

Leveraging EHRI Online Editions for training automated edition tools

Floriane Chiffoleau, Hugo Scheithauer

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Leveraging EHRI Online Editions for training automated edition tools

Paper session



Floriane Chiffoleau (PhD) and Hugo Scheithauer (PhD), Inria Workshop Natural Language Processing Meets Holocaust Archives Thursday, 28 March 2024

Summary of the presentation

- 1. Introduction
- 2. Layout analysis on the editions
- 3. **Automating** the transcription
- 4. Homogenizing the encoding
- 5. Publishing the editions with **TEI Publisher**
- 6. Conclusion
- 7. **Resources**

INTRODUCTION

A little bit of background

Who are we?

Floriane Chiffoleau

PhD Candidate in Digital Humanities (Inria, Le Mans Université).

Thesis topic: Automatic Text Recognition and Ground Truth

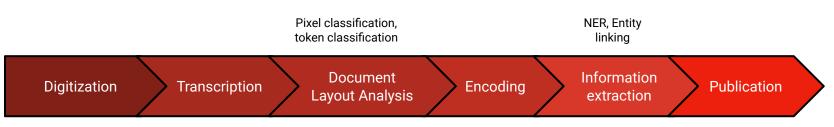
Hugo Scheithauer

PhD Candidate in Digital Humanities (Inria, Ecole Pratique des Hautes Etudes, Paris).

Thesis topic: Document Layout Analysis and Document Understanding

What are we doing?

At ALMAnaCH research team, Inria Paris, DH engineers and researchers mainly work with **text-related objects** (digitized documents, PDFs or raw texts) and put the emphasis on **programming**, **data creation**,
and **machine learning engineering**. We also focus on processing textual data with NLP solutions.



HTR, OCR, TTR

- Open source, open data, open science
- 7
- We also aim at building software and machine learning solutions that can easily be used by institutional partners and the DH community in general.

What are we doing?

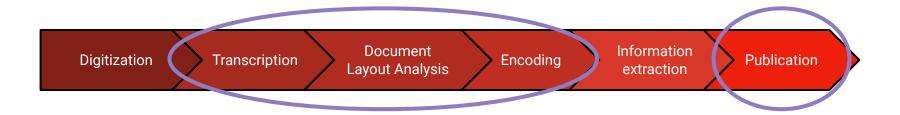
The EHRI consortium has supported the development and publication of six Holocaust-related online editions.

- Early Holocaust Testimonies Edition: Testimonies kept in the Wiener Holocaust Library, London, Yad Vashem, Jerusalem, the Jewish Historical Institute in Warsaw, the Hungarian Jewish Archives in Budapest, and the Jewish Museum in Prague. Originals are in Czech, German, Hungarian, Polish, Dutch, and Yiddish.
- Documentation Campaign Edition: Holocaust survivor testimonies held by the Jewish Museum in Prague and by Yad Vashem, Jerusalem.
- **Diplomatic Reports Edition**: Reports from the diplomatic staff of Denmark, Italy, Japan, Hungary, Slovakia, and the United States.
- Von Wien ins Nirgendwo Die Nisko-Deportationen 1939 Edition: Documents on the history of the Viennese Jewish deportees to Nisko, held in various institutions.
- **Begrenzte Flucht Edition & Uzavřít Hranice Edition**: Documents kept in Czech, Austrian and other archives and related to the crisis year 1938 at the Czechoslovakia border and Austrian refugees.

→So a multilingual and multi-domains setting.

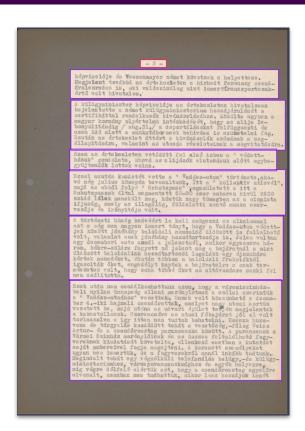
What are we doing?

For today's presentation, we will talk about:

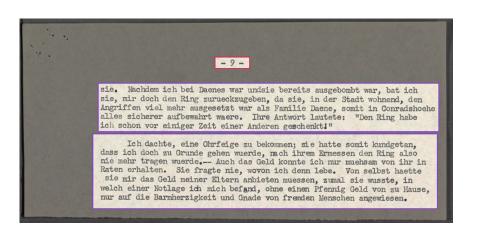


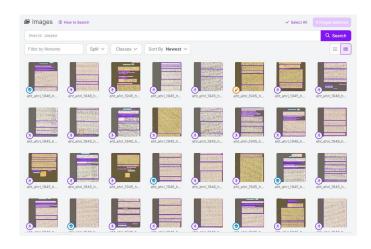
SEMI-AUTOMATIC ENCODING WITH LAYOUT ANALYSIS

- Document Layout Analysis (DLA): a task that aims at detecting the layout components and hierarchy of a document.
- SOTA DLA systems are based on two approaches: visual features (YOLOv8), and a combination of textual and visual features (LayoutLM).



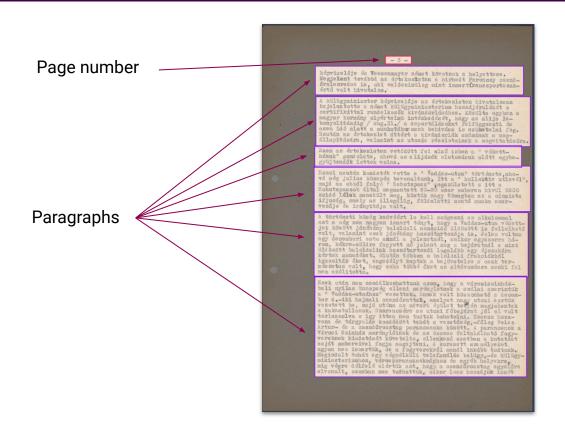
We sampled and annotated **200 images** from the documents available in the **Early Testimonies EHRI Online Edition** with the **Roboflow**(https://roboflow.com/) interface in order to train a YOLOv8 model (object detection, pixel based).

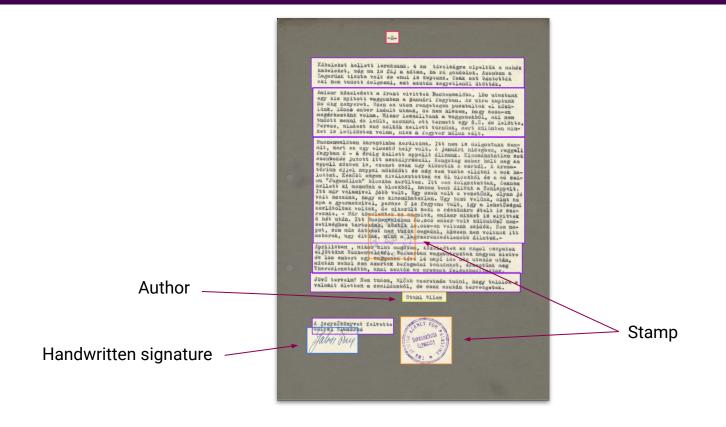




Thibault Clérice - You Actually Look Twice At it (YALTAi): using an object detection approach instead of region segmentation within the Kraken engine. Journal of Data Mining & Digital Humanities, 26 décembre 2023, Documents historiques et reconnaissance automatique de texte - https://doi.org/10.46298/jdmdh.9806

Thibault Clérice, Juliette Janes, Hugo Scheithauer, Sarah Bénière, Laurent Romary, et al.. Layout Analysis Dataset with SegmOnto. DH2024 - Annual conference of the Alliance of Digital Humanities Organizations, ADHO, Aug 2024, Washington DC, United States. (hal-04513725)





The range varies from very simple layout to more intricate layouts.

Heading Handwritten annotation List seine Eltern vom 14. Sept. 1943 Dr. Weinstein, der im Briefe als Besitzer eines rumanischen Exemplars genannt ist, dieses früher einzal verliehen hat

zur Verfügung gestellt. Ich selbst hatte aber noch keine

As of March 2024, we identified 13 classes that are relevant for early holocaust testimonies:

- Date
- Form
- Head
- List
- Paragraph
- Signature

- Handwritten signature
- Handwritten annotation
- Notes
- Page number
- Running title
- Stamp
- Sticker

This list is open as new use cases can arise.



We use the SegmOnto controlled vocabulary, a TEI-based ontology, to annotate our sample dataset.

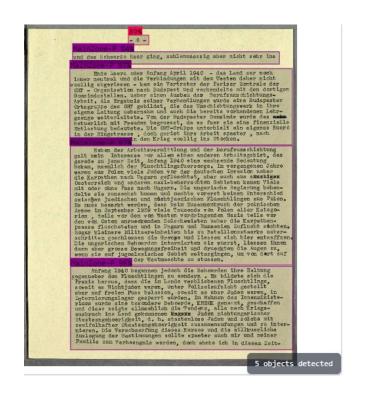
By using SegmOnto, the annotated dataset is easily interoperable and reusable.

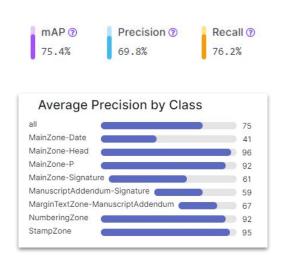
See SegmOnto's website: https://segmonto.github.io/ and Simon Gabay, Ariane Pinche, Kelly Christensen, Jean-Baptiste Camps. SegmOnto: A Controlled Vocabulary to Describe and Process Digital Facsimiles. 2023. https://segmonto.github.io/ and Simon Gabay, Ariane Pinche, Kelly Christensen, Jean-Baptiste Camps. SegmOnto: A Controlled Vocabulary to Describe and Process Digital Facsimiles. 2023. https://segmonto.github.io/ and Simon Gabay, Ariane Pinche, Kelly Christensen, Jean-Baptiste Camps. SegmOnto: A Controlled Vocabulary to Describe and Process Digital Facsimiles.



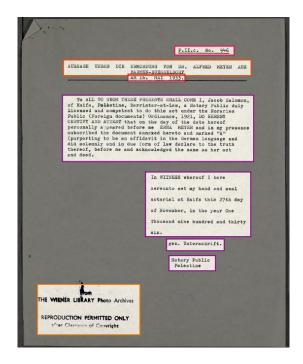
- Date > MainZone:Date
- Form > MainZone:Form
- Head > MainZone:Head
- List > MainZone:List
- Paragraph > MainZone:P
- Signature > MainZone:Signature

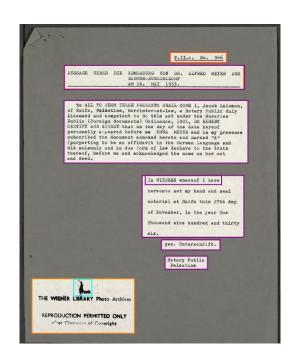
- Handwritten signature > MarginTextZone:Signature
- Handwritten annotation > MarginTextZone:ManuscriptAddendum
- Notes > MarginTextZone:Notes
- Page number > NumberingZone
- Running title > RunningTitleZone
- Stamp > StampZone
- Sticker > StampZone:Sticker

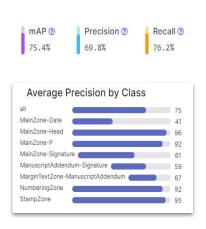




Preliminary experiment DLA model is available at: https://app.roboflow.com/ehri/ehri-ladas/visualize/3

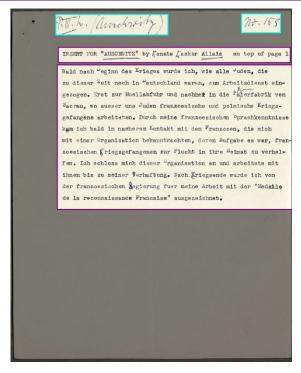


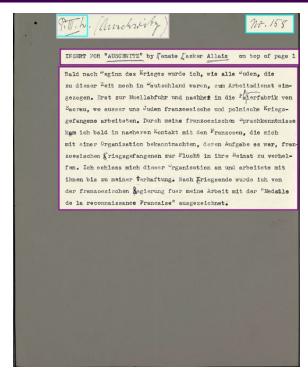


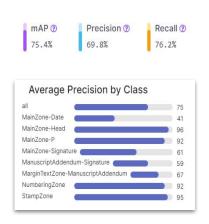


Ground truth

Prediction



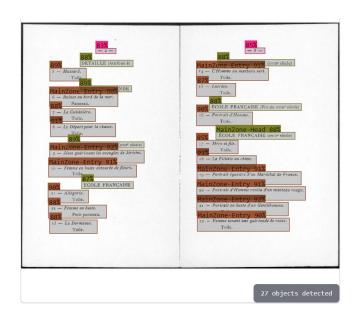


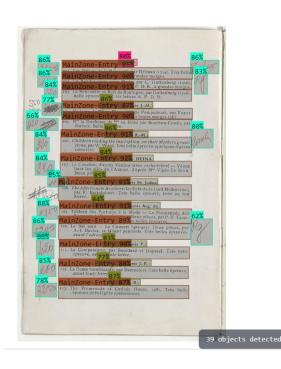


Ground truth

Prediction

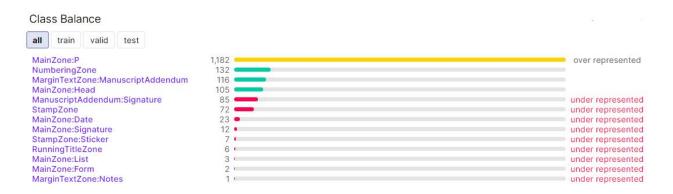
As a comparison, we annotated around 1400 images for the DataCatalogue project (Inria, French National Library, French National Institute for Art History), and the model achieves very good scores on complex and different layouts.





Next step:

- Sample other EHRI Online Editions
- Annotate more images
- Have a more balanced class representation
- Apply DLA model on new Holocaust-related documents to test the model's robustness on unseen data



- 3 -

Wien, März 1939

Liebe Tante, Ich sende Dir einen Brisf von meiner Tante. Hansi ist jetzt immer bei Frau F., bis die Tante nach Hause kommt.

Viele Busserl von Leni.

Mein liebes gutes Tatchen,

Aus dem Gefängnis, März 1939

Gestern war mein Lenchen bei mir und hat mir eingestanden, dass sie Dir die ganze Wahrheit geschrieben hat. Liebe Tante, wirst Du jetzt schlecht von mir denken? Ich weiss nicht, ob Leni Dir alles genau geschrieben hat, ich kann hier nicht sowiel mit ihr sprechen. Man hat uns alles waggenommen, wir sind nur mit den was wir am Leibe gehabt haben, da gestunden, ich habe in der Aufregung einige Worte gesagt, die nich thätte sagen sollen, und deshalb bin ich schon 3 Monate hier. Denke deswagen nicht schlecht von mir. Schau liebes Tanterl, Dein Bruder war doch auch voriges Jahr 13 Wochen hier, wo ich bin, das weisst Du doch und deswagen war er auch nicht schlecht. Ich danke Dir viel tausenden für die schönen Sachen, wenn ich sie nicht hätte, so müsete ich immer in einem Kleid herumgehen. Sie paasen mir sehr gut, nur die Shuhe sind mir zu grosseg aber ich kann sie auch tragen. Da kannst bir nicht vorstellen, wie ich mich gefreut habe mit den Sachen und hauptsächlich, weil sie von

Ich habe immer an Dich gedacht. Sei mir nicht böse, dass Leni Dir geschrieben hat, dass ich im Spital bin, ich habe mich geschimt, Dir die Wahrheit zu schreiben. Bitte schreibe der Tarte Berte nichts davon. Wenn ich auch hier bin, so verzage ich trotzdem nicht und ich hoffe, dass ich in kurzer Zeit bei meinem geliebten Buberl sein werde. Leni ist ein gutes Kind, wenn ich sie nicht hätte, so wäre ich ganz verlassen. Ich werde sie deswegen immer bei mir halten. Ich würdemich freuen, wenn Leni mir am Mittwoch von Dir einen Brief bringen würde. Sie kommt jeden Mittwoch zu mir. Tausend Grüsse und Küsse

Grüsse Deinen Mann und Tochter und Tante Anna herzlich. Ich sende Dir eine Aufnahme von mir. sie ist von hier und ist nicht gut. Den Brief gebe ich Leni mit. Hoffentlich kommt er gut an. Bitte nochmals,

Wien, April 1939

Liebes gutes Tanterle.

sage der Tante Berta nichts davon.

Habe Deinen Brief erhalten. Das Packet habe ich noch nicht, aber das dauert immer länger. Ich werde Dir gleich schreiben, wenn es kommt. Dieses Mal war es nicht möglich, einen Brief von Tante Martha bei zu legen. Der "Onkel" hat zu gut aufgepasst. Sie darf weder schreiben noch Briefe empfangen. Liebes Tanterle, Du schreibst, wir sollen Gottvertrauen haben, Ich glaube nicht an Gott. Warum hat er uns so gestraft? Ich kann Dir nicht schildern, was wir mitgemacht haben. Mir hat Gott meine lieben

DI A

Wien, März 1939 ich sende Dir einen Brief von Heiner Tante. mer bei Frau F., bis die Tante nach Hause kommt. Viele Busserl von Leni. Aug den Gefüngnis, Mürz 1939 Mein liebes gutes Tatchen, Gestern war mein Lenchen bei mir und hat mir eingestanden,

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Dir geschrieben hat, dass ich im Spital bin, ich habe nich geschirt. Dir die Wahrheit zu schreiben. Bitte schreibe der Tante Berta nichts davon. Alt Wahrheit zu schreiben. Mitte schreibe der Tanze serta miente davon. Wemn ich auch hier bin, so verzage ich trotteden nicht und ich höfe, dass ich in kurzer Zeit bei meinem geliebten Buberl sein werde. Lemi ist ein gutes Kind, wenn ich sie nicht hitte, so wäre ich genn verlassen. Ich werde sie deswegen inner bei mir halten. Ich würdenich freuen, wenn Leni ra mittiwoch von Dir sienen Brief bringen wirde. Sie komut geden Mitt-mit zu Mittwoch von Dir sienen Brief bringen wirde. Sie komut geden Mittwoch zu mir. Tausend Grüsse und Küsse

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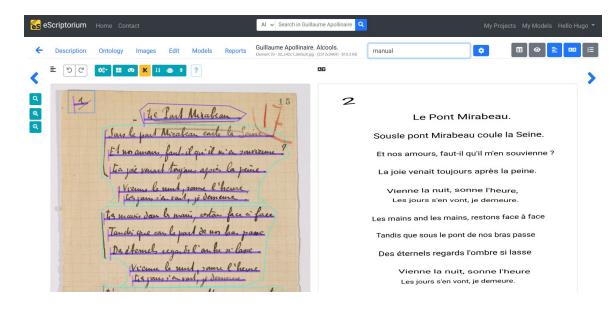
> Transformation of combined DLA and text recognition outputs into <TEI>

EHRI-ET-WL1375B310

AUTOMATING THE TRANSCRIPTION

eScriptorium

- GUI for transcribing textual documents, creating training sets, training segmentation and transcription models, etc.
- Project management tool
- eScriptorium uses the language-agnostic transcription engine
 Kraken (Benjamin Kiessling, PSL)
- Inria hosts an <u>eScriptorium instance</u>. You can ask for an account with Cremma Call form (in French for now, sorry!).



A solution for dataset visibility: HTR-United

- Project created by Alix Chagué & Thibault Clérice (Inria)
- A catalogue of metadata describing free (and open) datasets of ground truth for HTR
- A standardization proposal for describing ground truth datasets (<u>schema</u>)
- An ecosystem of tools for quality control and data publication
- A useful resource aiming for international visibility:
 - 81 datasets (as of early 2024)
 - 14 languages
 - ☐ from 9th century to nowadays



Website: https://htr-united.github.io/

GitHub organization: https://github.com/HTR-United

Creation of a multilingual recognition model

- ☐ Two objectives:
 - Producing an efficient recognition model for typescript documents, no matter the language
 - Contributing to a PhD experiment on the relation between the content of the ground truth's tokens and the recognition method of the model
- Creation of training data for the model
 - Dataset of **252 typescript documents**, from the four published editions, in **7 languages** (German, English, Danish, Hungarian, Polish, Slovak, and Czech)
 - ☐ Documents **segmented and transcribed** (copy/paste or manual)
 - Images, texts, and XML available at https://github.com/FloChiff/ehri-dataset
 - Presentation of the dataset at https://flochiff.github.io/phd/dataset/ehri/dataset.html

Creation of a multilingual recognition model

- □ Production of a model, with 97.20% of accuracy, available here
- □ **Efficiency** of the model:
 - Working pretty well with the languages it was trained on, whether it had more or less training data on the language
 - Able to recognize the typescript content of documents in **languages it was not trained**on but with the same Latin script (tested with Italian and French)
 - Can have some trouble with the **diacritics and uppercase** as it learned many various ones (in the first case) or not enough (in the second)
- Other models available: production of single-language models for each language of the training data

HOMOGENIZING THE ENCODING

Homogenizing the encoding

- Creation of an ODD for the EHRI editions, constituted of a specific XML schema, instructing on what tags and attributes to use, supplied with an integrated documentation, explaining how to use the tags, in what occasion, what choice to make in some situation, etc.
 - ☐ The work has been done as part of an internship in 2023 by Sarah Beniere
 - The ODD is available online at https://gitlab.inria.fr/dh-projects/workflow-ehri/-/tree/main/ODD
 - This is to be presented more thoroughly at the EHRI Conference in June
- Following the indication of the ODD schema, the currently published EHRI
 editions have been modified and homogenized





PUBLISHING THE EDITIONS WITH TEI PUBLISHER

TEI Publisher is ...

- a platform based on eXist-db, a database management system based on XML technology
- an easy-to-use tool to publish TEI XML files or other types of XML
- a **prêt-à-porter** application customizable with few tweaks









What can TEI Publisher do ...

- □ ... as the **main instance**?
 - Presentation of various **XML files, ODDs and templates** to observe the extent of the tool
 - ☐ Playground area to upload your own files and test the ODDs/templates to see what fits best
 - Annotation area to discover how to annotate (named entities or other) some already existing files or files you uploaded yourself
- ... as the tool that generates an application?
 - ☐ Customized ODD and templates to display your XML files exactly as you want
 - □ **Documentation or additional information** in HTML or Markdown format
 - □ PDF or EPUB **export** of the XML files

The EHRI TEI Publisher application

- Generation of a TEI Publisher application dedicated to the EHRI editions
- Retrieval of the concept and themes of the websites already existing
- Addition of the homogenized XML files
- Creation of XML indexes containing the information of all named entities from the editions

The EHRI TEI Publisher application

Perks of the EHRI TEI Publisher application

- Centralization of information
 - All the collections are in the same place
 - ☐ Display of the text, image, map, and even named entities information at the same level
- Easier accessibility of the whole content
- ☐ Several **filter options** available to look through a collection

Home

Collections

About

History



Langue Français



EHRI Online Editions



TEI Publisher 0.1 / web components 2.19.0 / API 1.0.0

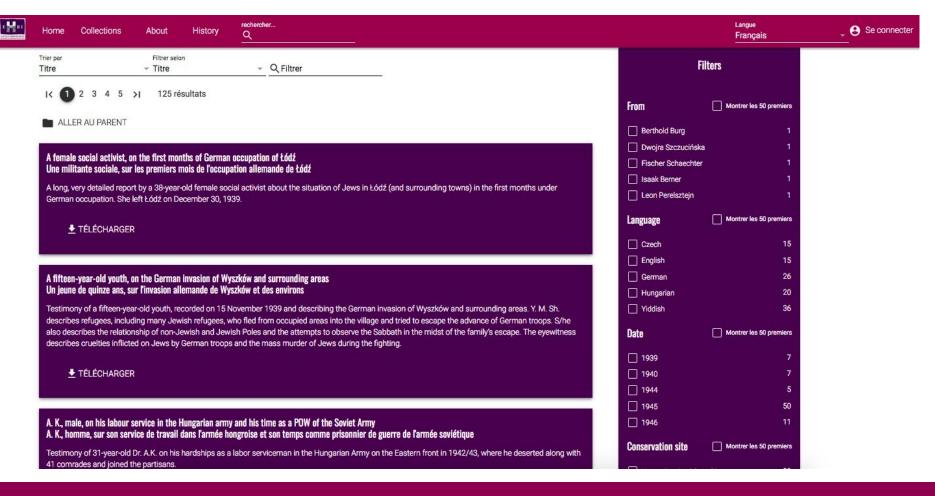
This application was developed as part of the EHRI project with the help of TEI Publisher.

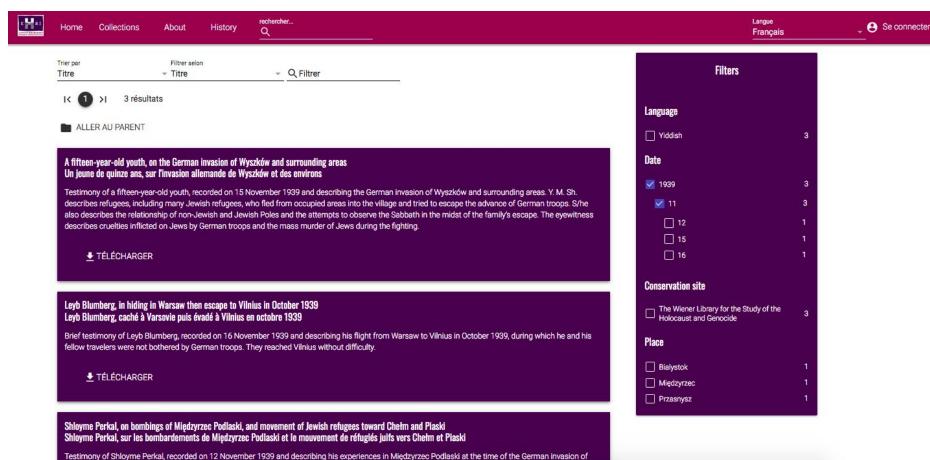


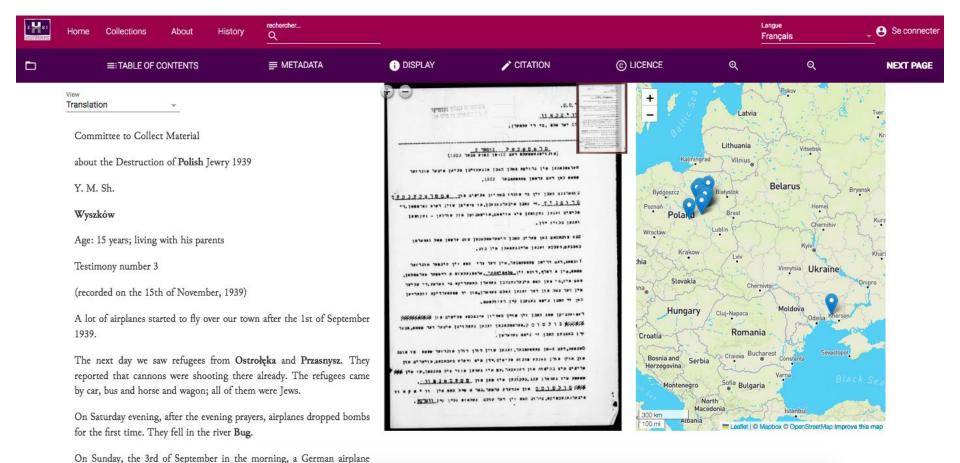


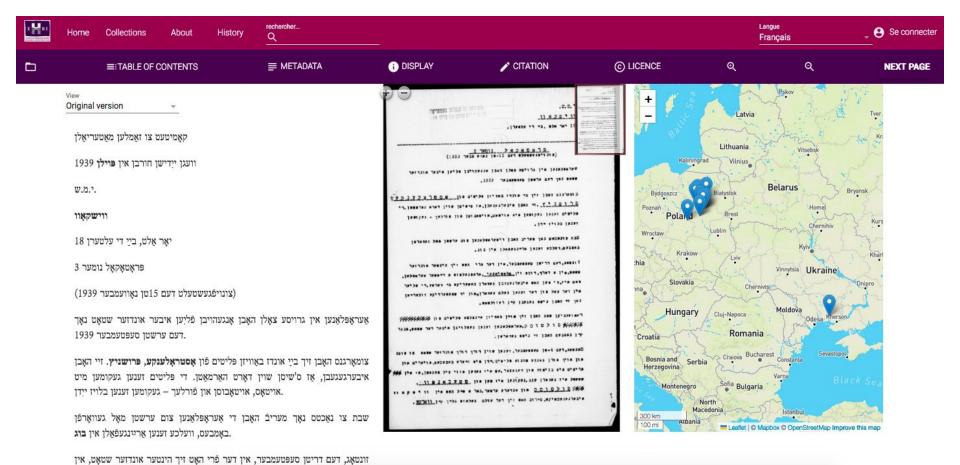


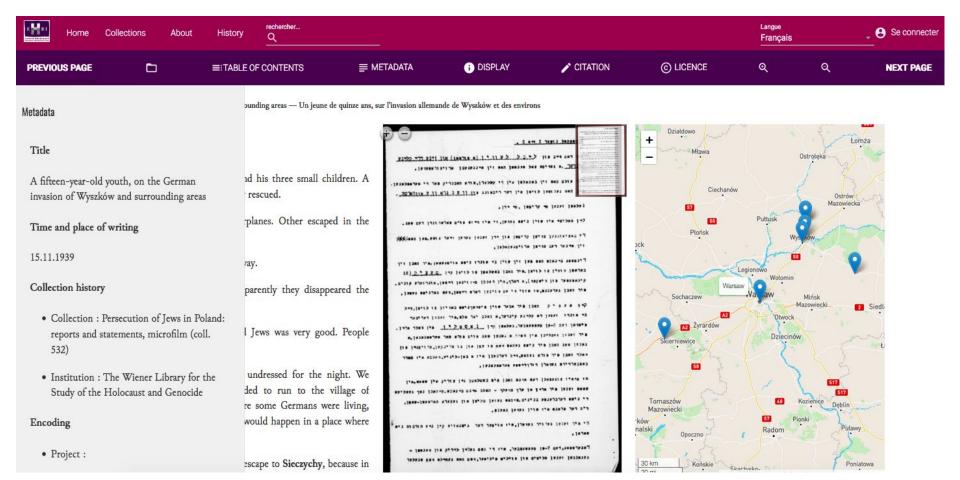














A fifteen-year-old youth, on the German invasion of Wyszków and surrounding areas - Un jeune de quinze ans, sur l'invasion allemande de Wyszków et des environs

-	
Translation	*

the wife of Levin (a coachman) and his three small children. A certain Levin, Levil successfully rescued.

People Coachman from Wyszków. r of the airplanes. Other escaped in the directions or wegiow and warsaw.

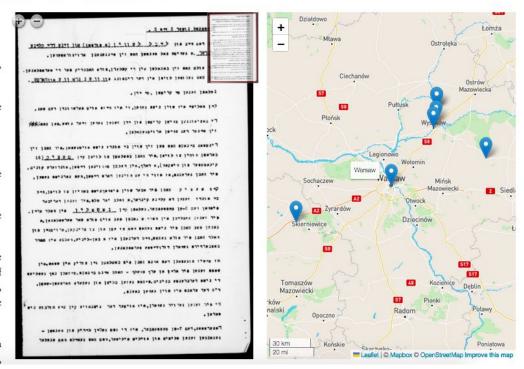
Both Christians and Jews were running away.

There were no policemen any more, apparently they disappeared the same day.

The relationship between Christians and Jews was very good. People were helping each other.

Tuesday in the evening we did not get undressed for the night. We discussed to where to escape. We decided to run to the village of Sieczychy (18 km from Wyszków), where some Germans were living, our customers. We believed that nothing would happen in a place where Germans were living.

But on Wednesday we did not manage to escape to Sieczychy, because in our family there are small children, six months old. So on Wednesday,



History of archival collections of Early Holocaust Testimonies

- The Ball-Kaduri Testimony Collection (Yad Vashem)
- Documentation Campaign in Prague
- · Testimonies Collection in the Jewish Historical Institute in Warsaw
- The Koniuchowsky Testimony Collection (Yad Vashem)
- National Committee for Attending Deportees (DEGOB, Hungary)
- The Wiener Library and its Eyewitness Accounts
- The Central Historical Commission of the Central Committee of Liberated Jews in the US Zone in Munich - Testimonies Collected in DP Camps (Yad Vashem)

History of archival collections of Early Holocaust Testimonies

The Ball-Kaduri Testimony Collection (Yad Vashem)

Dr. Kurt Ball-Kaduri was born in Berlin in 1891. A lawyer and legal adviser to the Prussian government, he was also active in Jewish affairs. He made Aliyah to Eretz Israel in December 1938.

Ball-Kaduri, who was active in collecting material and writing about German Jewry, became aware that much material that reached the archives regarding Jewish life in Germany from 1933 to 1945 was incomplete and that there were large information gaps.

He decided to gather testimonies of people involved in Jewish life and the activities of Jewish organizations. In 1943, Ball-Kaduri began to collect the information and actually established his collection. He contacted various people in Eretz Israel whom he knew, asking them to write their recollections and interviewing some of them himself. In 1955 he handed the collection over to Yad Vashem while continuing to collect related documentation for Yad Vashem until 1960.

The collection includes testimonies of Jewish leaders in various areas of Jewish life in Germany. Although it includes significant documentation regarding the fate of individual victims of the Holocaust, the main emphasis of the Record Group is on the different Jewish organizations.

There are over 300 files in the record group. Most of the collection is written in German and about half of the testimonies have been translated into Hebrew.

Documentation Campaign in Prague

The Jewish Museum in Prague, whose history is intrinsically intertwined with the persecution of Bohemian and Moravian Jews, has been collecting archival sources relating to the persecution and genocide of Jews in the Czech lands since the end of WWII. It holds various types of materials, including interviews with and witness accounts of Shoah survivors.

The testimonies presented within the EHRI online edition were gathered mainly in the framework of the so-called "documentation campaign" (Dokumentační akce). This was one of the earliest postwar projects to document the events of the Shoah, collecting evidence, documents, and witness testimonies. The founder and a driving force behind the campaign was Zeev Scheck, a prewar Zionist and survivor of Theresienstadt and Auschwitz, who emigrated Palestine in 1946 to. He later worked as an Israeli diplomat and was an initiator of the Association of Theresienstadt Prisoners which built the Beit Theresienstadt archive and museum.

Taking inspiration from his wartime clandestine documentation in Theresienstadt and from a visit to Budapest after liberation, Scheck and a few of his former fellow prisoners initiated a Czechoslovak Jewish documentation effort. Scheck was thereby continuing the clandestine collection of documents in the Theresienstadt ghetto in which he and a group of Zionist youth activists had been involved. After liberation, Scheck's partner and future wife transferred his Theresienstadt collection to Prague, later moving it to Palestine. Today it forms the basis of the Theresienstadt documentation in the Yad Vashem Archives

CONCLUSION

Conclusion

- ☐ The EHRI online editions are a **great source for various NLP and DH tasks**
- For more information
 - Break-out session of the afternoon to work with TEI Publisher and discover the annotation tool
 - ☐ EHRI Conference in June where we will present the work we have done on the EHRI editions but in a more "pipeline-oriented" point of view

RESOURCES

Resources

- □ Dataset EHRI: https://github.com/FloChiff/ehri-dataset/tree/main
- Presentation of the EHRI dataset: https://flochiff.github.io/phd/dataset/ehri/dataset.html
- ODD EHRI: https://gitlab.inria.fr/dh-projects/workflow-ehri/-/tree/main/ODD
- ☐ TEI Publisher: https://teipublisher.com/index.html
- e-editiones: https://www.e-editiones.org/

Thank you for your attention

Any questions?

Contact : floriane.chiffoleau[at]inria.fr hugo.scheithauer[at]inria.fr