C²DH
LUXEMBOURG CENTRE FOR
CONTEMPORARY AND DIGITAL HISTORY

Digital Hermeneutics

A conceptual framework for doing history in the digital age

Prof. Dr. Andreas Fickers

21st CODH Seminar Digital History: Concepts & Practices
Centre for Open Data in the Humanities / Tokyo 4th of March 2024

Structure of lecture

1) Classical hermeneutics:
   - where do we stand?
2) Between analogue & digital:
   - digital hermeneutics as hermeneutics of in-betweenness
3) Theory & practice:
   - challenges of a reflexive practice in digital humanities

The challenge

- To face the growing gap between the fast development of new techniques and tools for doing digital humanities and the rather slow appropriation and critical reflection of such tools and techniques by the academic community

- The ”update” of classical hermeneutics (Schleiermacher, Dilthey, Heidegger, Gadamer, Ricoeur, Habermas) to the digital age requires a thorough investigation on the technical, infrastructural, and digital environment in which we produce historical evidence, develop historical arguments, and construct historical narratives.

Classical hermeneutics

- Hermeneutics is derived from the Greek word ἑρμηνεύω (*hermēneuō*, = to translate, interpret; Greek god Hermes = messenger of the gods
- Early modern history: hermeneutics = the art of interpretation of texts (Bible / protestant tradition of exegesis)
- 19th century: hermeneutics concentrated on the philosophical or sociological conditions of possibility to produce evidence-based arguments ("truth", "objectivity") in order to "understand", not to "explain"
- Key figure: Wilhelm Dilthey (1833-1911): differentiation between "natural sciences" and "humanities" (Geisteswissenschaften):
  - Sciences = about **explaining** the world based on natural laws / empirical findings
  - Humanities = about **understanding** the world based on hermeneutic interpretation
- Philosophical hermeneutics as pragmatic theory of knowledge (Gadamer: Truth & Method): what can we know, under what circumstances and with what validity?

Classical hermeneutics

Central lessons of hermeneutical thinking:

- Absolute historicity of all knowledge (impossibility of absolute truth)
- Contextual condition of situated knowledge production & appropriation
- Interest driven nature of cognition & insight
- Understanding as a dynamic process

Digital hermeneutics

- Tension between “understanding” and “explaining” in Dilthey’s conception of hermeneutics resurges in the age of big data
- *Methodological tensions:*
  - Tension between ”quantitative” and “qualitative” research
  - Tension between “distant” and “close” reading
- *Epistemological challenges:*
  - Tension between “statistical evidence” and “historical relevance”
  - Tension between “exemplary” versus “representative” research designs

Digital hermeneutics

Tension between “strangeness” and “familiarity”:
the in-betweenness is the true space of hermeneutics
(Gadamer: *Truth & Method*)

Digital hermeneutics as “hermeneutics of in-betweenness”

- „Trying to locate a hermeneutics at the boundary between mechanism and theory (...) Algorithmic criticism proposes that we channel the heightened objectivity made possible by the machine into the cultivation of those heightened subjectivities necessary for critical work“.

  Stephen Ramsey: *Reading Machines. Toward an Algorithmic Criticism*. University of Illinois Press 2011, p. x.

The reflexive wave

- Different “waves“ of digital humanities:
  - 1st wave: computational humanities wave (driven by small community of programming scholars, mainly computational linguists)
  - 2nd wave: big expectations wave (revolutionary rhetoric of game-changing nature of digitization; large scale digitization; building of tools / datasets)
  - **3rd wave: critical / reflexive wave (acknowledging both the possibilities and limitations or biases)**

The reflexive wave

- Reflexive wave:
  - In using software, apps, databases, digital meta-sources, the digital humanities scholar (the experimenter) actively co-constructs his "epistemic object" (Hans-Jörg Rheinberger)

- Kranzberg law: "Technology is neither good, nor bad, nor neutral".

  - Ergo: we need to reflect on the "non-neutrality" of the technologies / infrastructures involved in our research
  - Ergo: we need to open up the "black boxes" we are using in doing our research!

Open up the black boxes

- Open up the black boxes = battle call of Science, Technology & Society Studies (STS)

- “The infrastructures of the digital humanities are, like all the best infrastructures, simultaneously omnipresent and invisible. The digital humanities depend on and operate through a vast, interlocked network of objects, capital, people, and ideologies: ASCII code; fiber-optic cables; tenure lines; server farms; research centers and literature labs; wage laborers and graduate students who scan, attach metadata, and program search functions”.

  - Jessica Hurley, Aesthetics and the Infrastructural Turn in the Digital Humanities. *American Literature* 88 (2016) 3: 627-637.

New skills & competences

- We need an “update” of classical hermeneutics to the digital condition of knowledge production

- We need new skills / competences; first of all: **digital literacy**

“We need database literacies, algorithmic literacies, computational literacies, interface literacies. We need new hybrid practitioners: artist-theorists, programming humanists, activist-scholars; theoretical archivists, critical race coders. We need new forms of graduate and undergraduate education that hone both critical and digital literacies. We have to shake ourselves out of our small, field-based boxes so that we might take seriously the possibility that our own knowledge practices are normalized, modular, and black boxed in much the same way as the code we study in our work.”

Tara McPherson, ‘U.S. Operating Systems at Mid-Century: The Intertwinning of Race and UNIX’, in L. Nakamura and P. Chow- White (eds.), *Race after the Internet* (New York: Routledge, 2012), p. 35.

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UPDATE FÜR DIE HERMENEUTIK
Geschichtswissenschaft auf dem Weg zur digitalen Forensik?

1. Ontologische Wandlungen: Von »Quelle« zu »Dokument« zu »Daten«
2. Geschichtswissenschaftliche Datenkritik: Integrität, Authentizität und Historizität von Daten
3. Müssen zukünftige Historiker zu digitalen Forensikern ausgebildet werden?

Anmerkungen

»[...] wenn ›die Quelle‹ die Reliquie historischen Arbeitens ist – nicht nur Überbleibsel, sondern auch Objekt wissenschaftlicher Verehrung –, dann wäre analog ›das Archiv‹ die Kirche der Geschichtswissenschaft, in der die heiligen Handlungen des Suchens, Findens, Entdeckens und Erforschens vollzogen werden.«1 Achim Landwehr wirft in seinem geschichtstheoretischen Essay den Historikern ihren »Quellenglauben« vor – diese Kritik ließe sich im digitalen Zeitalter leicht auf die Heilsversprechen der Apostel der »Big Data Revolution« übertragen.2 Zwar regen sich mittlerweile vermehrt Stimmen, die den »Wahnwitz« der digitalen Utopie in Frage stellen,3 doch wird der öffentliche Diskurs weiterhin von jener Revolutionsrhetorik dominiert,4 die standardmäßig als Begleitmusik neuer Technologien ertönt.5 Statt in der intellektuell wenig fruchtbaren Dichotomie von Gegnern und Befürwortern, »First Movers« und Ignoranten zu verharren, welche die Landschaft der »Digital Humanities« ein wenig überspitzt auch heute noch kennzeichnet, ist das Ziel dieses Beitrages eine praxeologische Reflexion, die den Einfluss von digitalen Infrastrukturen, digitalen Werkzeugen und digitalen »Quellen« auf die Praxis historischen Arbeitens zeigen möchte. Ausgehend von der These, dass ebenjene digitalen Infrastrukturen, Werkzeuge und »Quellen« heute einen zentralen Einfluss darauf haben, wie wir Geschichte denken, erforschen und erzählen, plädiert der Beitrag für ein »Update« der klassischen Hermeneutik in der Geschichtswissenschaft. Die kritische Reflexion über die konstitutive Rolle des Digitalen in der Konstruktion und Vermittlung historischen Wissens ist nicht nur eine Frage epistemologischer Dringlichkeit,6 sondern zentraler Bestandteil der Selbstverständigung eines Faches, dessen Anspruch als Wissenschaft sich auf die Methoden der Quellenkritik gründet.

ANDREAS FICKERS

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Against analogue / digital divide

Hybridity is “the new normal”

“The current challenge facing the discipline of history is not in creating ever bigger sets of data and developing new tools, important as these are. The real challenge is to be consciously hybrid and to integrate ‘traditional’ approaches in a new practice of doing history”.

> Gerben Zaagsma: ‘On digital history’, *BMGN / Low Countries Historical Review* 128 (2013) 4, p. 17.

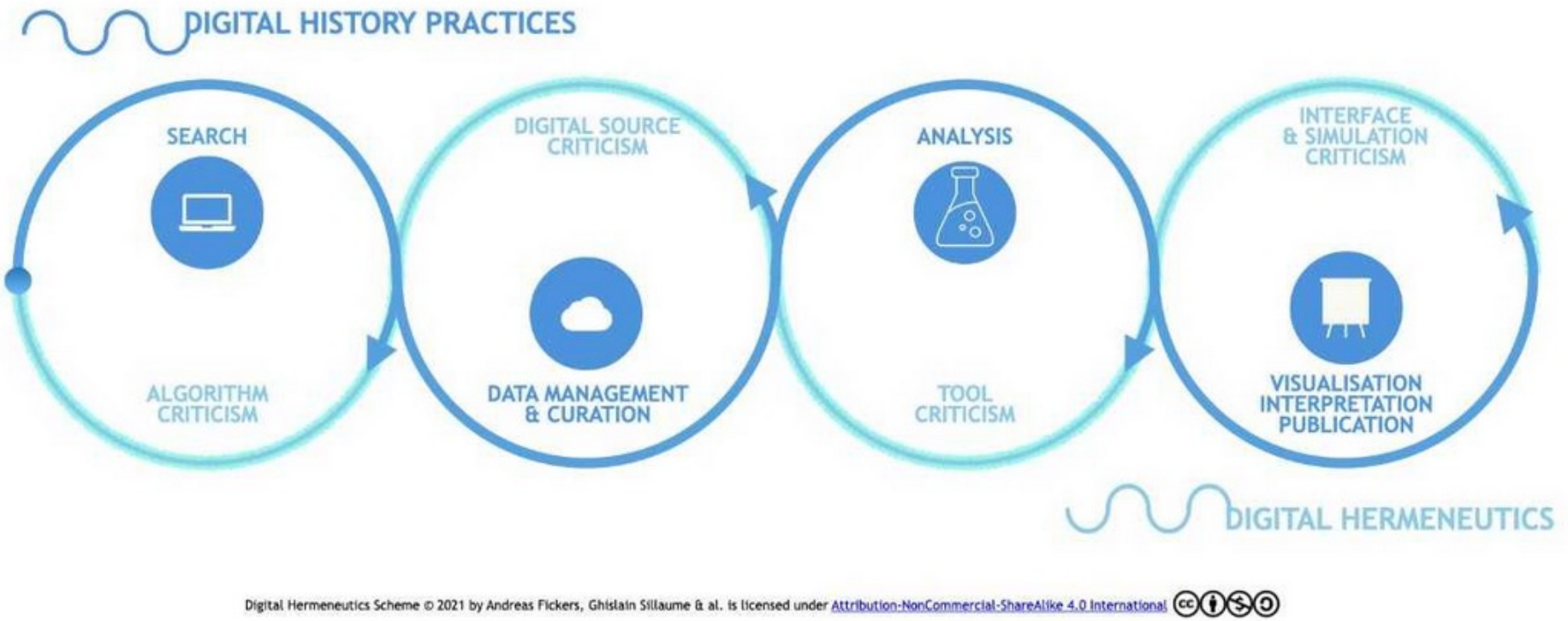
Digital Hermeneutics = where the ”raw” is transformed into the “cooked”

- Frisch, Michael, “From ‘A Shared Authority’ to the Digital Kitchen, and Back.” In *Letting Go? Sharing Historical Authority in a User Generated World*, ed. by Bill Adair, Benjamin Filene, and Laura Koloski (London: Routledge 2011), pp. 126-137.

Thinkering

- Digital history / humanities means „thinkering“ at all levels / steps in a research process:
  - During the development of new questions;
  - During „harvesting“ / retrieval of information / data;
  - During “cleaning“ / „curation“ of data
  - During analysis, visualization and re-contextualization
  - During narrating / arguing in different genres / formats of storytelling

Hermeneutics of in-betweenness



New skills & multimodal literacy

- Searching: **algorithmic criticism**
- Documenting: **data criticism**
- Analysing: **tool criticism**
- Presenting: **interface criticism**
- Narrating: **simulation criticism**

algorithmic criticism

- “Age of abundance” (Roy Rosenzweig) / “big data” asks for a new heuristics of search and a basic understanding of mechanisms of information retrieval (search algorithms and metadata schemes)
- *Search engines* aren‘t neutral! They don‘t “search” for information, they co-produce them. They generate implicit and explicit ratings (ranking); often we don‘t search but „browse“
- We need a basic understanding in statistics and modern principles of “deep” or “machine learning” (data ontologies / metadata standards)
- Digitialisation changes the control zone of classical archives / libraries: changes power relations between users / owners of information assets and shifts competences from institutions to users (provincial research / data integrity / information management)
- Need a new „ethics of the algorithm“
  - Todd Presner: ‘The Ethics of the Algorithm: Close and Distant Listening to the Shoah Foundation Visual History Archive, in: *History Unlimited: Probing the Ethics of Holocaust Culture*. Cambridge: Harvard University Press, 2015.
- Algorithms increasingly determine our historical imagination;
  - Ed Finn: *What Algorithms Want: Imagination in the Age of Computing*. MIT Press 2017.

data criticism

- Change from "source" to "document" to "data" changes ontological status of historical sources
- Digitisation as a process of coding and recoding changes indexicality (relationship between representation and historical reality)
- "Raw data is an oxymoron": classical concepts of "original" and "authenticity" are obsolete
- Source criticism must be expanded to include questions of information technology data integrity and presentation integrity
- Digital source criticism must deal with the entire "life cycle" of meta-sources (Genet): "creation, enrichment, editing, retrieval, analysis, presentation" (historicity of hardware and software)

https://ranke2.uni.lu/de/

C²DH **Ranke.2** ~~Quellenkritik im digitaler Zeitalter uni.lu

Startseite | Kritik der digitalen Quellen | Über die Plattform | Über die Lektionen | Gehe sie zu den Lektionen | de

Ranke.2 ist eine Lernplattform über digitale Quellenkritik

Sequential animation, the first palaeolithic animated pictures © Marc Azéma, grotte des Trois-Frères(Ariège), grotte Chauvet(Ardèche) DVD 1990
Publication online 1-5-2012, source archive.org

tool criticism

- We use tools for searching, selection, storage, analysis, interpretation, visualization of sources / information
- Software / databases / infrastructures / apps etc. co-construct our "epistemic objects" (H.-J. Rheinberger)
  - Quality of software (scanning & OCR) and metadata have a great influence on the "findability" of search terms / semantic units
  - Software-based tools (text-mining, deep learning algorithms, visualization) are "biased" / have their own "ground truth"; training the software bears the danger of "self-fulfilling prophecies
  - Compression standards of text / audio / video; "rendering & simulation software" influences the "indexical relationship" between "original" and "copy
  - Simulation / 3D scanning: changing our historical imagination and relationship between physical and virtual reality / interaction with materiality of historical sources

interface criticism

- Increasingly complex visualization of our data / research results asks for a critical reflection of the “visual evidence” / “screen reality” of the “appresentation” (Karin Knorr-Cetina) of our knowledge
- We need a better understanding of the interplay between the “commodity layer” and the “mechanism layer” (David Berry) of interfaces (understanding of the complex relationship between “front-end” and “back-end”)
- Graphs and tables give statistical information a “look of certainty”
- “Paradoxically, the primary effect of visual forms of knowledge production in any medium – the codex book, digital interface, information visualizations, virtual renderings, or screen plays – is to mask the very fact of their visuality, to render invisible the very means through which they function as argument”.
  - Johanna Drucker, Graphesis. Visual Forms of Knowledge Production. Harvard University Press (2014).

simulation criticism

- Production of database histories (“histories comprised of not narratives that describe an experience of the past but rather collections of infinitely retrievable fragments, situated within categories and organized according to predetermined associations” / Steve Anderson: Technologies of history. Dartmouth College Press 2011, p. 122) means that historians understand the ”codes" and ”conventions" of digital representations of the past
- Problem of “representational integrity” of websites as historical sources: the dynamic and relational nature of websites make archived websites a ”reborn digital medium” (Niels Brügger);
- LLM and generative AI: problem of “dual-decontextualization”: loss of historical context and loss of data context; risks and realities of extending power imbalances, and amplifying racial, gender, and ableist biases; how to train students in analysis of “fake facts” and fight misinformation.

How to inscribe digital hermeneutics into research infrastructures & tools? Example 1: Impresso

Collaboration between EPFL / University of Zurich / C2DH in the framework of Sinergia (SNF)

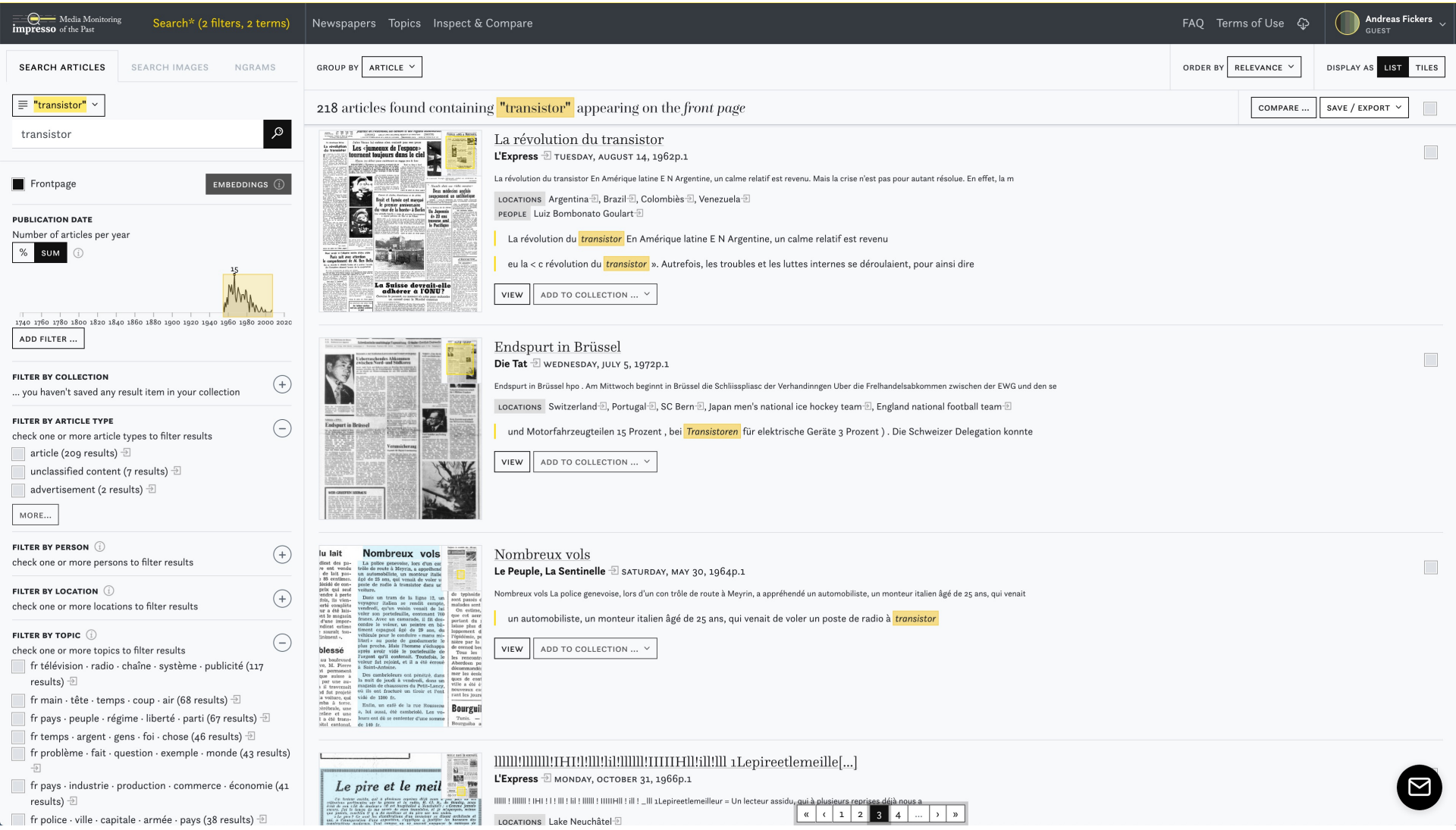
- Making sense of "big data of the past":
  - 76 newspaper (Lux and CH)
  - 600.919 issues
  - 5.429.656 pages scanned
  - 3.4 Mio images / 12.5 billion words
  - 530 named entities disambiguated

- Transparent scalable reading
- Explore the App interface: https://impresso-project.ch/app/

Media Monitoring of the Past — *Beyond Borders*

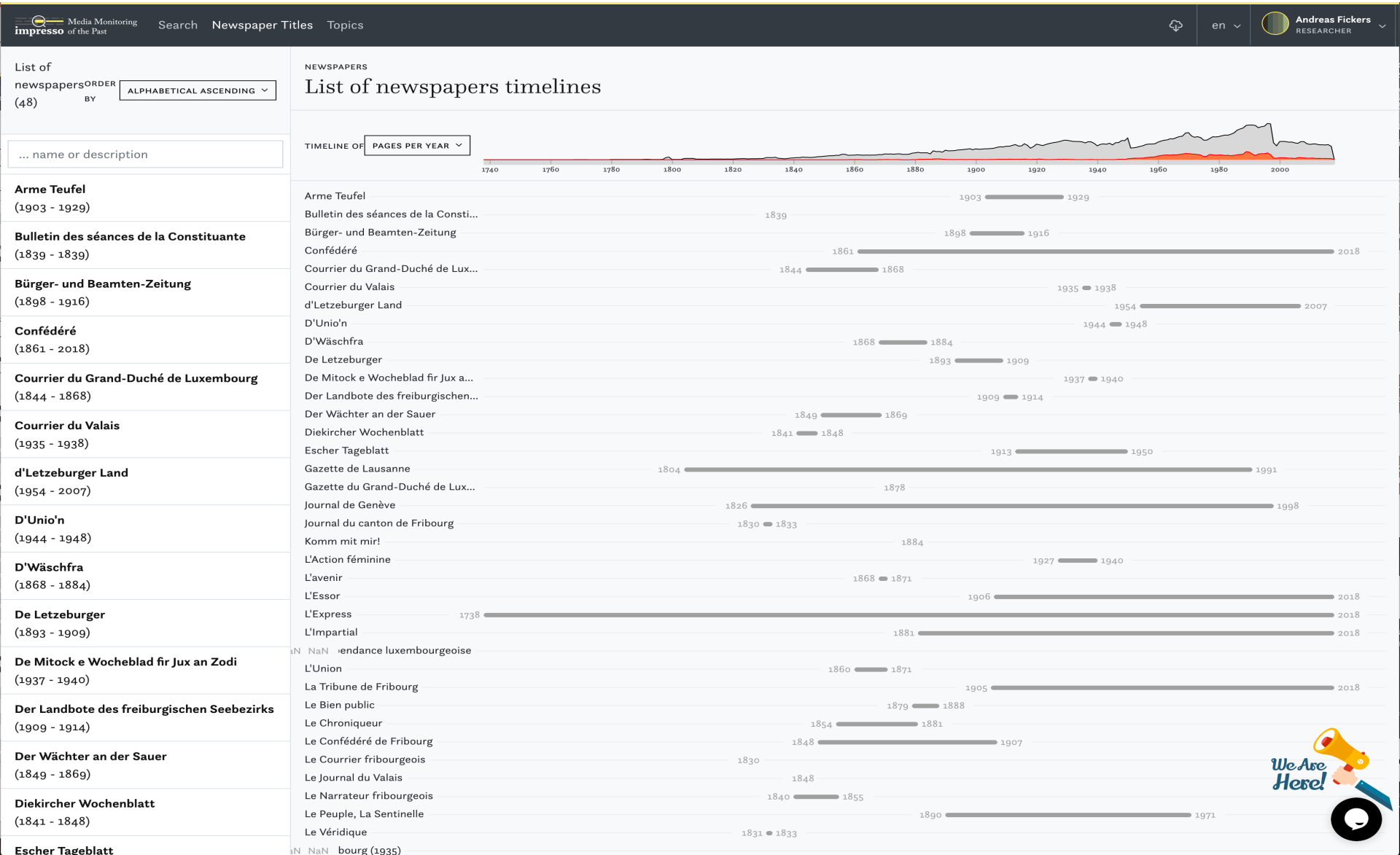
Leveraging an unprecedented corpus of newspaper and radio archives, *impresso* - Media Monitoring of the Past is an interdisciplinary research project that uses machine learning to pursue a paradigm shift in the processing, semantic enrichment, representation, exploration, and study of historical media across modalities, time, languages, and national borders.

Visualize interferences in the co-construction of epistemic object



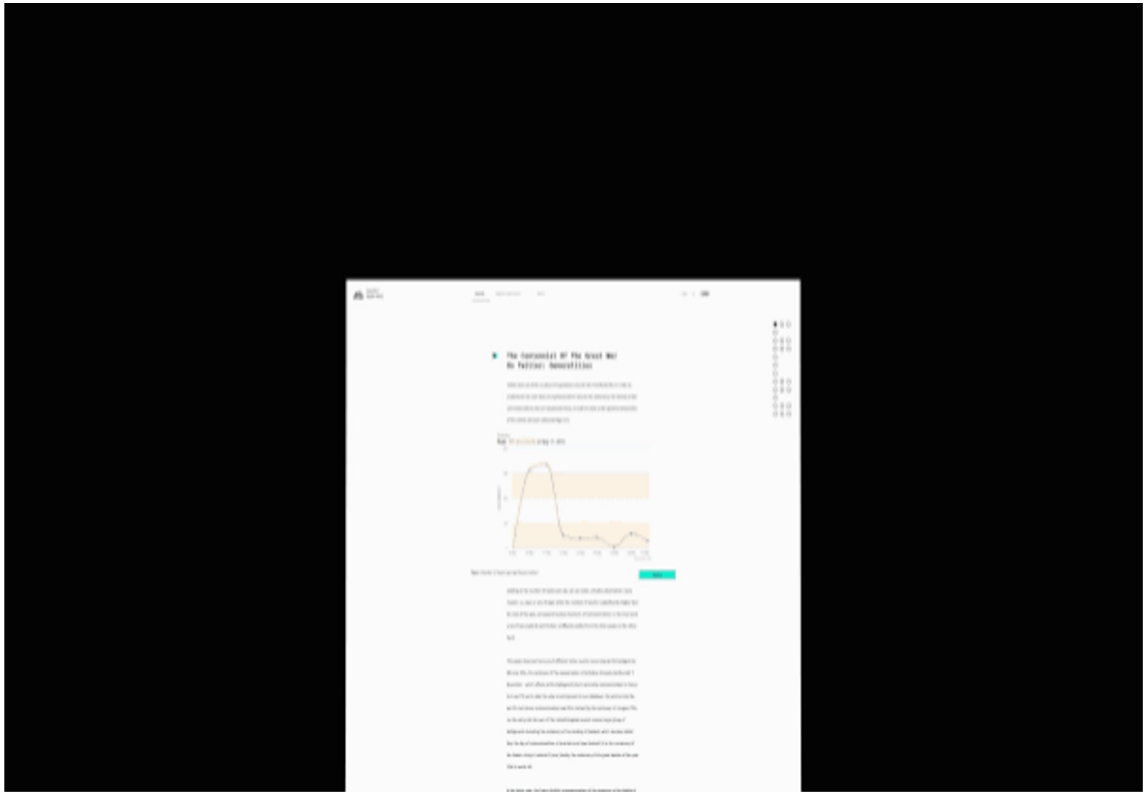
Scalable Reading

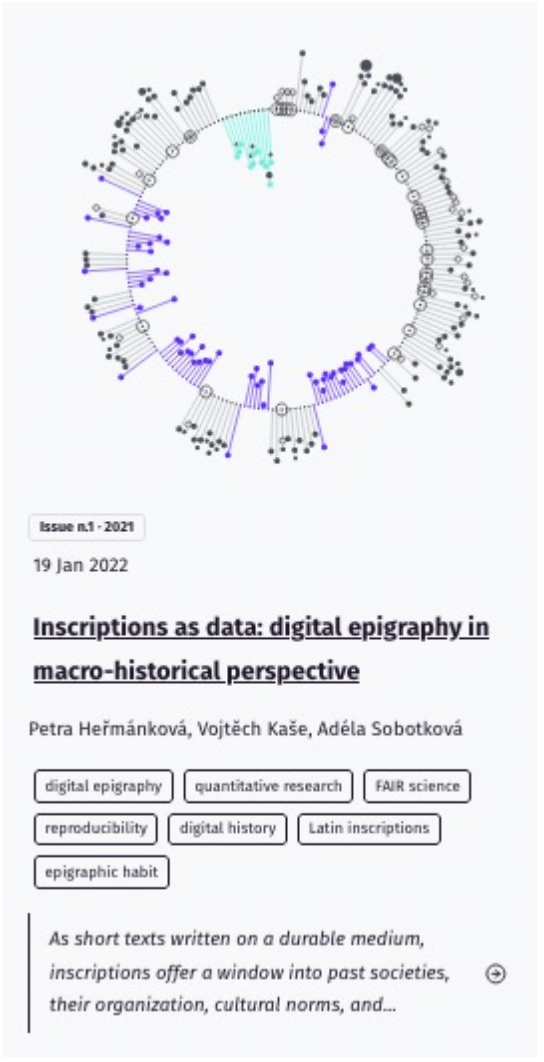
Transparency: visualizing gaps



Example 2: The Journal of Digital History

https://journalofdigitalhistory.org





Making the implicit explicit: transparency & traceability

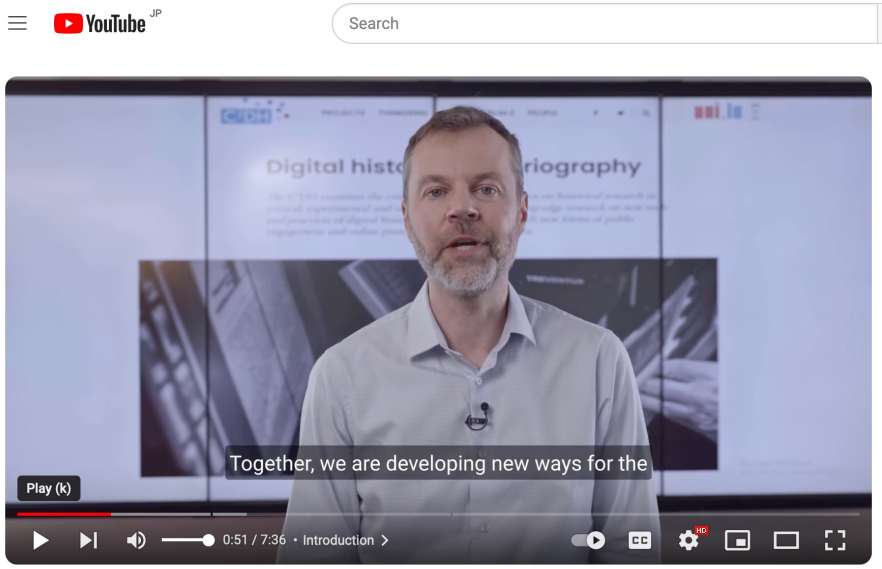
Example 3: DHARPA

Sean Takats / PEARL project Digital History Advanced Research Projects Accelerator

A Virtual Research Environment (VRE) based on a modular design, allowing users to build and rebuild, run and rerun their own workflows

Modules include functionalities for

- data ingestion
- data standardization
- data analysis
- network analysis
- geographical analysis



Introducing FNR PEARL Chairs: Historical research in the digital age - Sean Takats (full)

https://www.youtube.com/watch?v=2L1V20Ncey8

"The VRE will also be equipped with essential features for documenting the user's research process and tracing all the transformations which their data undergo, allowing the historian to write a self-reflexive meta-history of their relationship with their sources through the software." https://journal.dhbenelux.org/journal/issues/004/article-2-Cunningham.pdf

C^2DH as laboratory of digital hermeneutics

- How to turn “theory” of a “trading zone” between humanities and computer science / data science into practice?
- How to promote / realize “interactional expertise” as homogeneous and collaborative practice?

	Homogeneous	Heterogeneous
Collaborative	*Inter-language*	*Fractioned* Boundary object or Interactional expertise
Coercive	*Subversive*	*Enforced*

Fig. 1.1 The trading zones model according to Collins et al. (2007).

C²DH as “Trading Zone”: TZ-Initiative

Introduction to Programming (Python)

December 8, 2017
By Tim van der Heijden

Dr. Folgert Karsdorp (Meertens Institute, Amsterdam) This workshop provides an introduction to computational text analysis with Python for scholars in the Humanities. Computational text analysis has gained popularity across different fields in the humanities, with successful applications such as computational authorship attribution, personality detection, linguistic profiling, and topic modeling. The goal of the workshop is … Continued

Data Visualisation

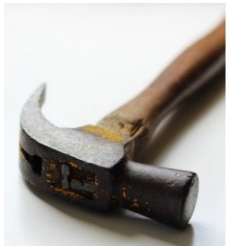
February 5, 2018
By Tim van der Heijden

Dr. Marten During (University of Luxembourg), Dr. Robin De Croon and Francisco Gutiérrez Hernández (KU Leuven) This skills training provides an introduction to data visualisation as an important skill in digital humanities and historical research, analysis and presentation. The first training day focuses specifically on network visualisation and the use of Palladio as a DH … Continued

GIS-Analysis, Mapping & Cartography

May 14, 2018
By Tim van der Heijden

Dr. Catherine Jones, Kerry Schiel and Kaarel Sikk (University of Luxembourg) Today historians, geographers and social scientists and like have at their fingertips a myriad of digital resources (digital borne or digitised). They may be formal or informal datasets open for public use or held behind closed doors but common to all is the implicit … Continued



Tool Criticism

March 15, 2018
By Tim van der Heijden

Dr. Vincent Koenig and Dr. Carine Lallemand (University of Luxembourg) The ever-growing trend for digital tools is confronting PhD candidates with new challenges when it comes to designing or evaluating technologies and underlying services. The “tool criticism” training offers a critical and reflexive approach to digital tools, to the interaction with those tools and to … Continued

Database Structures

November 17, 2017
By Tim van der Heijden

Prof. Dr. Martin Theobald (University of Luxembourg), Dr. Robert C. Kahlert (KU Leuven) What are (big) data? What are databases? What are database structures? What can we do with them? This skills training provides an introduction to different database systems and applications, and how to work with them in historical research. The training day offers … Continued

Text Mining

July 18, 2017
By Tim van der Heijden

Prof. Dr. Christoph Schommer, Prof. Dr. Peter Gilles, Dr. Christoph Purschke (University of Luxembourg) Modern computer machines and algorithmic intelligence have made it possible that large amounts of texts can be collected, retrieved, and analyzed from heterogenous text sources. This offers a high potential and many challenges, in particular for the application fields like History. … Continued

C²DH as “Trading Zone”: PhD research

UNIVERSITÉ DU LUXEMBOURG

PhD-FLSHASE-2019-08
The Faculty of Language and Literature, Humanities, Arts and Education

DISSERTATION

Presented on 26/04/2019 in Esch-sur-Alzette

to obtain the degree of

DOCTEUR DE L’UNIVERSITÉ DU LUXEMBOURG

EN Histoire

by

Max KEMMAN
Born on 6 October 1987 in Utrecht (the Netherlands)

TRADING ZONES OF DIGITAL HISTORY

C²DH as “Trading Zone”: Doctoral Training Unit

DIGITAL HISTORY & HERMENEUTICS

ABOUT US TEAM ACTIVITIES BLOG

The Doctoral Training Unit “Digital History and Hermeneutics” negotiates new forms of knowledge production in the field of digital history and humanities. The four-year interdisciplinary training programme is funded by the Luxembourg National Research Fund (FNR) and hosted by the Luxembourg Centre for Contemporary and Digital History (C²DH) of the University of Luxembourg.

The Team

The programme offers an experimental training environment for 13 PhD students and their supervisors and one post-doc researcher from different epistemic cultures. They include historians, philosophers, computer scientists, geographers and information and data scientists as well as experts in human-computer interaction.

What we do

The central aim of the DTU is to form a “trading zone” between these different knowledge domains in order to explore how the emergence of digital research technologies and infrastructures impacts the practices of doing historical research.

How we do it

The DTU engages with the methodological and epistemological challenges of research and teaching in digital humanities and digital history. By focusing on various case studies from different historical time periods and disciplinary fields, the PhD projects share a critical reflection on the use of digital tools and methods. Such a hermeneutic perspective opens up new approaches and opportunities in digital and public history, including digital source, algorithmic, tool and interface criticism.

Questions we ask?

Upcoming Events

Digital Hermeneutics: From Research to Dissemination
10 October 12 October

Micro-toponyms: Perspectives on an underestimated source
17 October | 18.00 19.30

Problems in editorial practices of low-key and historical languages and digital possibilities
14 November

Computational literary studies and text analysis
4 December

View All Events

Paper submission for Digital Humanities Quarterly (DHQ)
Special issue ‘Lab and Slack. Situated Research Practices in Digital Humanities’

Draft version 31.01.2019

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Inside the Trading Zone: Thinkering in a Digital History Lab

Andreas Fickers, University of Luxembourg; Tim van der Heijden, University of Luxembourg

1. Introduction

> “It kind of starts off with a historical perspective. That is that people from different domains don’t understand each other. There is quite a wall. Because when you have been studying a topic from a paradigm of your discipline for a long time, and others are dealing with similar things but in a totally other way, then there are certain blockages between them. And there has always been curiosity to be the trader between those different domains. And I think what we are doing here is to explore the digital tools to build bridges. […] [However] people are not willing to come out of their comfort zone often.” (interview, PhD 3)

With these words, a doctoral researcher described the ambitions but also the challenges of the Doctoral Training Unit (DTU) on “Digital History and Hermeneutics”: a four-year interdisciplinary research and training programme that was established at the Luxembourg Centre for Contemporary and Digital History (C²DH) of the University of Luxembourg in March 2017 (see **Figure 1**). The DTU

For doing history in the digital age, we need to investigate the "digital kitchen" as the place where the "raw" is transformed into the "cooked". Based on the experiences of PhD students involved in the Doctoral Training Unit "Digital History and Hermeneutics" hosted at the Luxembourg Centre for Contemporary and Digital History (C²DH), the book offers first hand accounts of how the concept of digital hermeneutics can serve as a critical and reflexive framework for doing digital humanities research in an inter-disciplinary fashion.

THE SERIES: STUDIES IN DIGITAL HISTORY AND HERMENEUTICS

The series *Digital History and Hermeneutics* offers a platform for cutting edge scholarship in the emerging field of digital history and hermeneutics. It aims at making a critical intervention in the field of digital humanities and introduces key debates and concepts of digital history to the historical community at large. The series is edited by Andreas Fickers, Valérie Schafer, Sean Takats, and Gerben Zaagsma.

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DIGITAL HISTORY AND HERMENEUTICS
Edited by Andreas Fickers and Juliane Tatarinov

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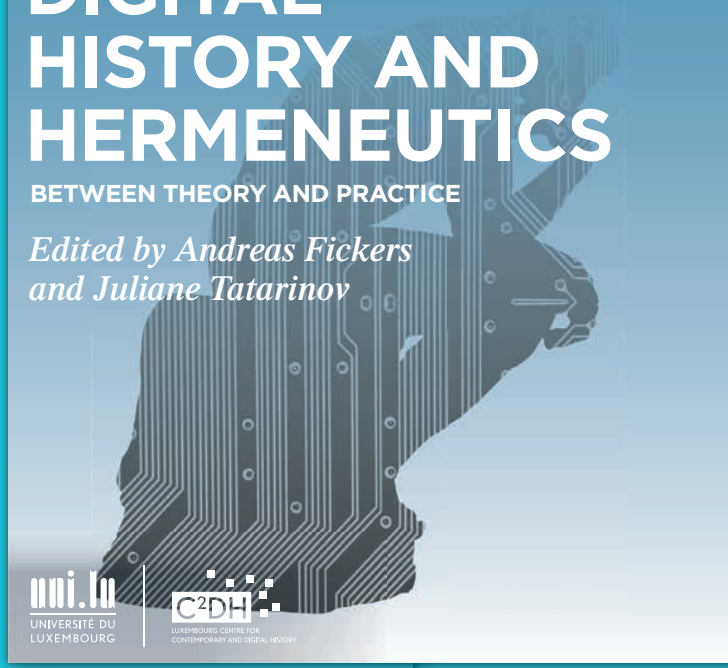
DIGITAL HISTORY AND HERMENEUTICS

BETWEEN THEORY AND PRACTICE

Edited by Andreas Fickers and Juliane Tatarinov



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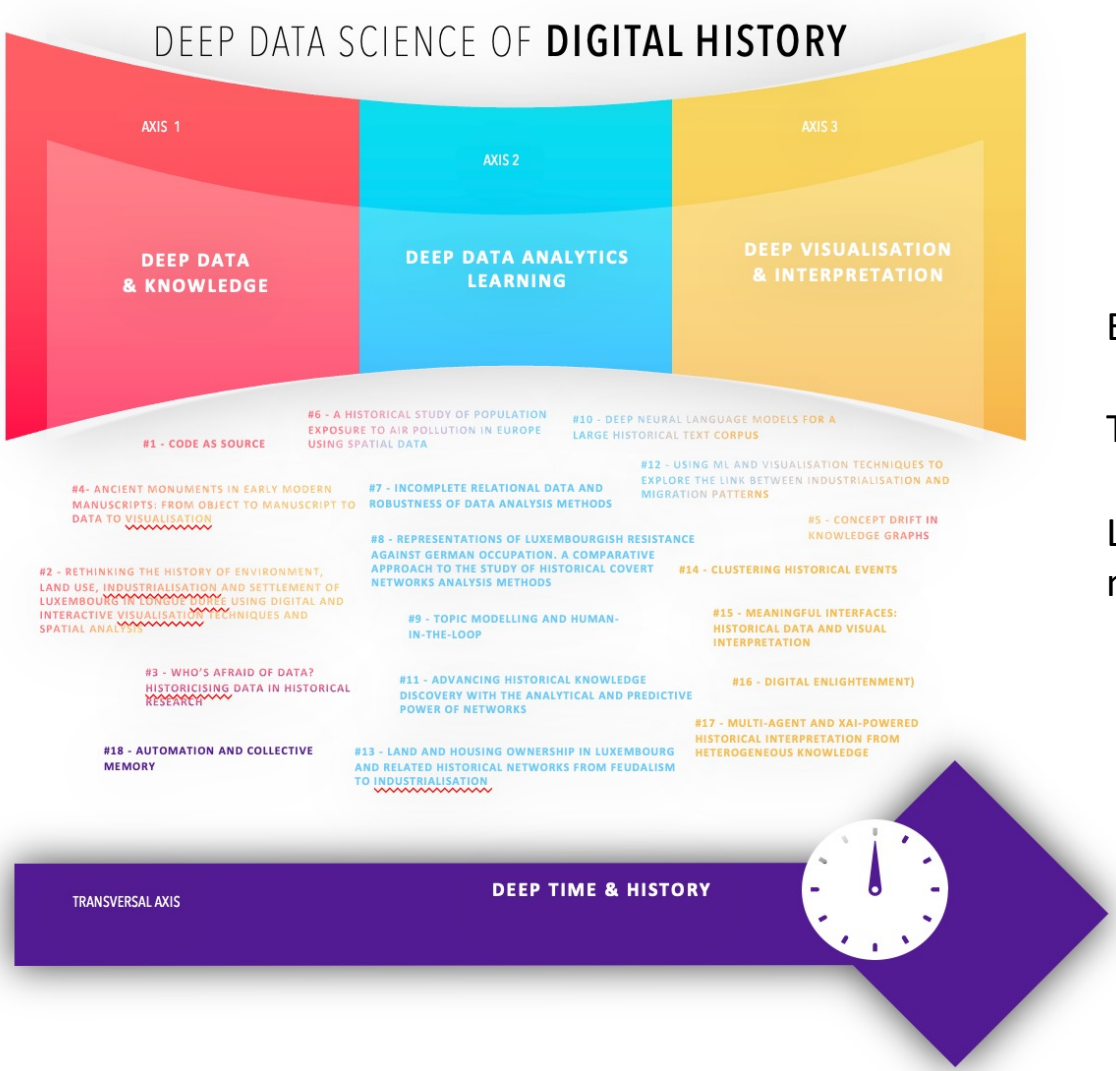
STUDIES IN DIGITAL HISTORY AND HERMENEUTICS

Current DTU

DEEP DATA SCIENCE OF DIGITAL HISTORY

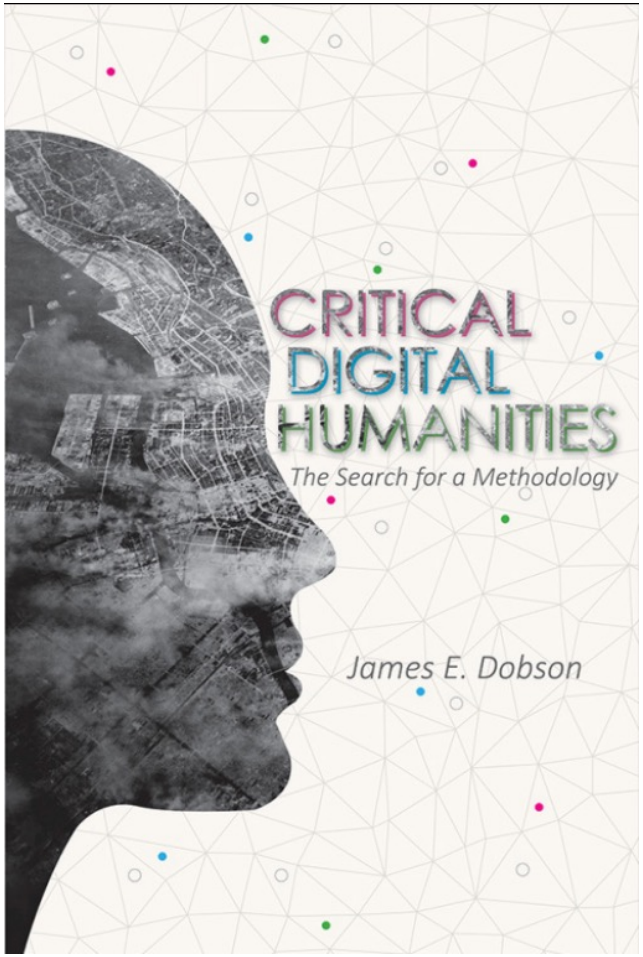


Exploring big data of the past

Training in historical data critcism

LuxTIME: deep history & multi-layered temporalities

Enabling New Encounters!



- ”De/form/ation” (Steven Ramsey) is the key epistemological function of digital humanities; it invites new questions and opens up new analytical perspectives.

- “In deforming text, in taking it out of its otherwise self-enclosed framing, the database, the file, et cetera, we expose various dimensions and resources to the present. These **new encounters** can produce dramatic reinterpretations of the past and enable interruptive or disruptive encounters in the present”.
  - James E. Dobson, *Critical Digital Humanities. The Search for a Methodology* (University of Illinois Press 2019), hier Kap. 3: Digital Historicism and the Historicity of Digital Texts), p. 82f.

Thank you very much for your attention!