A brief textual analysis of a corpus on digital libraries and text mining

Mathieu Andro

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Summary

Over 40 million books have been digitized by Google Books. Libraries around the world have participated in this movement to digitize print heritage. The digital corpora now available contain textual data which today is to be extracted using text mining. Specialised in digitization and digital libraries and with experience in text mining, we wanted to make a state of the art on the subject of text mining applied to digital libraries using text mining technologies themselves.
We are indeed wondering about these technologies. Is it developing? Does it work? Are we making discoveries?
We have assembled a corpus of metadata and summaries from Google Scholar which seems to be the most exhaustive source on the subject of scientific but also professional literature. We performed textual analyzes using CorTexT, a tool developed by research and higher education in France

Introduction

Text mining is probably a natural outlet for library digitization projects. We wish to verify that and to analyze studies published on the subject.

Method

1- We asked Google Scholar, which seems to us to be the most exhaustive bibliographic database on the subject. We used the following query:

("digital library" OR "digital libraries") AND ("digitisation" OR "digitization" OR "digitized" OR "digitised") AND ("text mining" OR "Natural language processing")

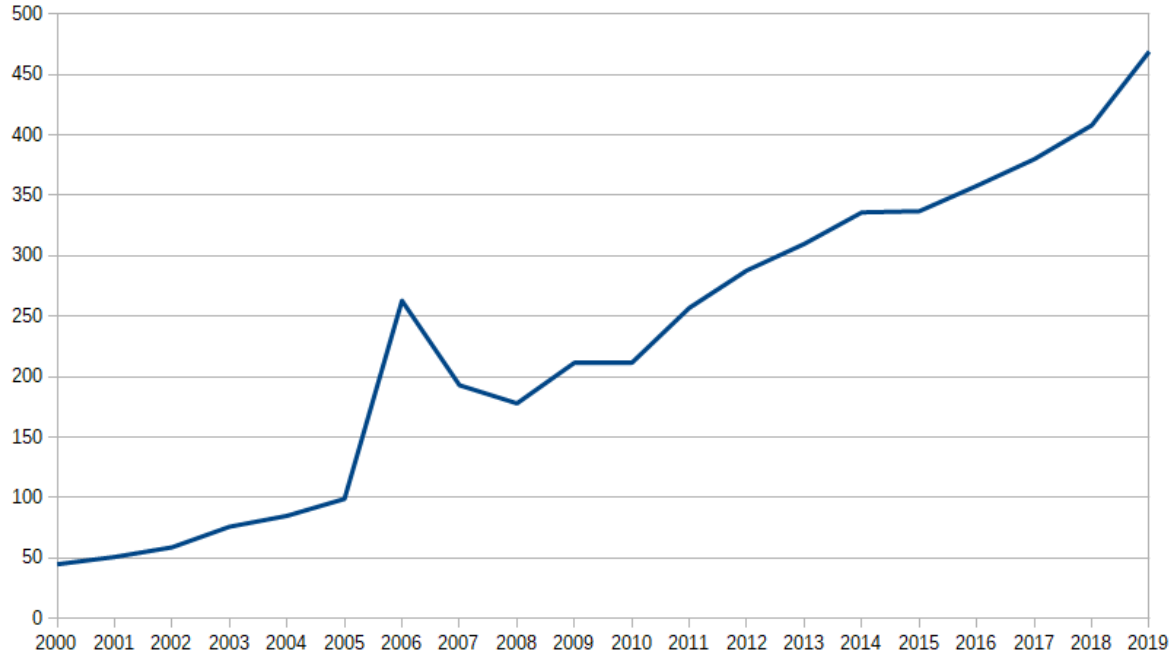
2- We extracted the metadata of 4 830 publications from Google Scholar via Harzing's Publish or Perish

3- We export them in RIS standard.

4- We analyzed the corpus with CorTexT (https://www.cortext.net/projects/cortext-manager).

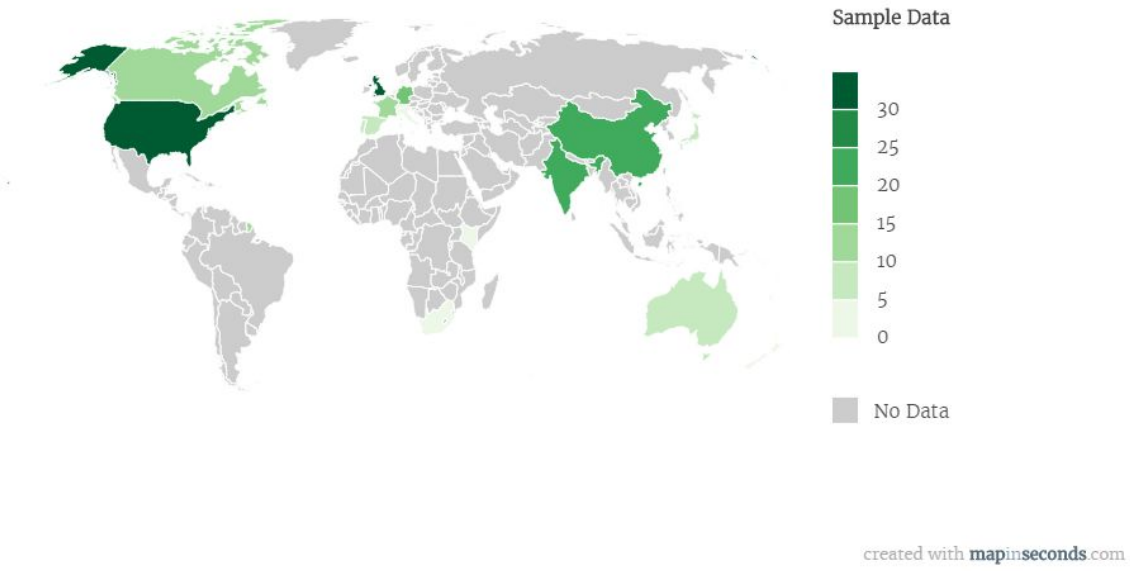
Results

Is it a growing subject ?

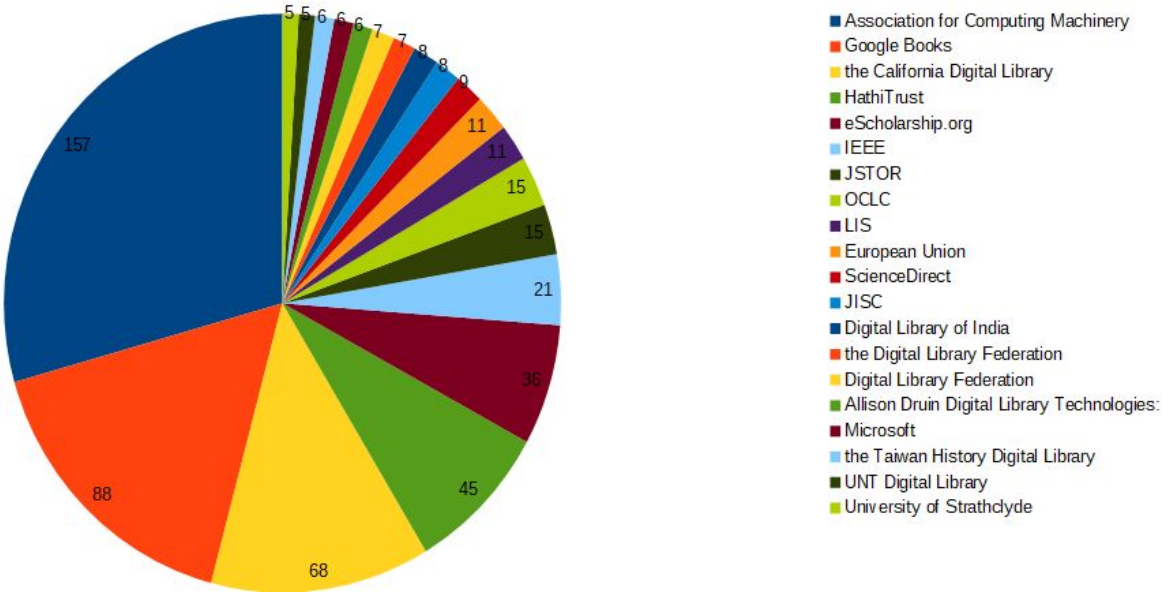


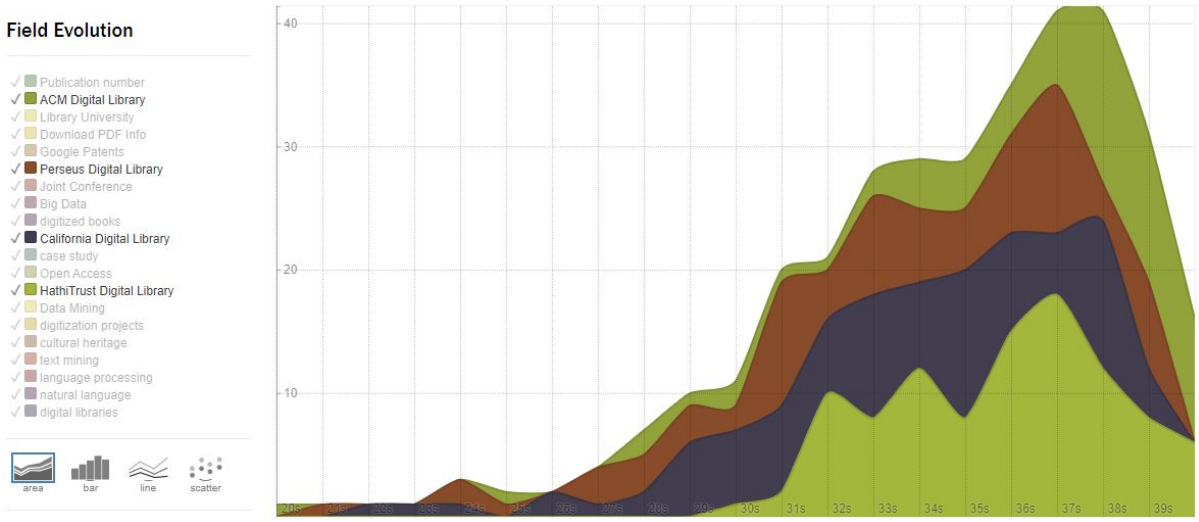
Who works on this subject ?

In which countries ?

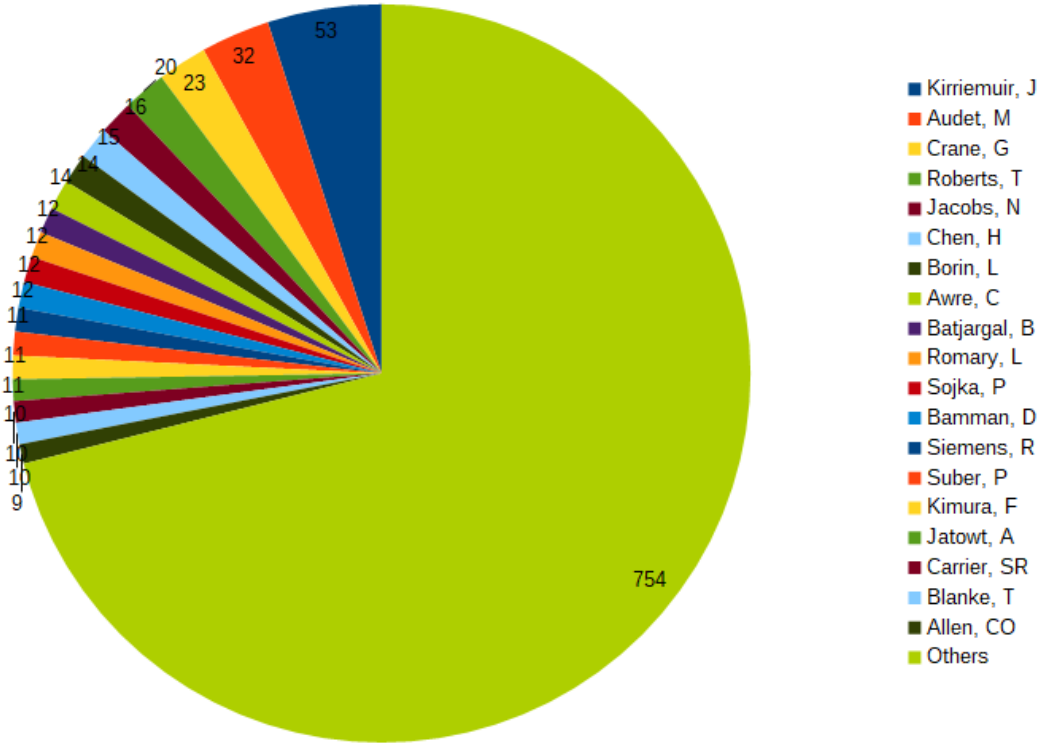


Which institutions and projects ?



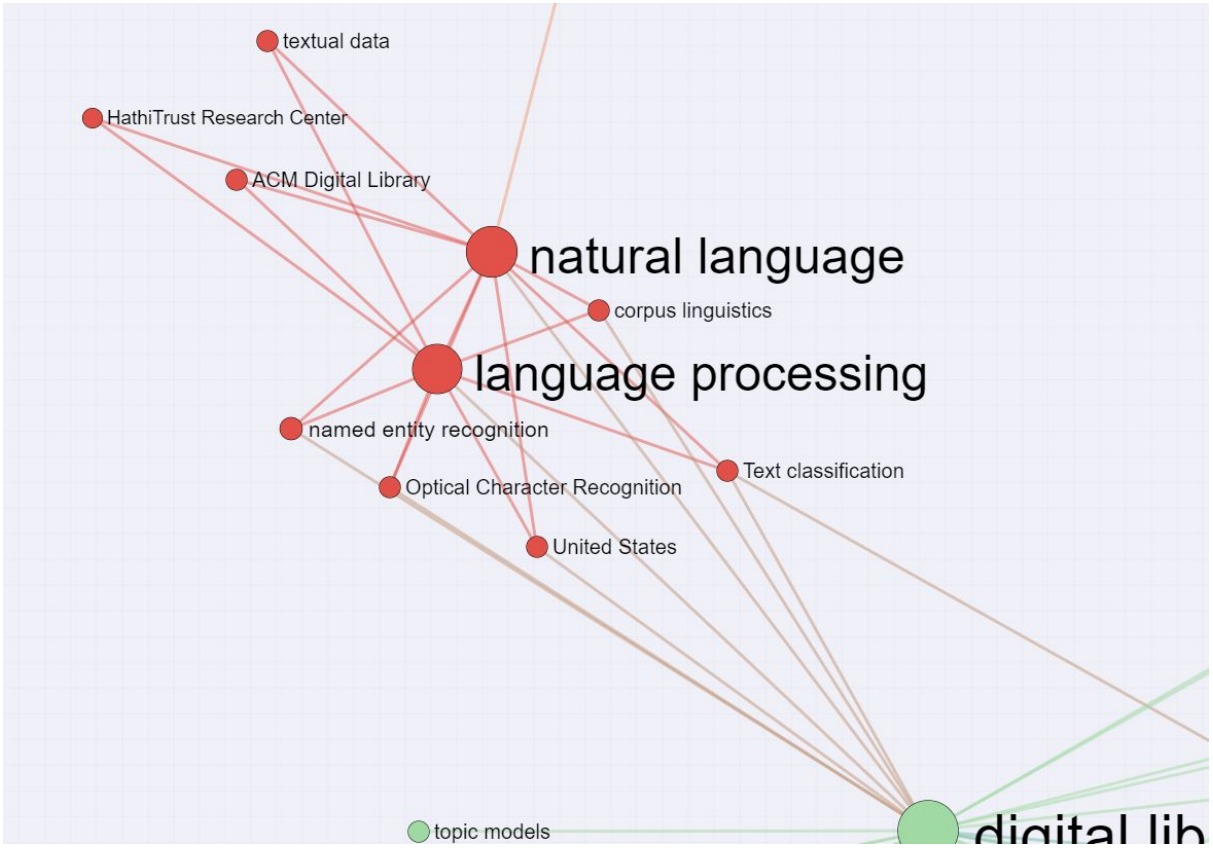


Which authors ?

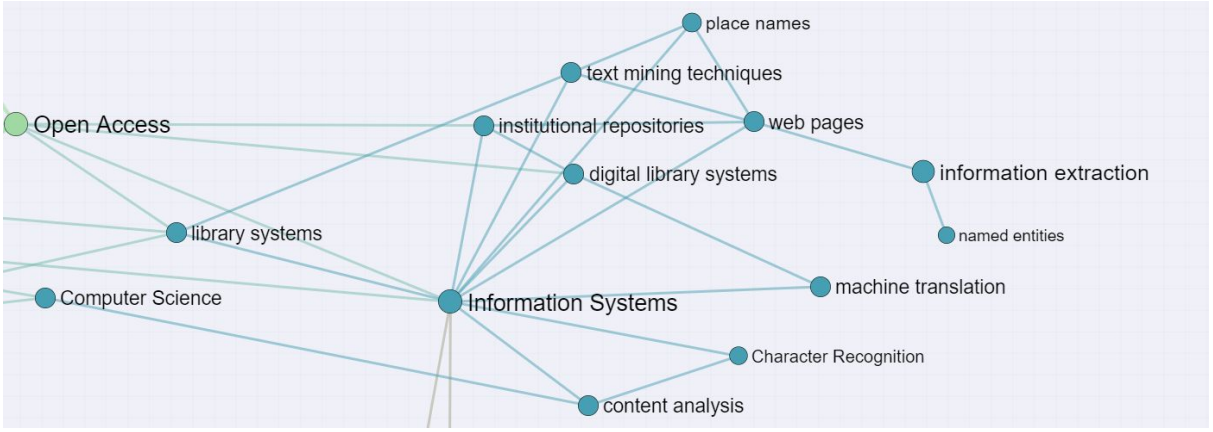


What about are they deal with ?

A central group deals with text mining using digital libraries:
Concepts: open access, artificial intelligence, knowledge management and digital age
Technologies: linked data, entity recognition, improving OCR accuracy, document image analysis
Projects: Perseus Digital Library project

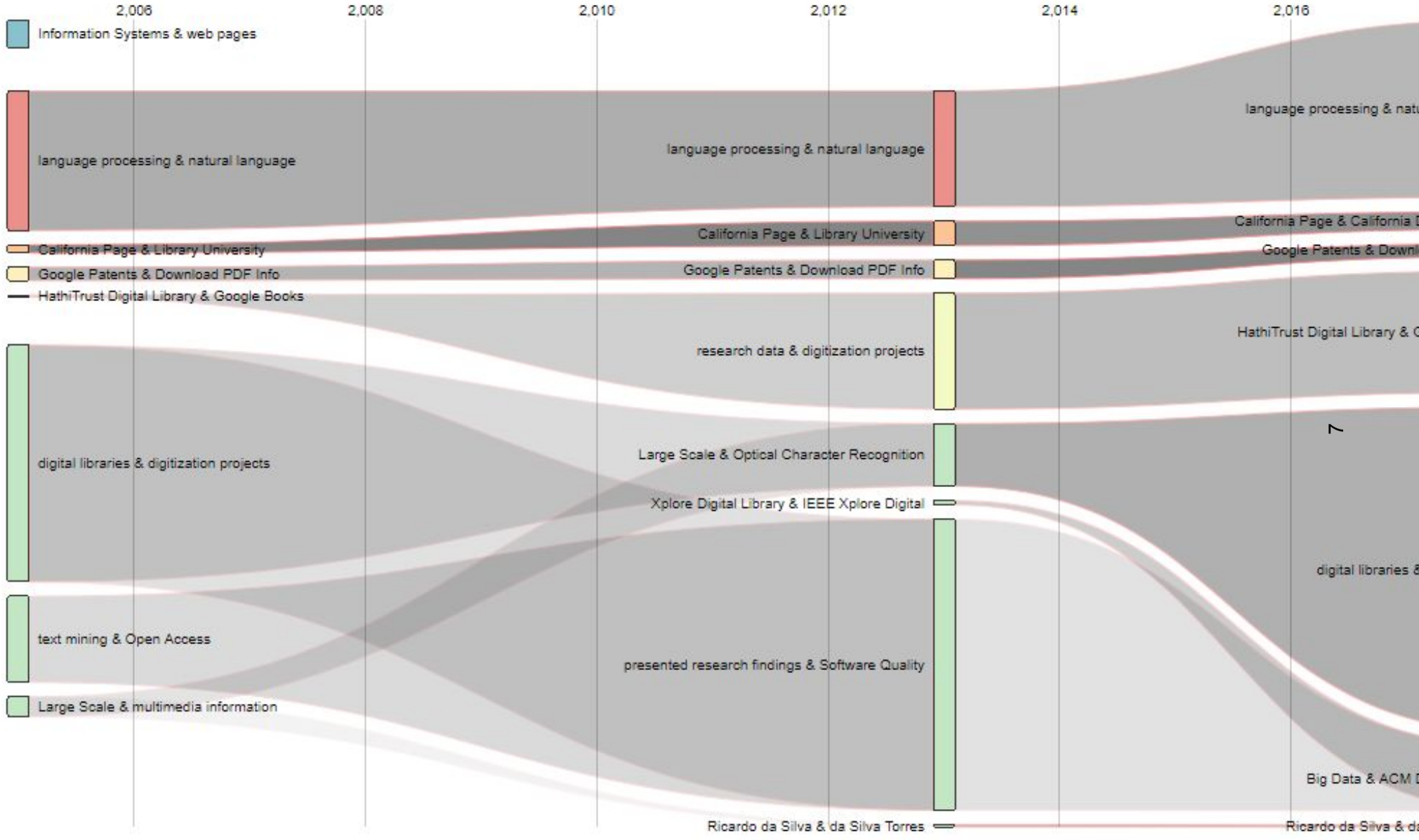


A second group of publications is about natural language using digital libraries:
Concepts: natural language, language processing
Technologies: text classification, Optical Character Recognition (like the first group) and named entity recognition (like the first group)
Projects: Hathi Trust Research Center, ACM Digital Library



A third one is about digital libraries using text mining technologies:
Concepts: Information Systems, Institutional repositories
Technologies: Machine translation, named entities (like the 2 other groups), place names, character Recognition (like the 2 other groups)

Finally we also obtain a group for Hathi Trust and Google Books, and another one for California Digital Library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If we have a look at temporal evolution of all theses concepts, it seems that Hathi Trust Text Mining Projects are a growing subject. Large scale is also a growing subject.

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