



### Digital Humanities and libraries

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### Institute of Information and Media Sciences, University of Wrocław 27.02.2023



### "it is the tool that forms the object of study"

(Adam Pawłowski, 2023)



### Plan

#### Introduction to digital humanities

- DH definitions
- · Historical outline and factors that foster the development of DH projects
- · Fields of research interest
- Subject of research
- DH methods, processes, tools
- · Competencies of a digital humanist
- · Some examples of projects

#### Libraries and the development of the digital humanities

- Scope of activities
- Who is a librarian in the DH?
- Key skills
- Problems and challenges
- DH projects in a library perspective



### PART 1 INTRODUCTION TO DIGITAL HUMANITIES





# **DH** definitions

Lack of a single consistent definition

Mostly:

- new research trend
- paradigm

that involves the use of ICT (Information and Communication Technology) tools for broadly defined research in the humanities or even social sciences, among other fields such as:

 Archaeology, History, Art History, Linguistics, Literary Studies, Cultural Science....



# DH definitions

"Digital Humanities is not a unified field but **an array of convergent practices** that explore a universe in which: a) print is no longer the exclusive or the normative medium in which knowledge is produced and/or disseminated; instead, print finds itself absorbed into new, multimedia configurations; and b) digital tools, techniques, and media have altered the production and dissemination of knowledge in the arts, human and social sciences.."

(Jeffrey Schnapp, Todd Presner, 2009).



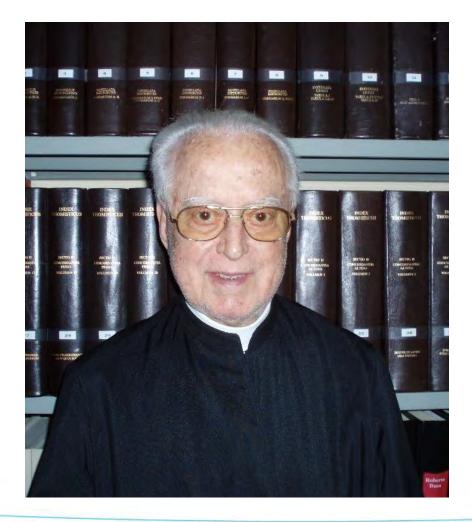
### **DH** definitions

"a set of cognitive practices and information resources resulting from transferring the cognitive practices of print-based humanities to the digital sphere and enriching them with new functionalities"

(Adam Pawłowski, 2023)



# Short history of DH



1940s.

# **Roberto Busa** (1913–2011)

A pioneer in the application of computer science and corpus linguistics to the analysis of literaturę → <u>Corpus Tomisticum</u>



#### THE JOURNAL OF POLITICAL ECONOMY

Volume LXVI APRIL 1958 Number 2

#### THE ECONOMICS OF SLAVERY IN THE ANTE BELLUM SOUTH

#### ALFRED H. CONRAD AND JOHN R. MEYER Harvard University

I. OBJECTIVES AND METHODS

HE outstanding economic characteristics of southern agriculture before the Civil War were a high degree of specialization and virtually exclusive reliance on a slave labor force. The largescale, commercial dependence upon slave labor was to distinguish the ante bellum South not only from other regions in its own time but from all regions at all other times in American agricultural history. Because of this unique historical status, ante bellum southern agriculture has been a subject for special historical attention. Above all else, attention has been focused upon the proposition that, even without external intervention, slavery would have toppled of its own weight. This allegation has its source in the assertions of slave inefficiency to be found in

<sup>1</sup> This paper was presented at a meeting of the Conference on Research in Income and Wealth at Williams College, Williamstown, Massachusetts, September 4-5, 1957, and is published here with the kind permission of the Conference. We wish to thank the Harvard Foundation for Advanced Study and Research for a grant for computational and secretarial assistance. The Foundation does not, of course, share in any way the responsibility for the views or conclusions of the paper.

the writings of men who lived with slavery: American or English liberals like G. M. Weston, H. R. Helper, or J. E. Cairnes and southern slaveowners who, in a religious, self-righteous age, could find every motive for the protection of the slave system except that it was personally profitable. The argument is to be found most strongly stated in the work of later southern historians, especially C. W. Ramsdell and U. B. Phillips, who take the position that the Civil War, far from being an irrepressible conflict, was an unnecessary blood bath. They argue that slavery had reached its natural limits and that it was cumbersome and inefficient and, probably within less than a generation, would have destroyed itself. To the question why emancipation was not resorted to, they reply that slavery was for the southerners an important (and evidently expensive) duty, part of their "unending task of race discipline." On the other side, Lewis Gray and Kenneth Stampp have strongly contested this view, contending that southern plantation agriculture was at least as remunerative an economic activity as most

#### 1958

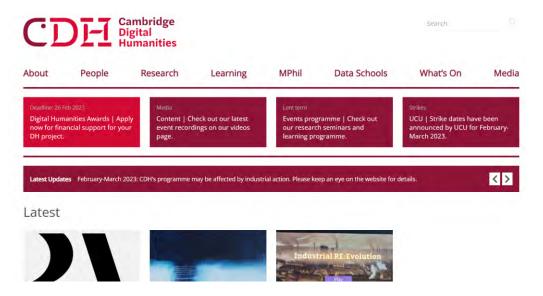
Conrad, A. H., & Meyer, J. R. (**1958**). The Economics of Slavery in the Ante Bellum South. *Journal of Political Economy*, 66(2), 95–130. <u>http://www.jstor.org/stable/182</u> <u>7270</u>

Research on the economic efficiency of slavery in the U.S. carried out using computer techniques



### 1964

Literary and Linguistic Computing Center (Cambridge University)



In 2017 integrated with Cambridge Digital Humanities.



Robert William Fogel

### 1970s.





research in economics using computer techniques



### Douglass North



### Late 1980s.

The formation of trends in HC:

 Computational humanities – the study of historical, archaeological and linguistic sources by means of computational methods



 Reconstructionist trend – involving the reconstruction of various types of objects (historical, archaeological)



### 1990s.



### The first portals to show the results of DH research



### 21st century

- the birth of big data analytics
- incrise of importance of machine learning (AI), which are increasingly used by humanists



### Fields of interest

#### Ontological field

• Digital objects (digitized and born digital) are the subject of interest)

#### Epistemological field

 Analysis of those objects in different approaches – studying of correlations, relations etc.

#### Methodological field

• Application of new methodology for new tools

#### Axiological field

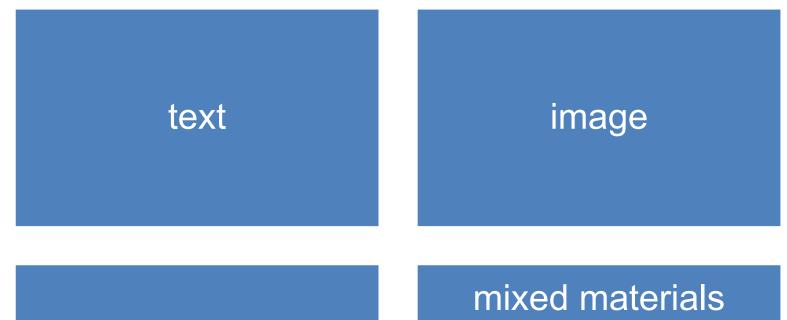
· Posting analysis and results on the Web for all

#### Oranizational field

• Teamwork - not individual researchers, but teams often with international scope



### Subject of the study



# sound (speach, music)

mixed materials (maps, notes, manuscripts, comics, applied iconography, games)



### Methods, processes, tools

processing, analyzing and comparing data and metadata (including but not limited to big data)

character recognition

text mining, data mining

digitization of objects

mapping of geographic data

NLP - Natural Language Processing

visualization of results

process modeling and prediction

use of Linked Open Data technologies

use of AI tools

• • •



# Competencies of a digital humanist

Domain knowledge (literary studies, archaeology...).

Relatively strong information technology knowledge

- Software support
- Knowledge of programming language (R, Python) + working with programming libraries (e.g. pandas)
- Web development (HTML, Java Script, CSS)
- Advanced skills in visualization of research results



#### **Digitization projects**

• Digitize, develop, publish various types of objects

#### Medialabs

- Medialab Katowice Oral history archive of Kościuszki street in Katowice
- <u>Ośrodek "Brama Grodzka Teatr NN"</u> in Lublin Digital mockups of the city of Lublin, Secret teaching. Silent heroes

Creating tools, infrastructure in the form of, for example, web applications

- CLARIN-PL (PWr) NLP tools
- DARIAH-PL infrastructure for HC development

#### Narrower projects

• Research on computer games, social networks, user-technology interaction



ChronoPress chronological database of Polish press texts from 1945-1954 described with metadata at the morphosyntactic level

# DH projets



ChronoPress (clarin-pl.eu)



### Polski korpus listów pożegnalnych samobójców

(skrót PCSN; ang. Polish Corpus of Suicide Notes)

#### Tytuł projektu

Listy pożegnalne samobójców lingwistyczne metody ustalania autentyczności tekstu

Projekt badawczy finansowany przez Ministerstwo Nauki Publikacje związane z korpusem

#### 2015

- Zaśko-Zielińska M., M. Piasecki, 2015, Lexical Means in Communicating Emotion in Suicide Notes

   on the Basis of the Polish Corpus of Suicide Notes, Cognitive Studies, (15), 237-252.
- Zaśko-Zielińska M., 2015, Sposoby falszowania tekstu w eksperymentalnie zebranych materiałach Subkorpusu Listów Sfalszowanych, [w:] R. Cieśla [red.], Współczesna problematyka badań dokumentów, [Prace Naukowe Wydziału Prawa, Administracji i Ekonomii Uniwersytetu Wrocławskiego], Wrocław, 327-334.

#### 2014

 Zaśko-Zielińska M., 2014, Ślady idiolektów w listach pożegnalnych zgromadzonych w Polskim Korpusie Listów Pożegnalnych Samobójców, [w:] R. Cieśla [red.], Dokument i jego badania, [Prace Naukowe Wydziału Prawa, Administracji i Ekonomii Uniwersytetu Wrocławskiego], Wrocław: Katedra

#### PCSN - Polish Corpus of Suicide Notes (uni.wroc.pl)





STRONA GŁÓWNA / O PROJEKCIE

#### O projekcie

W 2011 roku, w stulecie istnienia Muzeum Etnograficznego im. Seweryna Udzieli w Krakowie rozpoczęliśmy realizację projektu, którego celem jest stworzenie **Wirtualnego Muzeum Drzeworytów Ludowych**. Dokumentuje ono i udostępnia wiedze o polskim drzeworytnictwie ludowym. Dla profesionalistów jest miejscem wymiany informacji i doświadczeń. Dla

ZESPÓŁ

Koncepcja projektu Beata Skoczeń-Marchewka

#### Virtual Museum of Folk Woodcuts (drzeworyty.eu)





Screenshot of the prototype

Technologies

Projects

Get in touch

#### See also



Posted on 13 March 2011

# Creating an Amsterdam Time Machine with the AdLib API

A four-hour sprint to create a chronological painting gallery from the Amsterdam Museum collection.

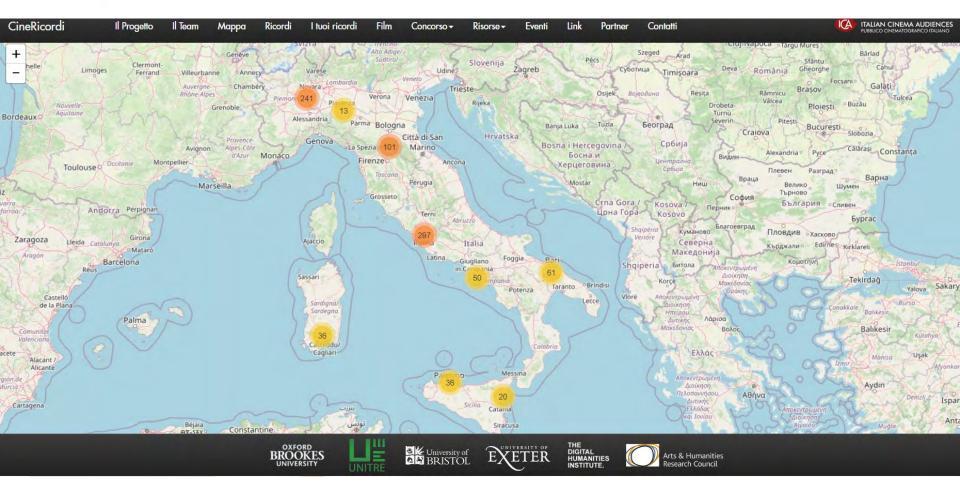
https://miraclethings.nl/amsterdamtimemachine/



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http://environment.data.gov.uk/bwq/profiles/





https://www.cinericordi.it/map



### **American Panorama**

An Atlas of United States History

https://dsl.richmond.edu/panorama/



### PART 2 LIBRARIES AND THE DEVELOPMENT OF DIGITAL HUMANITIES



### Libraries and DH

#### Digitization of research objects

• Digital libraries, digital social archives

Creation of metadata which can be a basis for analysis

• Bibliographies, library catalogs, controlled vocabularies, ontologies

Creating teaching aids, manuals, guidelines....

#### Cooperation with researchers

- Providing digitization tools, servers...
- Advise on digitization, metadata and data storage strategies



# DH in academic libraries – opportunities

package existing services as a "virtual DH center"

advocate coordinated DH support across the institution

help scholars plan for preservation needs

extend the institutional repository to accommodate DH digital objects

(Jennifer Schaffner & Ricky Erway, 2014)



# DH in academic libraries – opportunities

work internationally to spur co-investment in DH across institutions

create avenues for scholarly use and enhancement of metadata

consult DH scholars at the beginning of digitization projects

get involved in DH project planning for sustainability from the beginning

commit to a DH center

(Jennifer Schaffner & Ricky Erway, 2014)



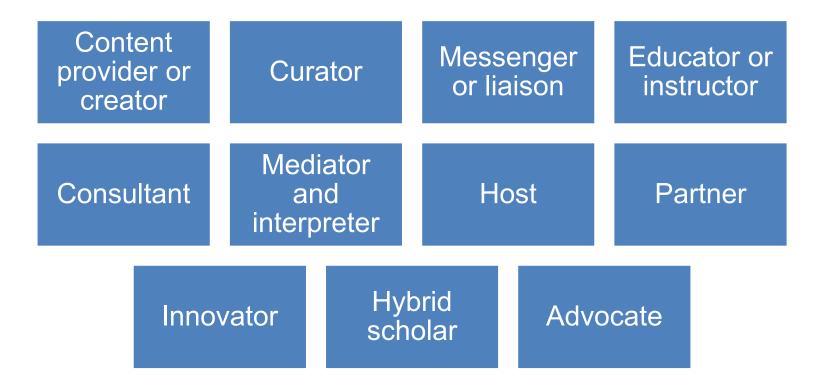
# DH in academic libraries – opportunities

"In most settings, the best decision is to observe what the DH academics are already doing and then set out to address gaps."

(Jennifer Schaffner & Ricky Erway, 2014)



# Who is a librarian in the DH?



(Ying Zhang, Shu Liu, and Emilee Mathews, 2015)



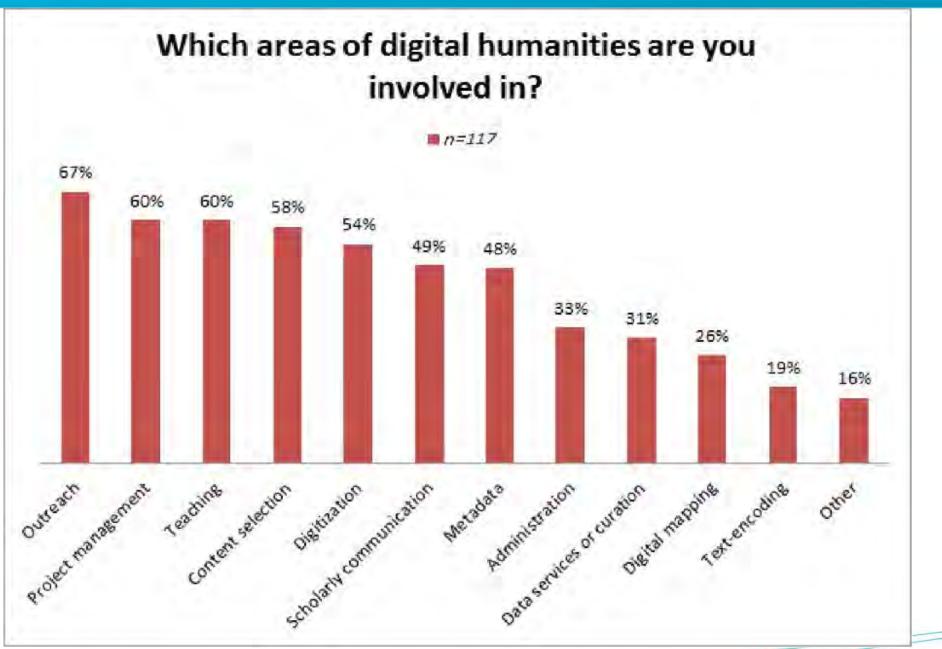
# Who is a librarian in the DH?

### Librarian as Concierge

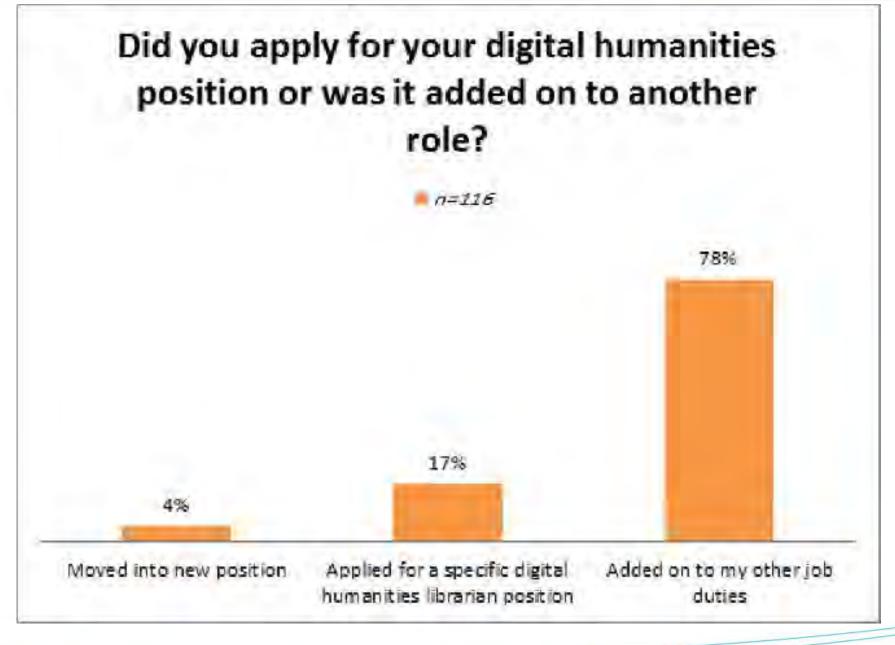
### Librarian as IT Expert

### Librarian as Researcher

### (Anu Vedantham, Dot Porte, 2015)



(Molly Dahl Poremski, 2017)



#### (Molly Dahl Poremski, 2017)



### Competencies

Knowledge and use of metadata

Knowledge of technology

Knowledge of standards and practices

Visualization of data, results

Analytical skills

Knowledge of research methods

Design skills

**Communication skills** 

Attention to data privacy and security

Knowledge of foreign languages



## Competencies

## Most often missing:

- digital mapping
- text encoding
- computer programming

(Molly Dahl Poremski, 2017)



# Insufficient training opportunities



### Lack of support for librarian-conceived initiatives



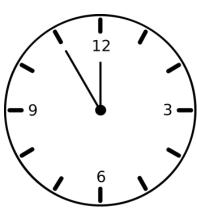
## Too many tasks, too little time





# Lack of authority to marshal the appropriate resources









## Inflexible infrastructure





## Lack of incentive







### The complexity of collaborating with faculty

Overcautiousness

Diffusion of effort

Lack of a real institutional commitment



## Challenges

### Digitization and data storage

- Different types of resources
- Provision of infrastructure and technology
- Ensuring data security and sustainability

### Technological challenges

• Keeping up with the rapid development of technology

### Privacy and data security

compliance with legal regulations



## DH projects in libraries



#### **OSTATNIO DODANE**

Applausus Hieroglyphici Sedecim Nobilibus Ingenuis Ac Eruditis Artium Liberalium Et Philosophiae Licentiatis, [...]



## DH projects in libraries

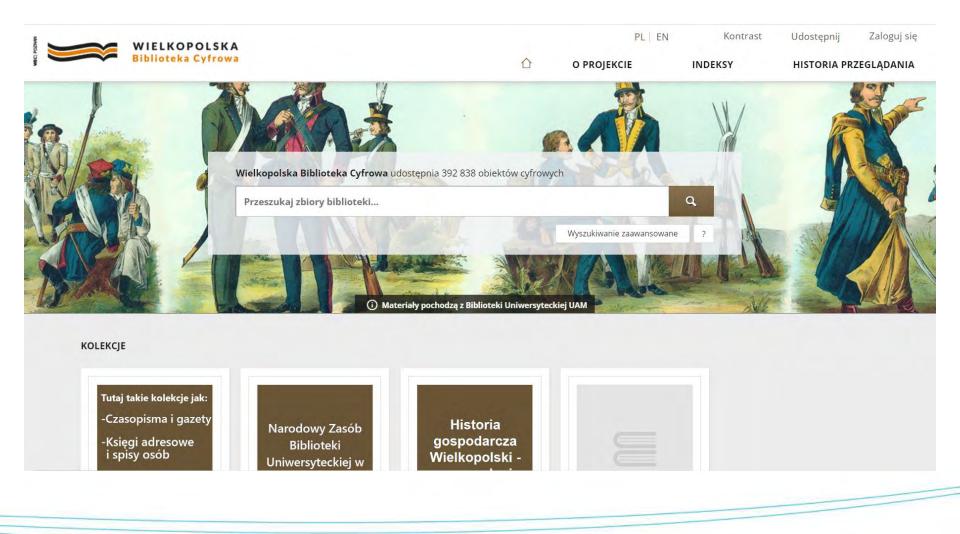


**OBIEKTY** ostatnio dodane

Mandat delegata na V Ogólnopolski Sejmik Aktywu Klubów Studenckich - 1983



## DH projects in libraries





### Research based on bibliographic data

Green, J., McIntyre, F., & Needham, P. (2011). The Shape of Incunable Survival and Statistical Estimation of Lost Editions. <u>https://doi.org/10.1086/6807</u> <u>73</u>

- analysis of the state of preservation of old print production
- basis: digitized bibliographies, databases of incunabula and old prints

The Shape of Incunable Survival and Statistical Estimation of Lost Editions

> Jonathan Green, Frank McIntyre, and Paul Needham

**F**ROM the moment that Johannes Gutenberg and his associates began printing books in Mainz, the products of their and later printers' presses began to disappear, the victims of calamity or obsolescence or everyday wear and tear. As bibliographers and librarians over the intervening centuries preserved and recorded the earliest printed books, they recognized that there were some editions whose copies had all been lost. But how many? Concerning the number of lost incunable editions, those works printed in the fifteenth century for which no copy survived long enough to be registered by any bibliographer, estimates diverge dramatically, from a few percent of all fifteenth-century editions to 20– 40 percent or more. The discrepancy has significant implications for the study of fifteenth-century books, reading, and literature: do we think our primary evidence is substantially complete, or is it a perhaps unrepresentative fraction of what once existed?

Estimates towards the low end might be referred to as the "truth in advertising" school of thought. After summarizing all

Jonathan Green (270 Sylvan Dr., Goleta, CA 93117) held a Humbe lowship at the Universität Erlangen before teaching German at the sas and is the author of a forthcoming volume on prognostication in

Frank McIntyre (130 FOB, Department of Economics, Brighan Provo, UT 84602) is an applied econometrician with interests in e velopment economics, and legal studies.

Paul Needham (Princeton University Library, One Washington F Jersey 08544) is Scheide Librarian at Princeton University.

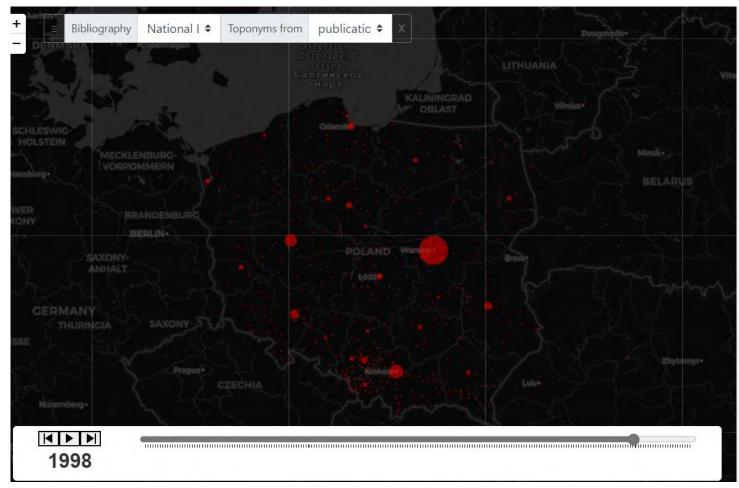
PBSA 105:2 (2011): 141-75

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## Research based on bibliographic data



Wrocław Bibliodata Website

#### http://phc.uni.wroc.pl/wbw/



### Research on metadata

### Andreas Lüschow i José Calvo Tello (2021)

- Method of identifying selected literary genres in library catalogs
- Using machine learning methods and technologies, Python language and scikitlearn library
- Source:
  - German distributed catalog Gemeinsamer Verbundkatalog (GVK) - descriptions (more than 740,000 records)
  - Gemeinsame Normdatei list of literary genres (1,319, of which 1,150 were used in GVK)
- Goal: to develop the most effective solution that can be applied to research using large bibliographic resources



# Projects using bibliographic data



ACCEPT



a digital toolkit for analysing and visualizing bibliographic metadata and texts



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#### https://avobmat.hu/



# Projects using digitized materials

#### Unlocking the Mary Hamilton papers

About Mary Hamilton Blog Edition - Text Search People - Further Reading - Background: the Image-to-Text Project Contact

Unlocking the Mary Hamilton Papers A window onto eighteenth-century life, literature and language



https://www.maryhamiltonpapers.alc.manchester.ac.uk/about/



# Projects using digitized materials

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# Digital ontologies and dictionaries

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Tervetuloa Finto- palveluun! Finto on suomalainen sanasto- ja ontologiapalvelu, joka mahdollistaa sanastojen julkaisun ja selailun. Palvelu tarjoaa myös rajapinnat sanastojen ja ontologioiden hyödyntämiseen muissa	KOKO-ontologia Metatietosanast Pondus-kategor Suomalainen laj Suomalaiset yht YSAn ja YSOn kä	o iat ityyppi- ja muotosanasto eisönimet
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http://finto.fi



# Projects supporting DH in libraries

Harvard Library Lab	News	About	Projects
elow is an index of all of the Library Lab Projects today. Use the tags below to sort through	h them.		
ALL COMMUNITY ENGAGEMENT COPYRIGHT/FAIR USE DATA ANALYSIS DISCOVERY INSTITUTIONAL	COLLABORATION	TADATA	MOBILE
REPOSITORIES TAGGING/ANNOTATION WORKFLOW			

#### Archives and Special Collections Class Request Tool



#### Archivist's Workstation (CS 96)



Atlas Viewer



#### https://osc.hul.harvard.edu/liblab/projects/



## **DH** projects



#### The University of Manchester Library

The University of Manchester

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Library / Subject guides / Digital Humanities / Examples

#### Digital Humanities: Examples

Support for researchers using the Library's collections with Digital Humanities techniques.

Home Collections Technology Examples

#### Using facial recognition techniques to compare portraits associated with Shakespeare

Support

A recent experiment was carried by Ray Evans, Research Fellow in Psychology at the University of Manchester, who used forensic image recognition software to compare the face in the Grafton portrait with the engraving of Shakespeare by Martin Droëshout.



#### https://subjects.library.manchester.ac.uk/digitalhumanities/examples

	Search this Guide	Ask a question
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## Reosurces

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## Thank you!

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