# *Creating Plain Text from a pdf Scan using OCR*

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# Outline

-brief video of what we do

-brief discussion of OCR as a problem of computer vision

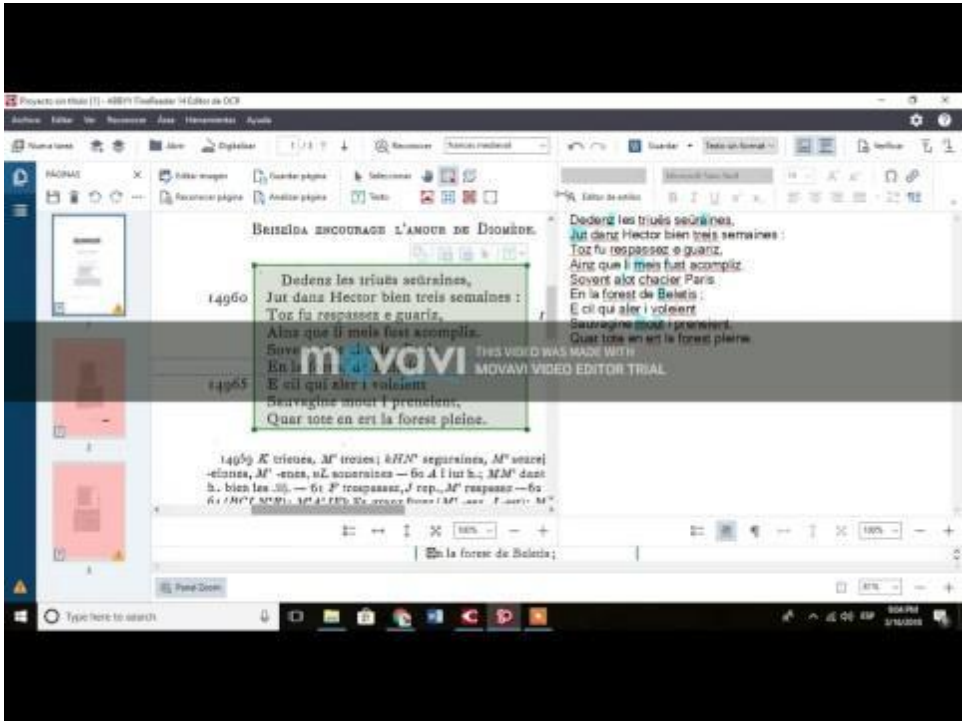
-places where OCR is happening around us (and we don’t know it)

-frontiers of OCR (non-English, in coding environments, historical OCR)

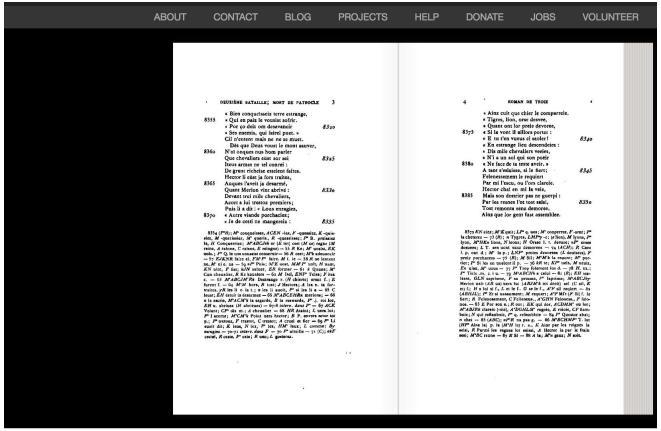
-our hands on with Abbyy FineReader

# Marielle's Video Tutorial (8 min)

Key points:



# MAIN GOAL: From pdf scan to txt file to GitHub

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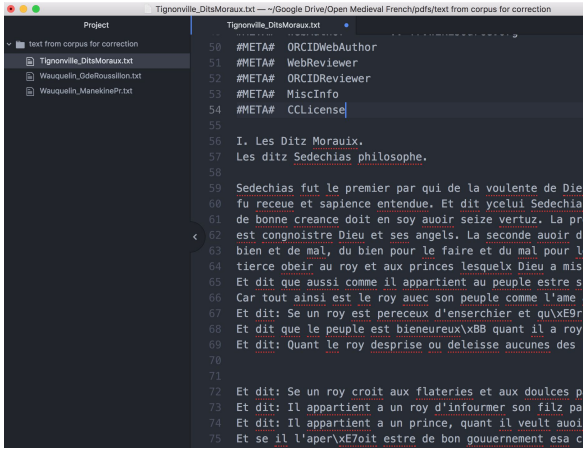
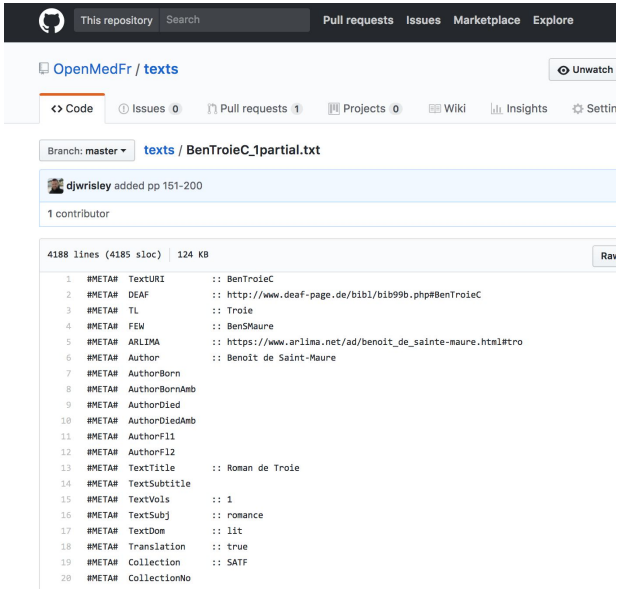


# OCR (optical character recognition)

## Extracting text from an image of text

**Optical character recognition** (also **optical character reader**, **OCR**) is the conversion of images of typed, handwritten or printed text into machine-encoded text, whether from a scanned document, a photo of a document, a scene-photo (for example the text on signs and billboards in a landscape photo) or from subtitle text superimposed on an image (for example from a television broadcast) (Wikipedia)

-photo of credit card or a check and information is extracted
-unrecognized photos of pdf documents in Google drive
-reCaptcha
-Google car mapping the streets

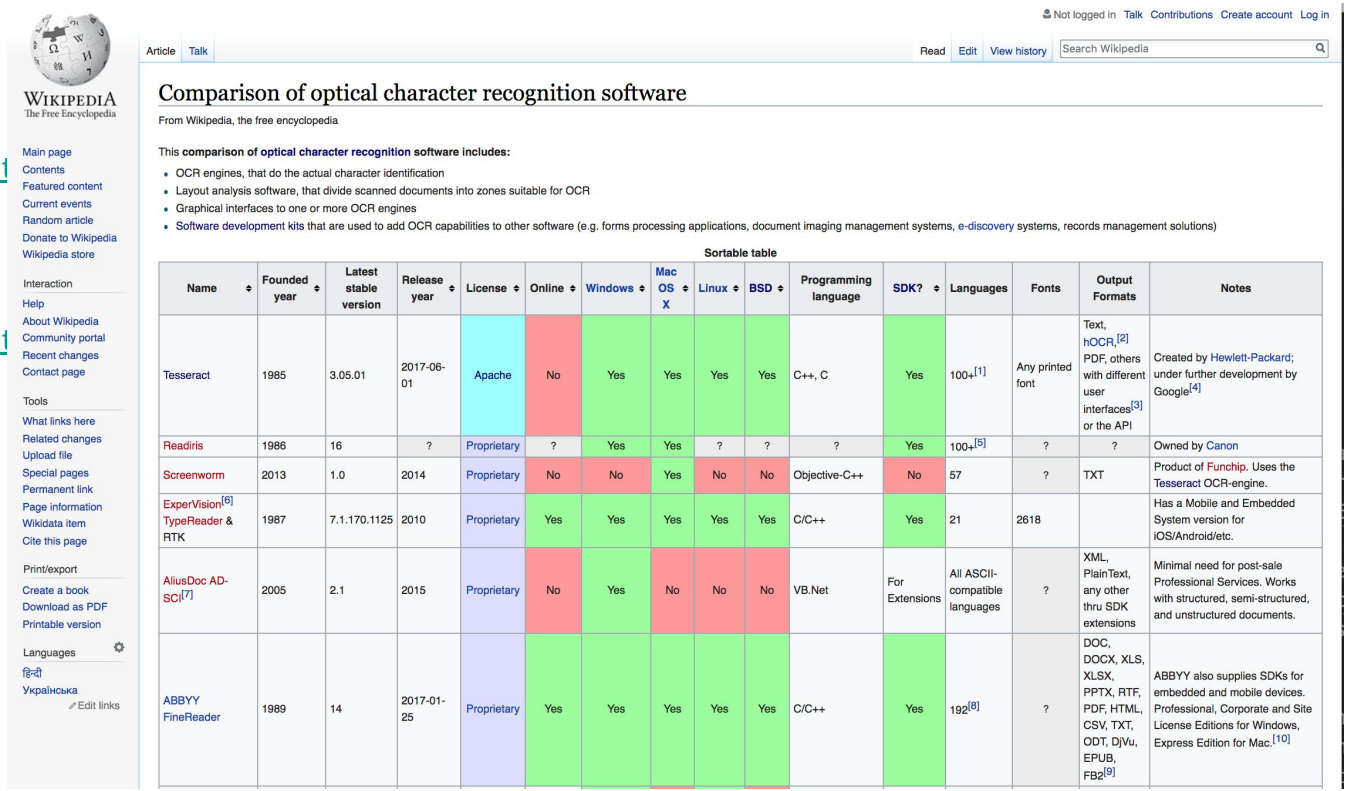
# What is the Difference between and Image and Machine-Readable Text?

- a pdf image is only a set of pixels, not understandable except to the human eye as letters and words and sentences
- a searchable pdf has some OCR done, but if you extract it you will find errors (try this some time in Adobe)
- In order to make the text quality better, our OCR process takes scanned editions and we will follow these basic steps
    - build a “dictionary” from French (one time only)
    - manually choose text blocks
    - read with some “pattern training”
    - some further read through for correction

# Comparison of OCR tools

ht

ht



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## Comparison of optical character recognition software

From Wikipedia, the free encyclopedia

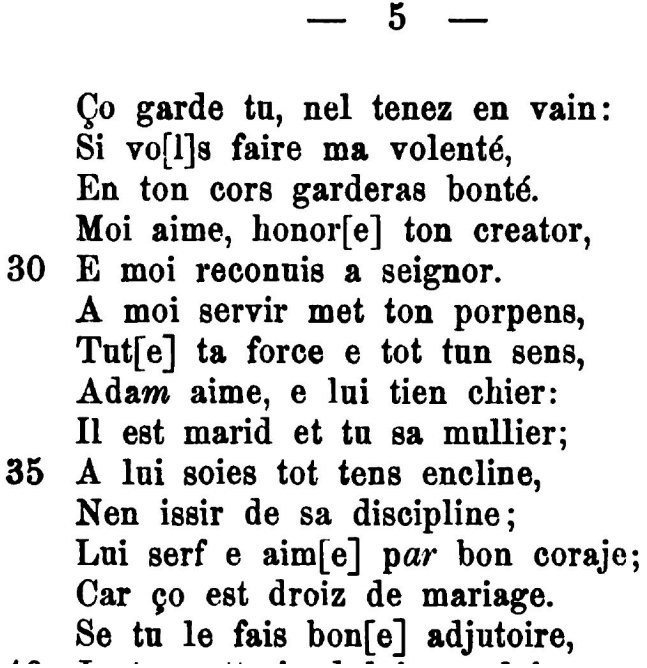
This **comparison of optical character recognition** software includes:

- OCR engines, that do the actual character identification
- Layout analysis software, that divide scanned documents into zones suitable for OCR
- Graphical interfaces to one or more OCR engines
- Software development kits that are used to add OCR capabilities to other software (e.g. forms processing applications, document imaging management systems, e-discovery systems, records management solutions)

Sortable table

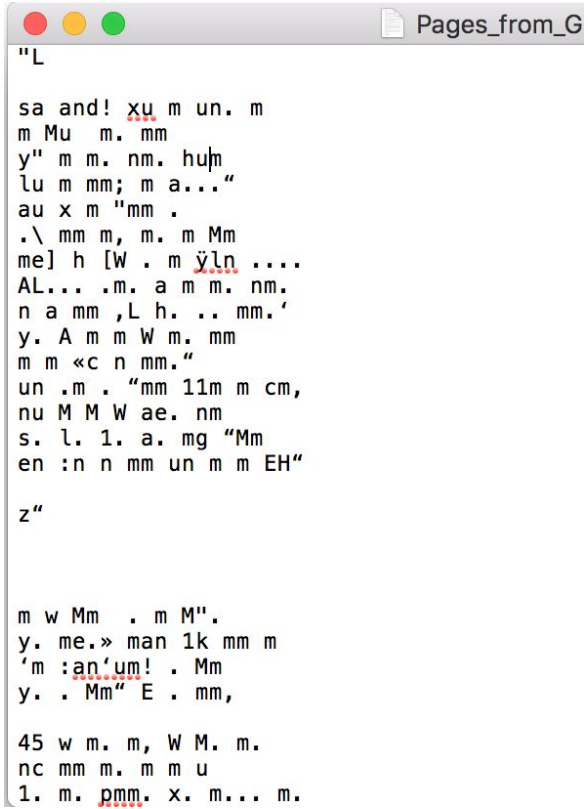
| Name | Founded year | Latest stable version | Release year | License | Online | Windows | Mac OS X | Linux | BSD | Programming language | SDK? | Languages | Fonts | Output Formats | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tesseract | 1985 | 3.05.01 | 2017-06-01 | Apache | No | Yes | Yes | Yes | Yes | C++, C | Yes | 100+[1] | Any printed font | Text, hOCR,[2] PDF, others with different user interfaces[3] or the API | Created by Hewlett-Packard; under further development by Google[4] |
| Readiris | 1986 | 16 | ? | Proprietary | ? | Yes | Yes | ? | ? | ? | Yes | 100+[5] | ? | ? | Owned by Canon |
| Screenworm | 2013 | 1.0 | 2014 | Proprietary | No | No | Yes | No | No | Objective-C++ | No | 57 | ? | TXT | Product of Funchip. Uses the Tesseract OCR-engine. |
| ExperVision[6] TypeReader & RTK | 1987 | 7.1.170.1125 | 2010 | Proprietary | Yes | Yes | Yes | Yes | Yes | C/C++ | Yes | 21 | 2618 | | Has a Mobile and Embedded System version for iOS/Android/etc. |
| AliusDoc AD-SCI[7] | 2005 | 2.1 | 2015 | Proprietary | No | Yes | No | No | No | VB.Net | For Extensions | All ASCII-compatible languages | ? | XML, PlainText, any other thru SDK extensions | Minimal need for post-sale Professional Services. Works with structured, semi-structured, and unstructured documents. |
| ABBYY FineReader | 1989 | 14 | 2017-01-25 | Proprietary | Yes | Yes | Yes | Yes | Yes | C/C++ | Yes | 192[8] | ? | DOC, DOCX, XLS, XLSX, PPTX, RTF, PDF, HTML, CSV, TXT, ODT, DjVu, EPUB, FB2[9] | ABBYY also supplies SDKs for embedded and mobile devices. Professional, Corporate and Site License Editions for Windows, Express Edition for Mac.[10] |

# http://www.free-ocr.com/



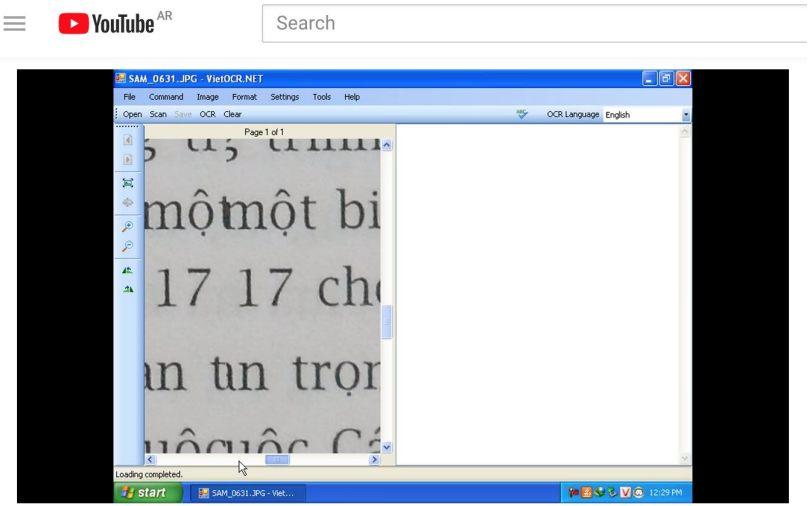
— 5 —

Ço garde tu, nel tenez en vain:
Si vo[l]s faire ma volenté,
En ton cors garderas bonté.
Moi aime, honor[e] ton creator,
E moi reconuis a seignor.
A moi servir met ton porpens,
Tut[e] ta force e tot tun sens,
Ada*m* aime, e lui tien chier:
Il est marid et tu sa mullier;
A lui soies tot tens encline,
Nen issir de sa discipline;
Lui serf e aim[e] p*ar* bon coraje;
Car ço est droiz de mariage.
Se tu le fais bon[e] adjutoire,



# OCR in languages other than English

https://sou

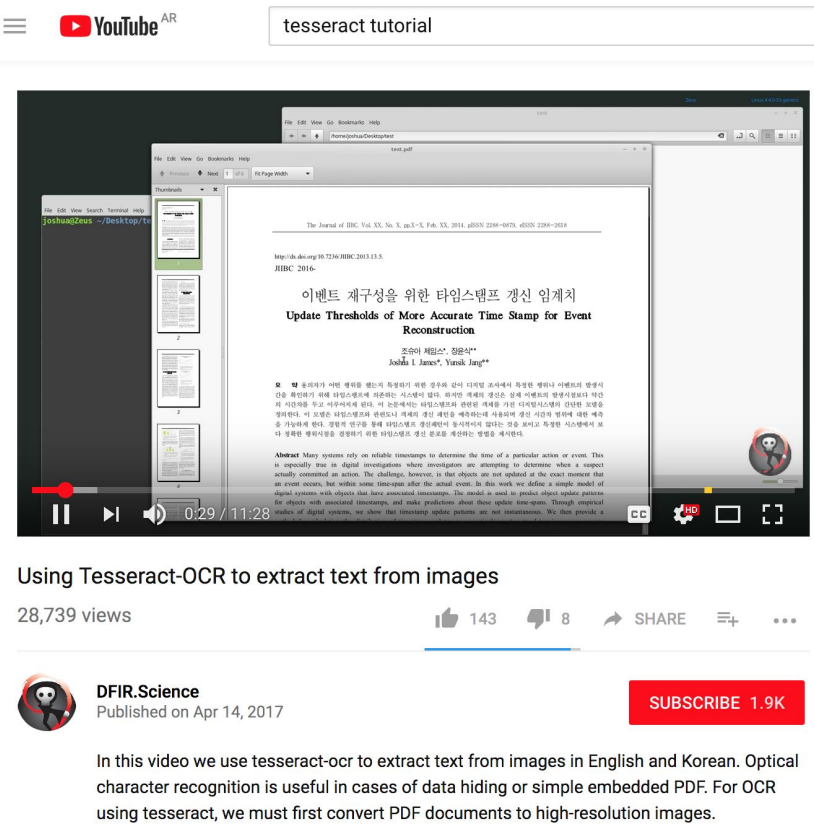


# OCR as part of code

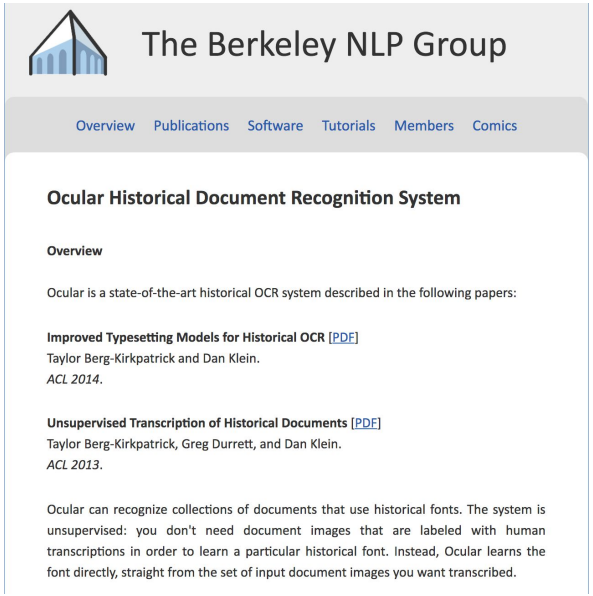
Extracting I ) on Ubuntu Linux

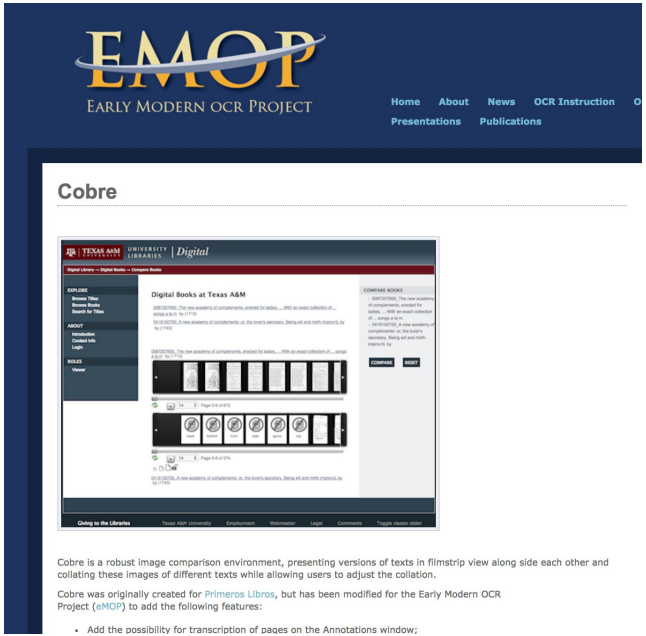
-tesseract i or as part of your code for serial

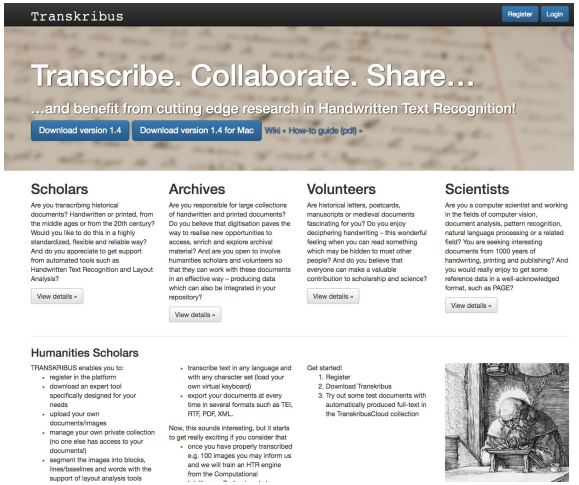
(batch) “un



# Historical OCR



# Our exercise: Abbyy Finereader

-working not with historical handwriting, but historical print publications

-not free (+/- $150), but works very well for a beginner or a lab of non-experts

-licensed to a specific machine

-offers pattern training in the PC version

-allows us to have a simple workflow

# After the OCR… correction at scale

Project Gutenberg - uses systems of Distributed Proofreaders

ECCO/EEBO TCP -  uses collective correction tool TYPEWRIGHT

# Thanks to:

Marielle del Carmen Caballero Ng (NYU Abu Dhabi, class of 2021)

And now we go hands on….