Workshop 1
From a collection of documents to a published edition : how to use an end-to-end publication pipeline

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INTRODUCTION

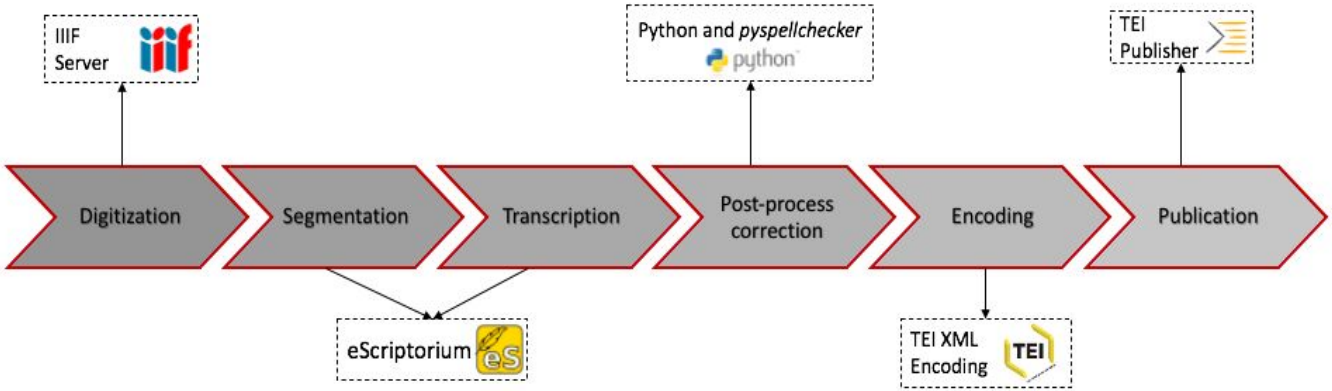
Pipeline for digital scholarly edition of historical documents

- Why did we create this pipeline ?

  → To facilitate the digitization of data extracted from archival collections, and their dissemination to the public in the form of digital documents in various formats and/or as an online edition

  → To make available an open system with open source tools, interoperable and easy-to-use

- What is it made of ?



A bit of background information about you

- ❏ Who already used a IIIF server/fetched a IIIF link ?
- ❏ Who already did automatic transcription (OCR, HTR, etc.) ?
- ❏ Who knows how to do transformation with XSLT ?
- ❏ Who knows how to do transformation with Python ?
- ❏ Who already encoded texts in XML TEI ?
- ❏ Who already used TEI Publisher ?

DIGITIZATION

Displaying a facsimile with IIIF

- What is IIIF ?
  - Stands for *International Image Interoperability Framework*
  - Standardized method of describing and delivering images over the web
- Why IIIF ?
  - The images are not directly in the publication platform, which alleviates its weights and gives leeway for more content
  - Putting them in a specific server ensures the sustainability of high-quality images

Displaying a facsimile: example of IIIF servers and links

- Gallica (Digital Library of the BNF): https://gallica.bnf.fr/accueil/en/content/accueil-en
  - DDHC, 1789: https://gallica.bnf.fr/iiif/ark:/12148/btv1b69480451/f1/full/full/0/default.jpg
- Internet Archive (American Digital Library): https://archive.org/
  - Versailles Treaty, 1919: https://iiif.archivelab.org/iiif/treatypeacewith00goog#6/full/full/0/default.jpg
- NAKALA (HumaNum project): https://nakala.fr/
  - Holocaust Testimony, 1945: https://api.nakala.fr/iiif/10.34847/nkl.bffevbx7/7e089763b1f519027d9868cf941b09ce926d1f0e

Adding images on your local Cantaloupe server: setting up the folder

Link to instruction

1. Cantaloupe must be downloaded on your computer and in an easily accessible place

2. Create a folder for images or choose an already existing folder with images and copy the absolute path of this folder

3. Go to your Cantaloupe folder, make a copy of the file *cantaloupe.properties.sample*, rename it by removing ".sample"

4. Open the file, search for `*FilesystemSource.BasicLookupStrategy.path_prefix*` and change the path existing to the path leading to your folder of images (step 2)

Adding images on your local Cantaloupe server: launching the server

Link to instruction

5. Open your command line interface (terminal), go to the place where Cantaloupe is installed (using *cd*) and activate Cantaloupe with the following command

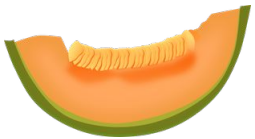
```
$ java -Dcantaloupe.config=cantaloupe.properties
-Xmx2g -jar cantaloupe-5.0.5.jar
```

6. Once this is done, open your browser and enter the following URL
http://localhost:8182/iiif/3/{name_of_the_file.extension}/full/max/0/default.jpg

7. Your image should be displayed on the browser

Different ways to see an image with IIIF

- Metadata of the images: http://localhost:8182/iiif/3/jane_austen.jpg/info.json
- Full view: http://localhost:8182/iiif/3/jane_austen.jpg/full/max/0/default.jpg
- Gray version: http://localhost:8182/iiif/3/jane_austen.jpg/full/max/0/gray.jpg
- Zoom in: http://localhost:8182/iiif/3/jane_austen.jpg/160,80,200,300/max/0/default.jpg
- Rotated: http://localhost:8182/iiif/3/jane_austen.jpg/full/max/68/default.jpg
- Smaller size: http://localhost:8182/iiif/3/jane_austen.jpg/full/,250/0/default.jpg



SEGMENTATION/TRANSCRIPTION/ POST-OCR CORRECTION

What is OCR/HTR and how to do it ?

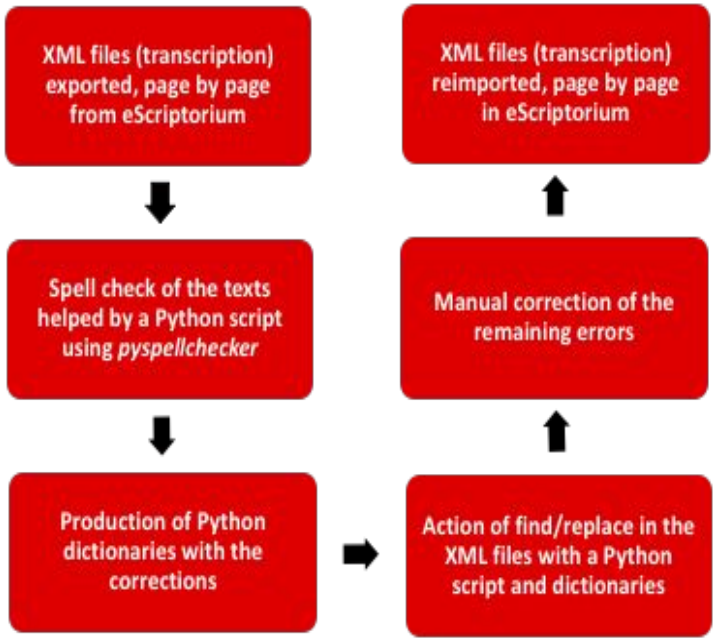
- What is OCR/HTR ?
  - OCR = Optical Character Recognition
  - HTR = Handwritten Text Recognition
- How is it composed ?
  - Segmentation
  - Text Recognition
  - Model training
- Different tools
  - Proprietary software OCR → Abbyy FineReader
  - Open source OCR → Tesseract
  - For HTR → Transkribus, eScriptorium

Working with eScriptorium

- Web interface for collaborative and automatic transcription projects, relying on the OCR software Kraken
- How to do OCR on your corpus ?
  - Create a project
  - Segment
  - Transcribe
  - Export

Post-OCR correction

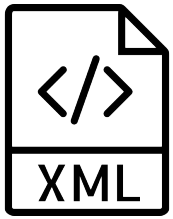
- Automatic transcription → errors to correct → manual correction?
- No fixed way to do it and no definite tool created for it
- Personal solution:
  - Python and *pyspellchecker*
  - Generation of dictionaries of errors and corrections
  - Diminish the time used for the manual correction



ENCODING

The Text Encoding Initiative (TEI)

- Consortium which develops and maintains a standard for the representation of texts in digital form
- Set of guidelines that specify elements and attributes to use to encode every part of your transcription



From TXT/ALTO/PAGE to TEI

- Transformation of the TXT version
  - Python script: *text_to_tei.py*
  - Instruction: https://github.com/FloChiff/workshop-discholed-tei2022/blob/main/instructions/transforming_transcriptions_into_tei.md#transforming-text-files
- Transformation of the ALTO/PAGE version
  - XSLT transformation
    - From ALTO to TEI: alto_to_tei.xsl
    - From PAGE to TEI: xmlpage_to_tei.xsl
    - From TEI (multiple files) to TEI (single file): tei_to_tei.xsl or tei_to_tei.py
  - Instruction: https://github.com/FloChiff/workshop-discholed-tei2022/blob/main/instructions/transforming_transcriptions_into_tei.md#transforming-xml

Providing the document metadata: the <teiHeader>

- <fileDesc>
  - <titleStmt> → title with a xml:lang, principal with their name on it, <respStmt>
  - <publicationStmt> → mention of their institution if they have one, the licence, and the date
  - <seriesStmt> → if the text is part of a whole, mention the collection, mention of the genre and topic possible too
  - <sourceDesc → <msDesc if the source is kept somewhere and to have physical description, (create a <listPlace> and <listPerson for the NE)
- <encodingDesc> → gives quick information on why it is done (Here for example, “encoding done during a workshop”)
- <profileDesc> → information about the author, place of writing, etc.
- <revisionDesc> → register the changes

From flat transcription to diplomatic version

- The TEI Guidelines offers the possibility to encode a text very precisely, from the layout to the faded words, from the additions/deletions to the named entities
- Possible additions to the <body>:
  - @rend to <p> (paragraph), <title>, <note>, etc.
  - <add>, <del>, <unclear>, etc. to writing specificities in the text
  - <persName>, <placeName>, <orgName>, <rs>, etc. to the named entities
  - <note @resp="#..."> to add comments about part of the text

PUBLICATION

What is TEI Publisher ?

- TEI Publisher is …
  - an easy-to-use tool to publish your TEI XML files
  - a *prêt-à-porter* application customizable with few tweaks
- Few platforms created with TEI Publisher

When the Wall Came Down

Van Gogh Letters

Shakespeare's Plays

Early English Books

Digital Scholarly Editions
(Made by me)

Discovering TEI Publisher

- Demo Collection:
  - Various XML files (letters, plays, novels, etc.) with each their ODD and templates, to showcase what TEI Publisher has to offer by displaying specific features
  - Link: http://localhost:8080/exist/apps/tei-publisher/index.html?tab=0&collection=test
- Playground:
  - Area to upload your own documents and to test them with every ODD and templates to evaluate your need in terms of features
  - Playground: http://localhost:8080/exist/apps/tei-publisher/index.html?tab=0&collection=playground
  - Instruction: https://github.com/FloChiff/workshop-discholed-tei2022/blob/main/instructions/working_with_tei_publisher.md#discovering-the-playground

Working with your own production

- Developing your own ODD:
  - The ODD is the file where we will add the elements we want to display specifically (rendition, predicate, behaviour, template and/or parameters)
  - Instruction: https://github.com/FloChiff/workshop-dischole d-tei2022/blob/main/instructions/working_with _tei_publisher.md#developing-your-own-odd
- Generating your own application
  - With the ODD and a chosen template, you can generate an application with all the basics elements needed and then, custom-made it
  - Instruction: https://github.com/FloChiff/workshop-dischole d-tei2022/blob/main/instructions/working_with _tei_publisher.md#generating-your-own-applicat ion

Modifying the application as you want

- Displaying the facsimile: Visualize next to each other the transcription and the image it's coming from
- Creating and displaying modes: Showing the same element in various ways
- Working with the index: Having access on the same page to the information about the named entities of the text
- Displaying the sourceDoc: Exhibiting next to each other the flat transcription and its diplomatic version
- Creating a collection: Offering the possibility of various corpus into one application

Feedback session:
Any questions?
Any remarks?

Contact
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RESOURCES

Tools introduced during this workshop

- Cantaloupe (Open-source dynamic image server for on-demand generation of derivatives of high-resolution source images): https://cantaloupe-project.github.io/
- eScriptorium (A Digital Text Production Pipeline for Printed and Handwritten Texts using machine learning): https://escriptorium.paris.inria.fr/
- Oxygen XML (off-the-shelf XML editing software, providing must-have tools, and covering most XML standards): https://www.oxygenxml.com/
- TEI Guidelines (Guidelines for Electronic Text Encoding and Interchange): https://tei-c.org/release/doc/tei-p5-doc/en/html/index.html
- TEI Publisher (Instant Publishing Toolbox, developed by e-editiones:): https://teipublisher.com/index.html

BIBLIOGRAPHY

Previous presentations of this pipeline

- Chagué, Alix, and Floriane Chiffoleau. *An accessible and transparent pipeline for publishing historical ego documents*. 2021. ⟨hal-03180669⟩
- Chiffoleau, Floriane, Anne Baillot, Manon Ovide. “A TEI-based publication pipeline for historical ego documents -the DAHN project.” *Next Gen TEI, 2021 – TEI Conference and Members’ Meeting*, Oct 2021, Virtual, United States. ⟨hal-03451421⟩
- Chiffoleau, Floriane, Anne Baillot. *Le projet DAHN : une pipeline pour l'édition numérique de documents d'archives*. 2022. ⟨hal-03628094⟩

Articles about the pipeline

Development of the pipeline:

- Chiffoleau, Floriane, DAHN Project, *Digital Intellectuals*, 2020-2021: https://digitalintellectuals.hypotheses.org/category/dahn

Steps from the pipeline:

- Chagué, Alix, and Hugo Scheithauer. 2021. *page2tei*, an XSL Transformation to transform PAGE XML into TEI XML (Version 1.0.0) [Computer software]
- Kiessling, Benjamin et al. 2019. “eScriptorium: An Open Source Platform for Historical Document Analysis”. In: *2019 International Conference on Document Analysis and Recognition Workshops (ICDARW)*. Vol. 2, pp. 19–19. DOI:10.1109/ICDARW.2019.10032
- Pierazzo, Elena. 2019. What future for digital scholarly editions? From Haute Couture to Prêt-à-Porter. *International Journal for Digital Humanities*, Springer, 1, pp.1-12.⟨10.1007/s42803-019-00019-3⟩. ⟨hal-02117714⟩