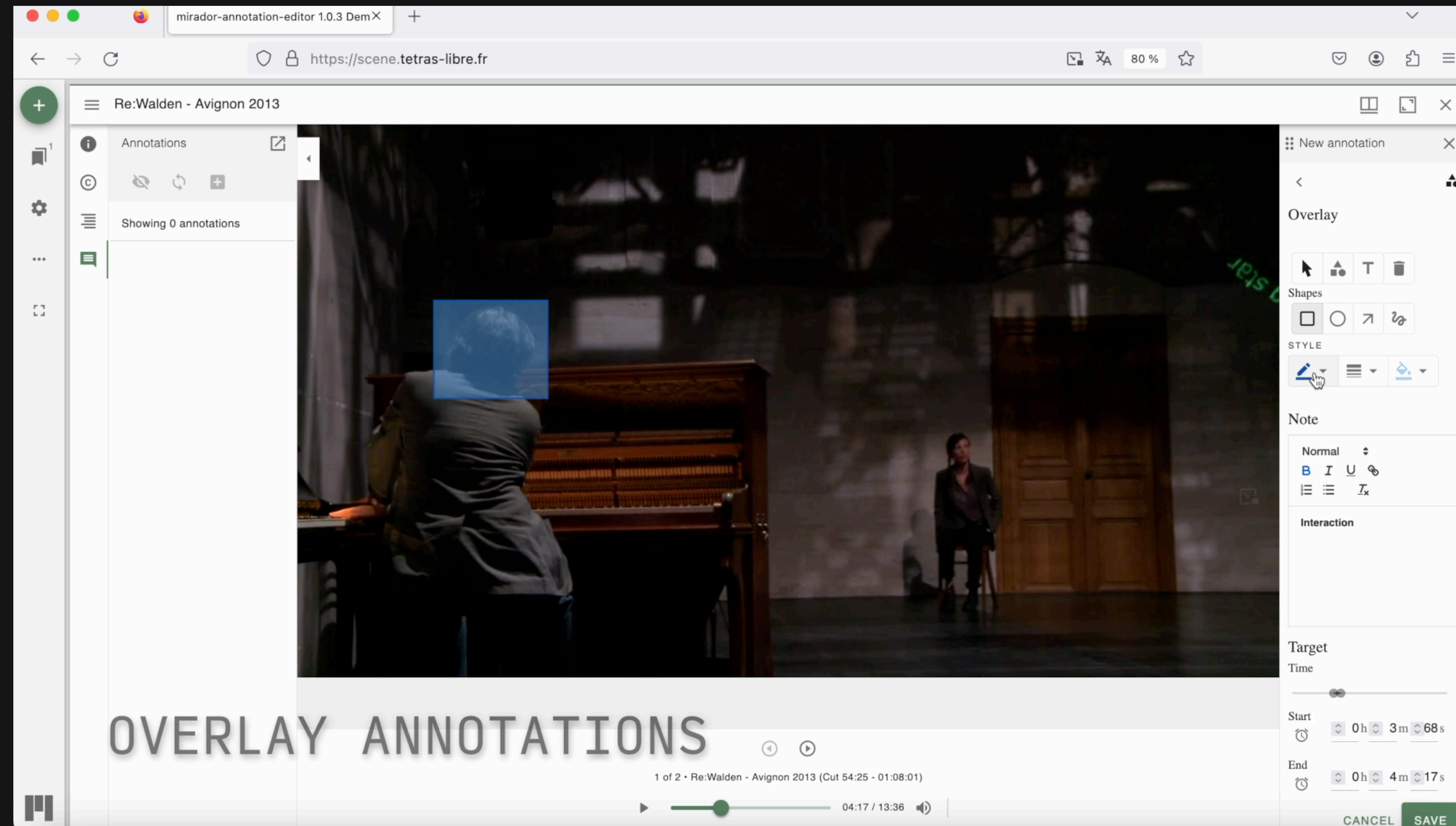
Image annotation plugin



AV annotation plugin

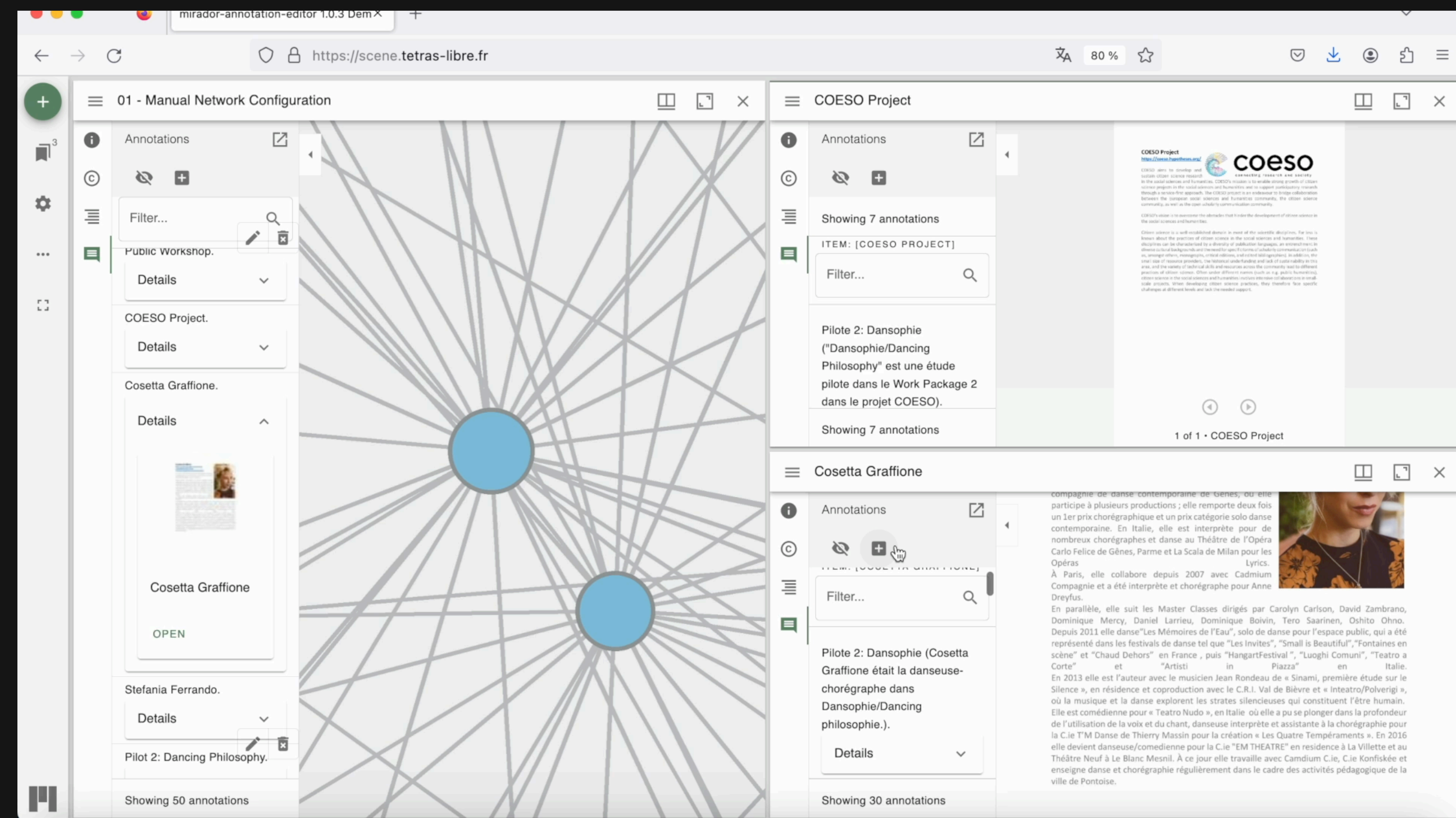
Annotation types

- Annotation plugin for latest version of Mirador.
- Target image, video and audio content.
- Time-linked annotations for time-based media.
- Annotation types: notes, tags, images, overlays, expert mode, Manifest annotations.



Manifest networks

- Link an annotation to a IIIF Manifest.
- Create data-driven interfaces to navigate collections of linked documents.
- Compare documents at different levels of granularity.



The screenshot shows a Jupyter Notebook titled "Speech Recognition using vosk.ipynb". The interface includes a top navigation bar with options like "Fichier", "Modifier", "Affichage", "Insérer", "Exécution", "Outils", and "Aide". On the right, there are icons for "Commentaire", "Partager", and a user profile. A sidebar on the left, titled "Sommaire", lists sections: "Speech Recognition Using vosk", "Setup", "Get Media", "Audio Pre-processing", "Speech Recognition", and "Export to Arvest" (which is currently selected). Below the sidebar is a "+ Section" button. The main area displays code in a code editor. The visible code includes a loop that checks for recognition results and exports them to a manifest file. A section titled "5. Export to Arvest" is expanded, showing a paragraph: "Finally, we can create a new Manifest with time-linked annotations so that we can see these results interactively in Arvest." Below this, more code is visible, including the definition of a server path and a loop for processing analysis sources.

```
with open(result_file_name, 'w', encoding='utf-8') as f:
    json.dump(res, f, ensure_ascii = False, indent = 2)
    files.download(result_file_name)
else:
    # Recognition failed
    print("Recognition failed.")
    print(result)
```

5. Export to Arvest

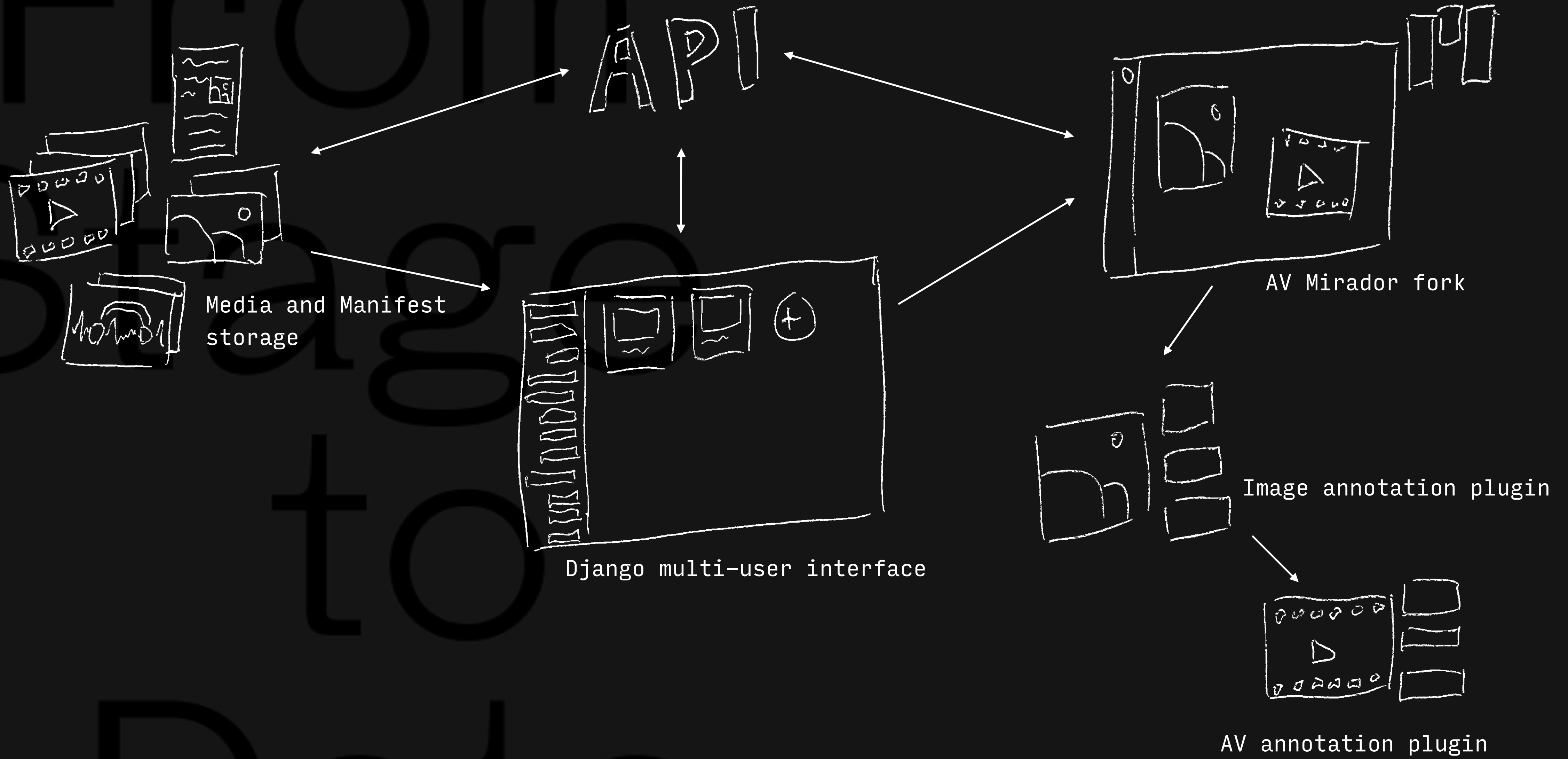
Finally, we can create a new Manifest with time-linked annotations so that we can see these results interactively in Arvest.

```
[ ] PATH_ON_SERVER = "manifests/my_manifests"

for analysis_src in file_map:
    print(f"Treating {analysis_src} ({file_map[analysis_src]})...")

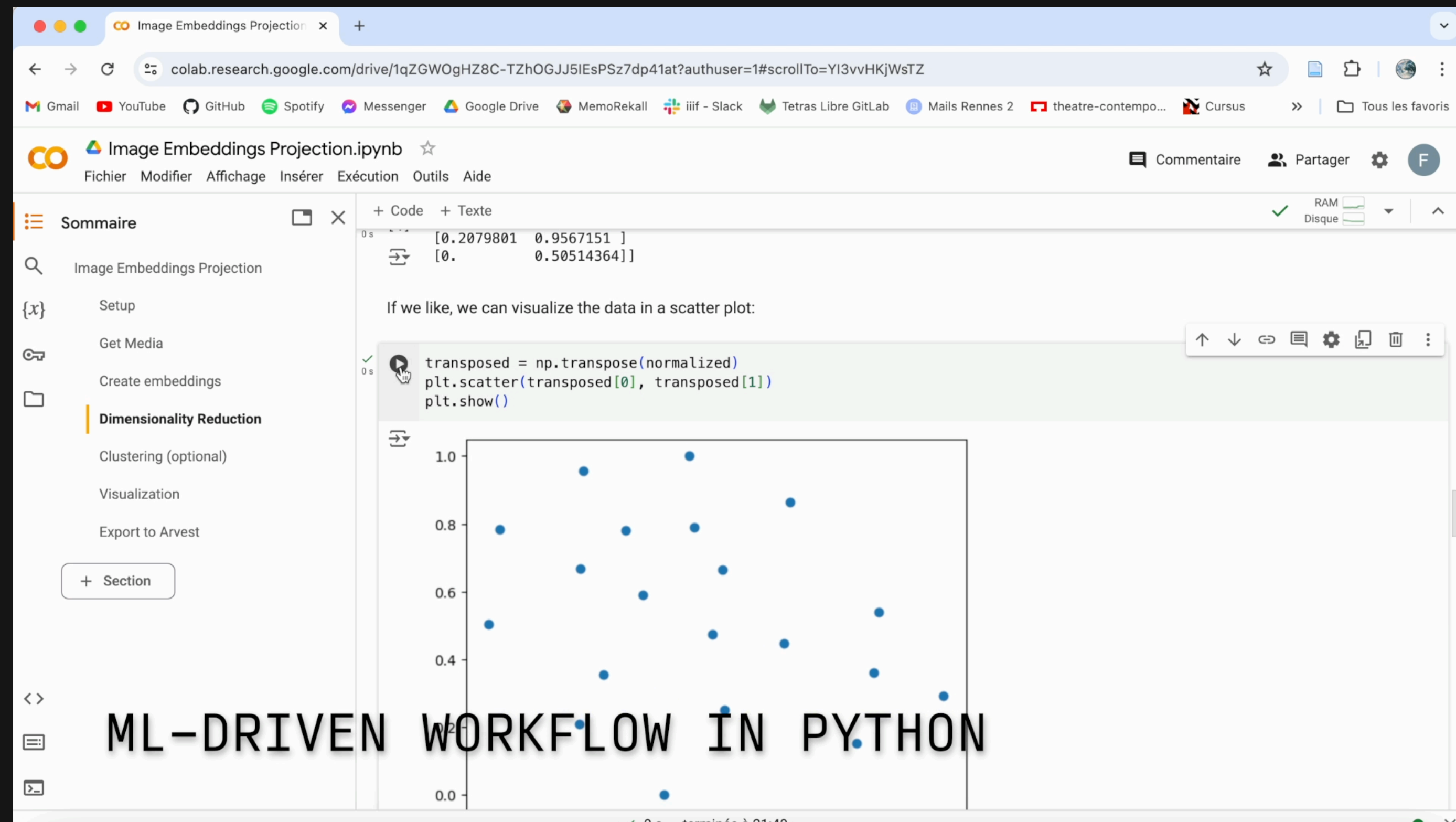
# Retrieve data
```

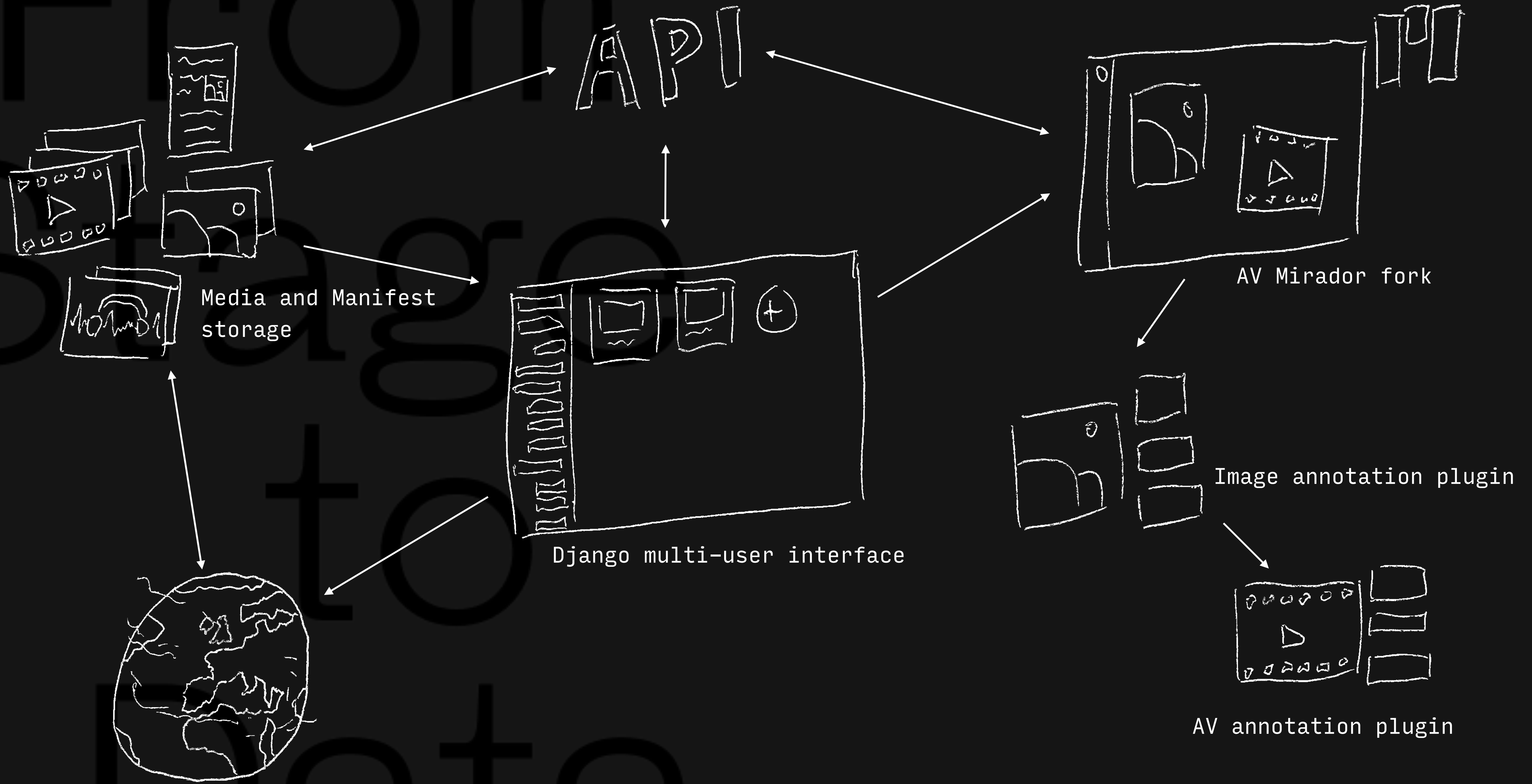
Towards ML-driven workflows



RESTful API

- Open API for content management (retrieval, creation and modification of Manifests and media).
- Integrate Arvest into open ML-driven workflows.
- A set of online python notebooks to get you started.





#3 Case studies

Photo: Ivo van Hove, *Les Damnés*,
festival d'Avignon, 2016.

© Christophe Raynaud de Lage



COESO Project

- Contemporary dance, philosophy, citizen science
- Collaboration analytics, network analysis, close reading + distant reading

Art Zoyd

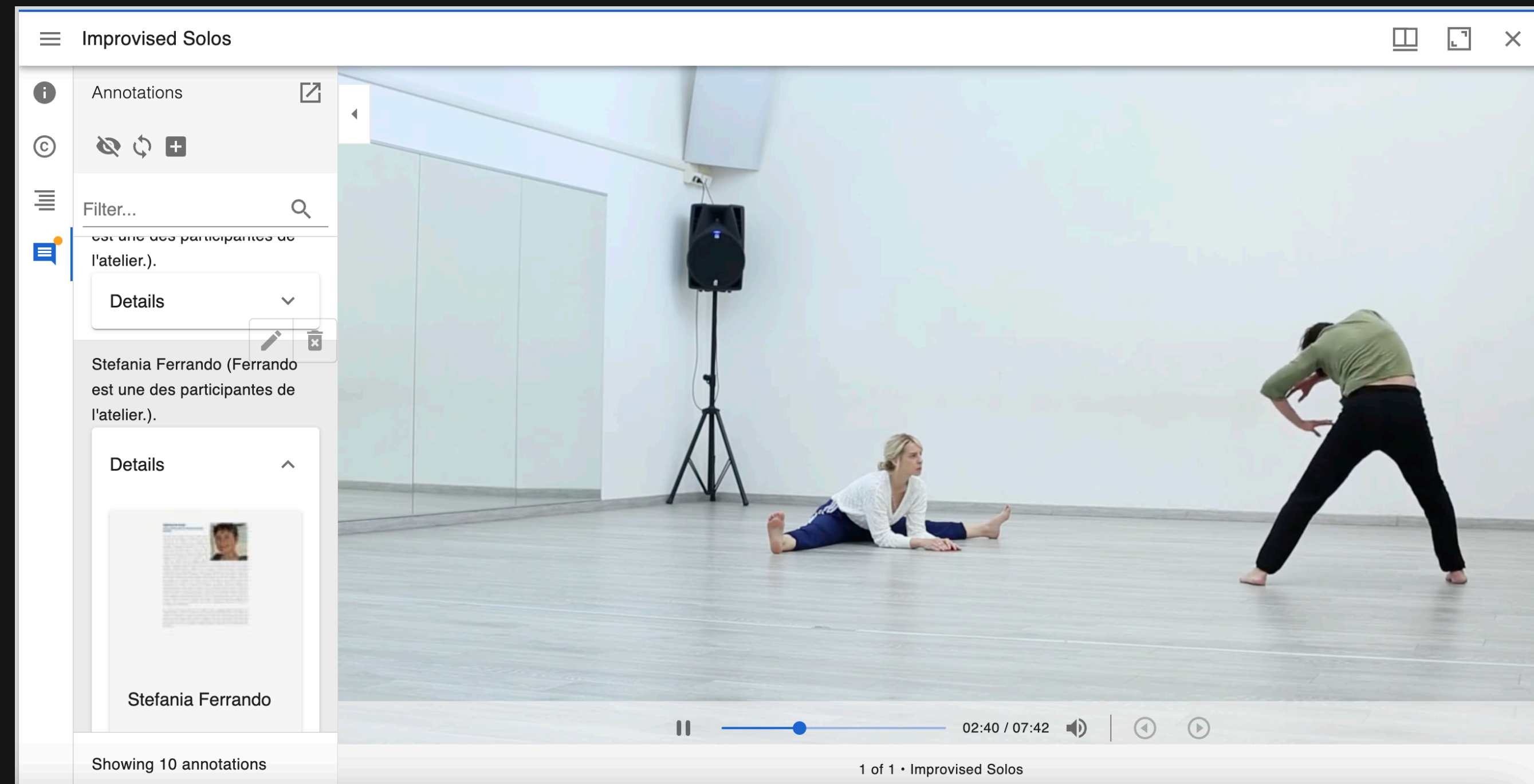
- Electroacoustic music, preservation, music analysis
- Content discovery, music information retrieval, optical music recognition, classification

Plozévet

- History, preservation, anthropology, sociology
- Computer vision, network analysis, close reading + distant reading

COESO

- Horizon 2020-funded project: Collaborative Engagement on Societal Issues
- Contemporary dance, philosophy, citizen science
- Collaboration analytics, network analysis, close reading + distant reading



Art Zoyd

- Centre for contemporary music creation Art Zoyd Studios, Valenciennes (France)
- Electroacoustic music, preservation, music analysis
- Content discovery, music information retrieval, optical music recognition, classification



The screenshot displays the OMR Test software interface. On the left, an 'Annotations' panel lists various musical elements with a search filter. The main area shows a musical score with three staves in 4/4 time. A yellow box highlights a specific note in the top staff. The interface includes standard window controls and a status bar at the bottom indicating '1 of 1 - OMR Test'.

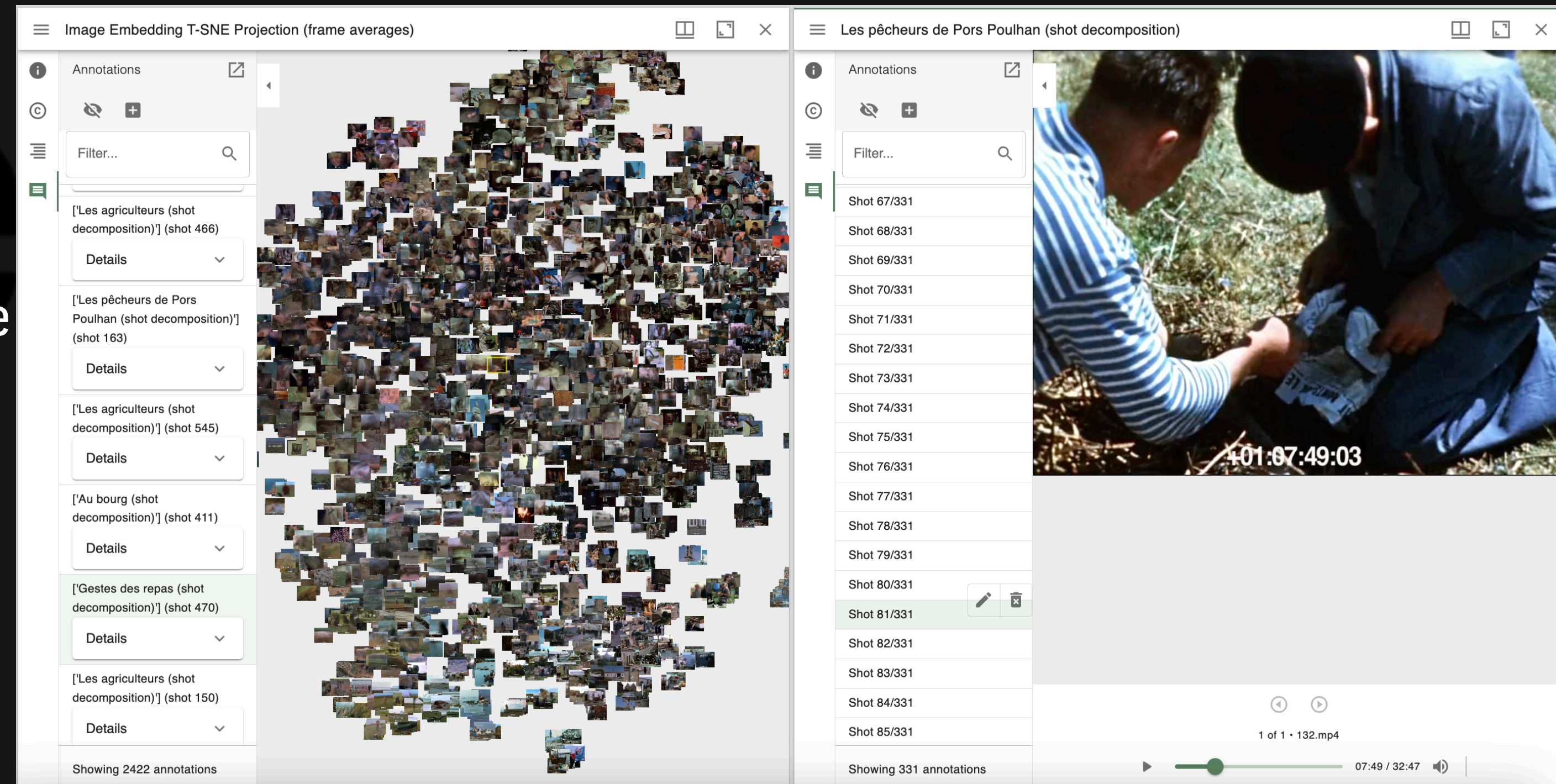
Annotations
Filter...
meter<4/4>
d1/4
e1/32
e2/2
e1/8
e1/16
e1/32
{e1/4,g1/4}
e1/4
e1/8
...

Showing 42 annotations

1 of 1 - OMR Test

Plozévet

- Project led by the Maison des Sciences de l'Homme en Bretagne and the Cinémathèque de Bretagne
- History, preservation, anthropology, sociology
- Computer vision, network analysis, close reading + distant reading



STAGE

From Stage to Data, the Digital Turn of Contemporary Performing Arts Historiography

Clarisse BARDIOT, Professor in Performing arts and digital humanities

SCIENCE, SOCIETY AND NEW TECHNOLOGIES SERIES

TRACES SET



Volume 5

**Performing Arts
and Digital Humanities**

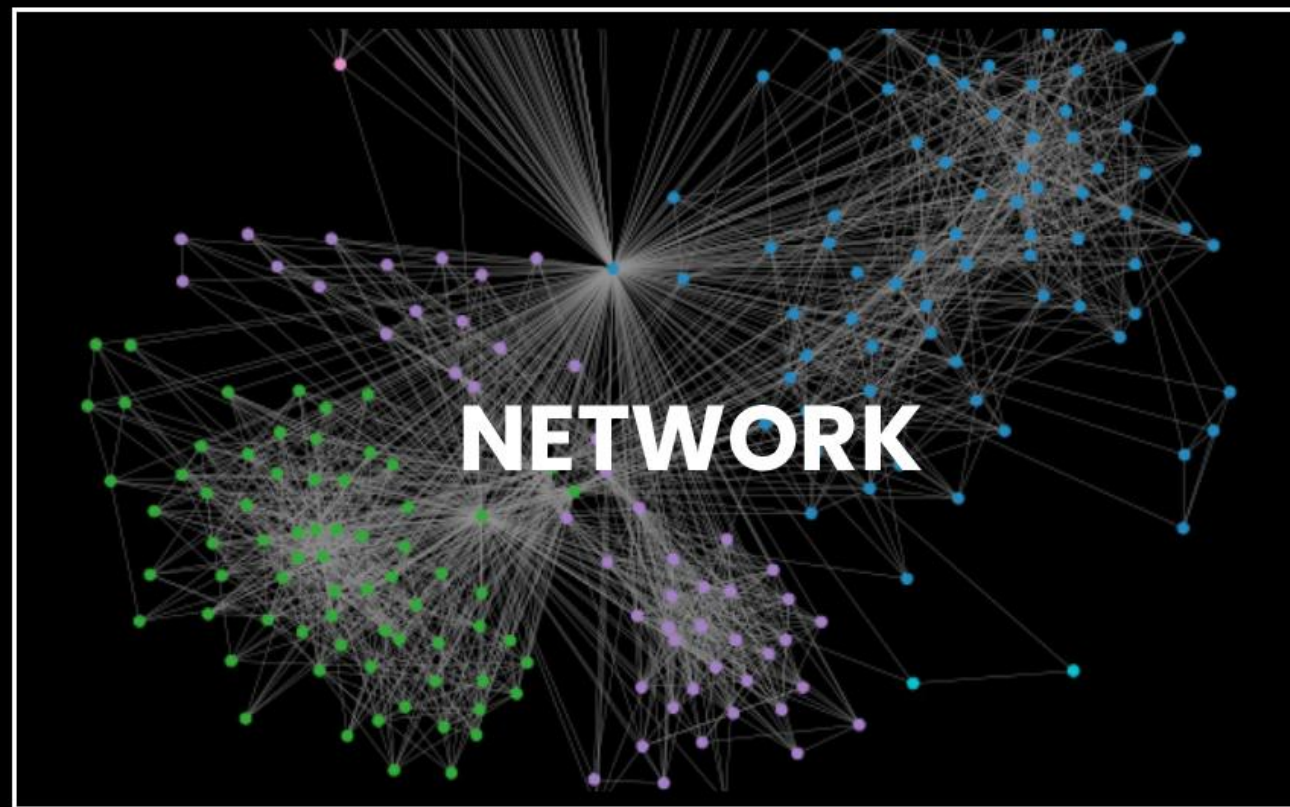
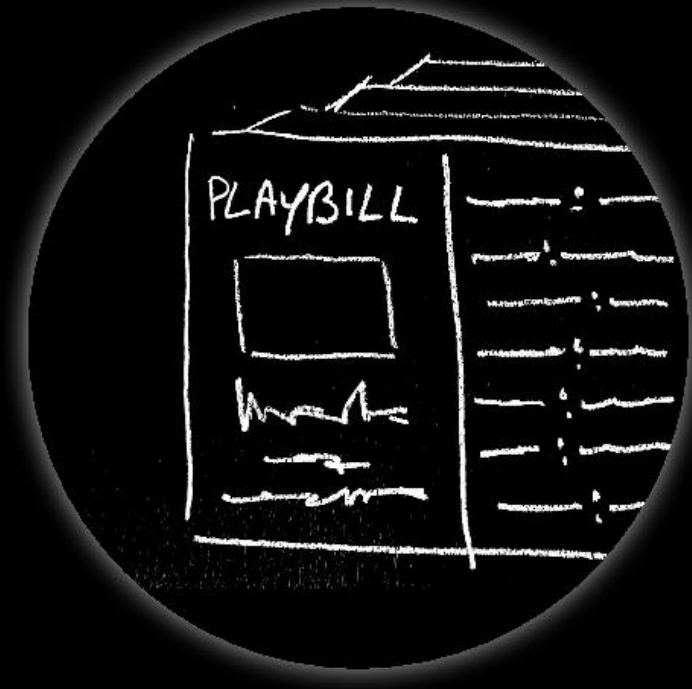
From Traces to Data

Clarisse Bardiot

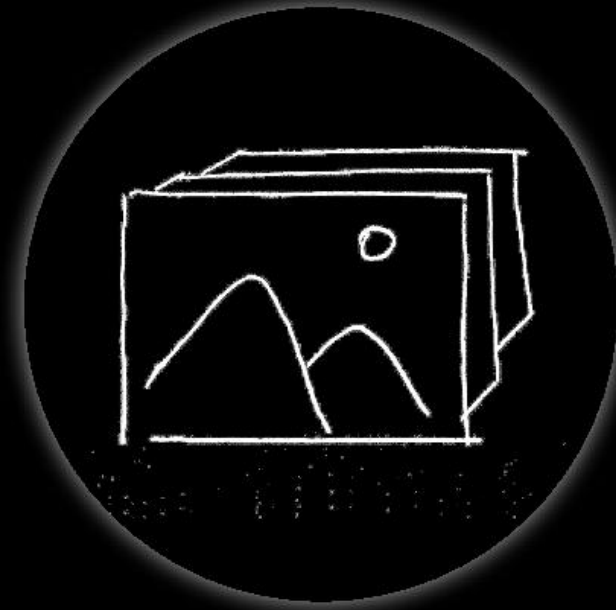
ISTE

WILEY

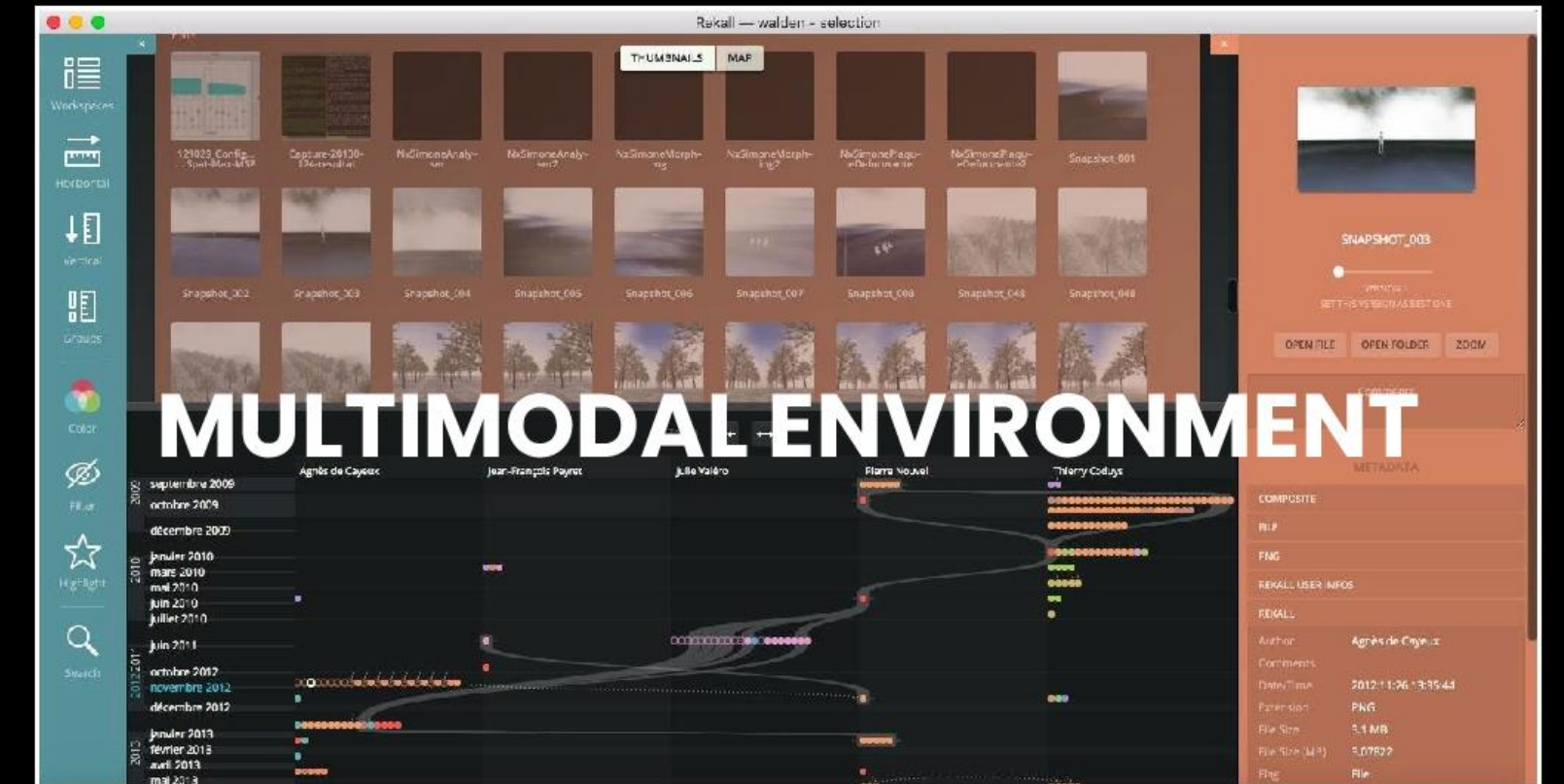
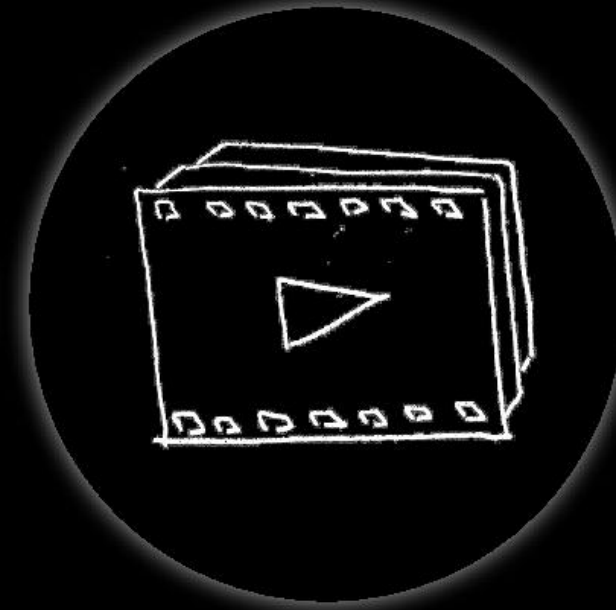
Three interconnected objectives:



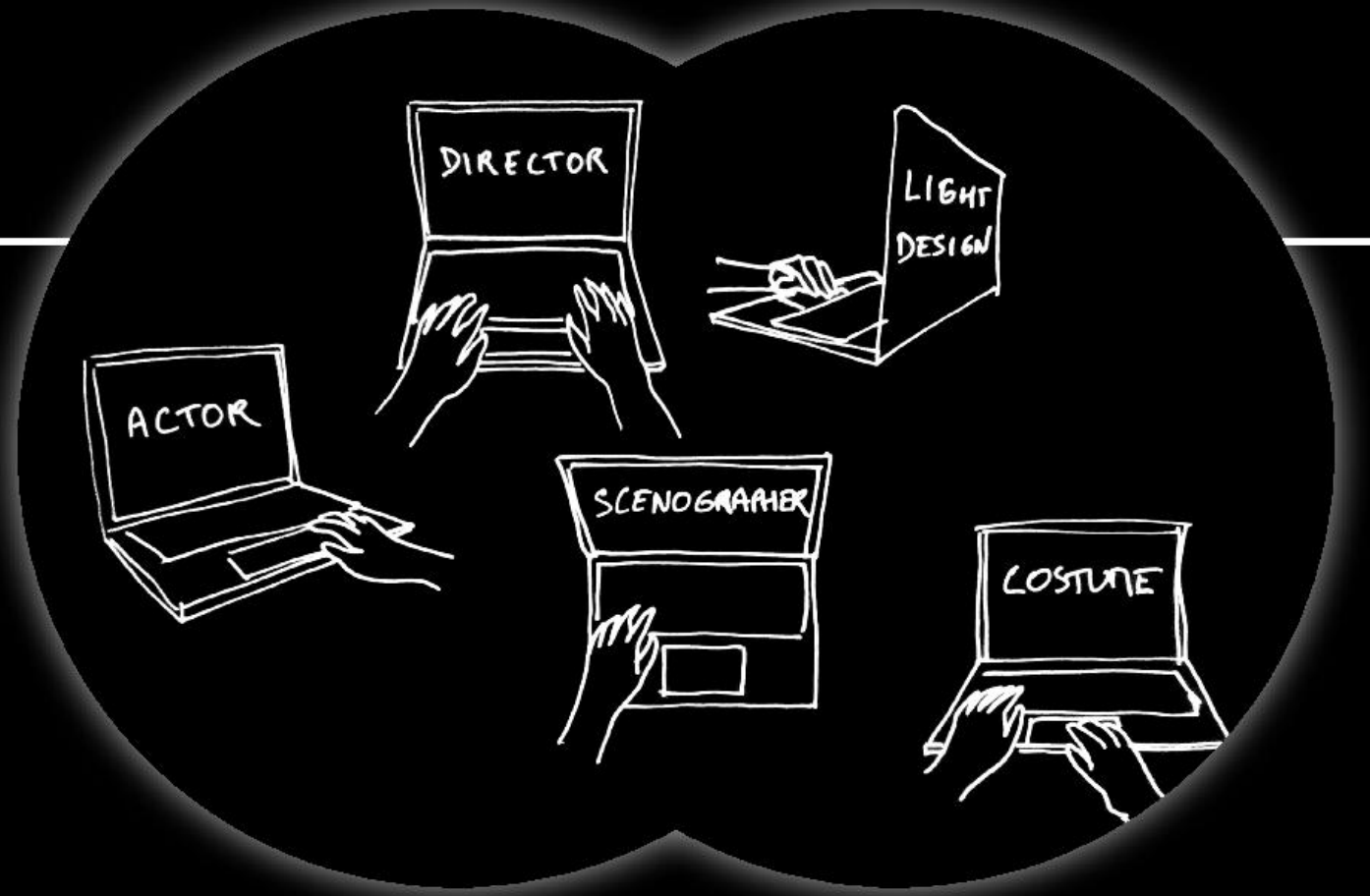
To visualize
performing arts
context



To reveal
staging
intertextuality



To model
creative
processes



#4

Next steps

Photo: Anne-Teresa de
Keersmaecker, *Cesena*, festival
d'Avignon, 2011.

© Christophe Raynaud de Lage

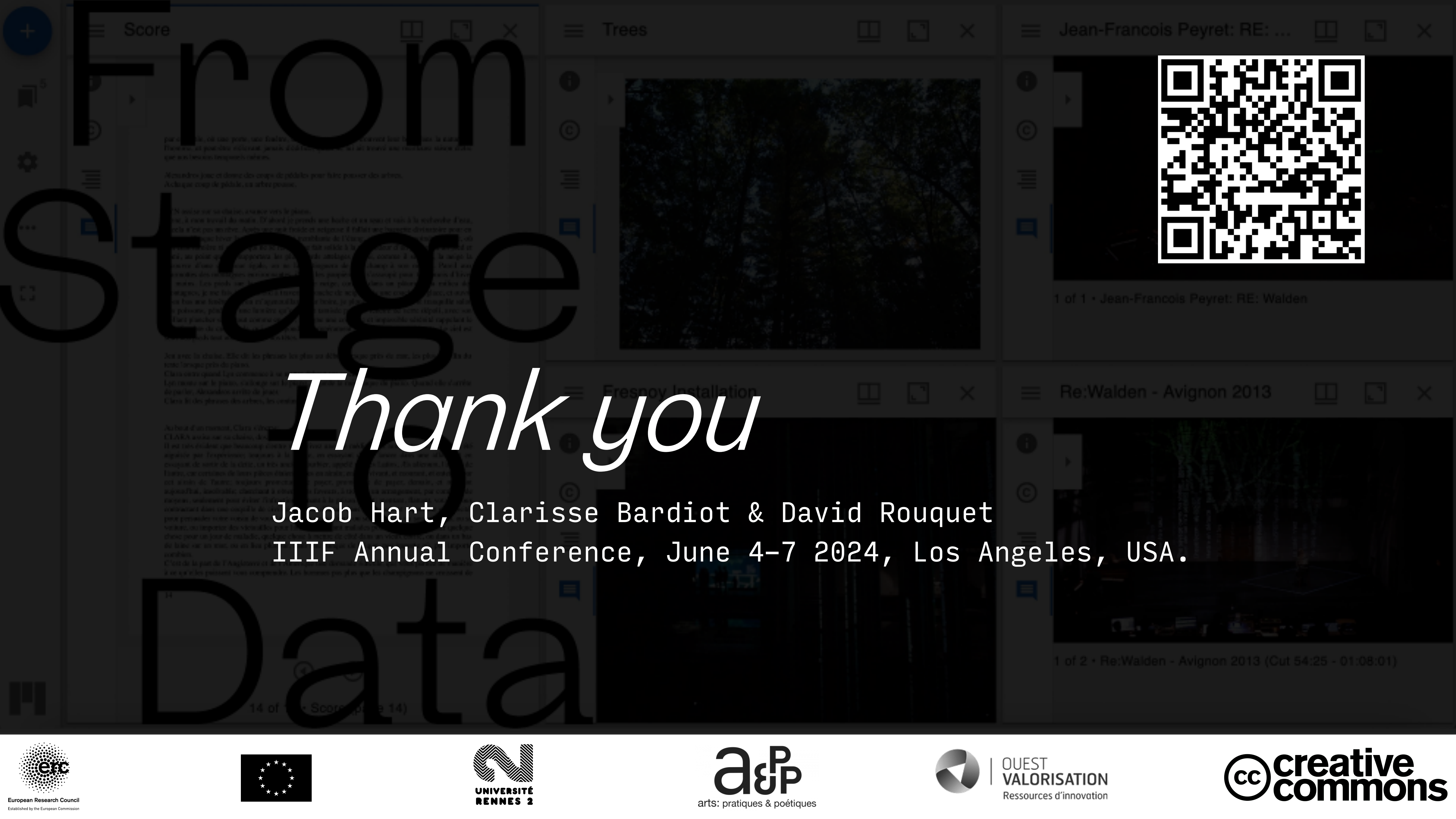


Development

- Beta version for December 2024.
- Release of image annotation + AV annotation plugin for Mirador 4 October 2024.
- PeerTube instance for hosting of large video and audio files.
- Implementation of storytelling functionality
- GUI overhaul

Collaboration

- Contribute to or use the code on GitHub
- Discuss and chat on Discourse
- Keep updated, find out more and try out the live demo!



From
Stage

Thank you

Jacob Hart, Clarisse Bardiot & David Rouquet
IIIF Annual Conference, June 4-7 2024, Los Angeles, USA.

Data