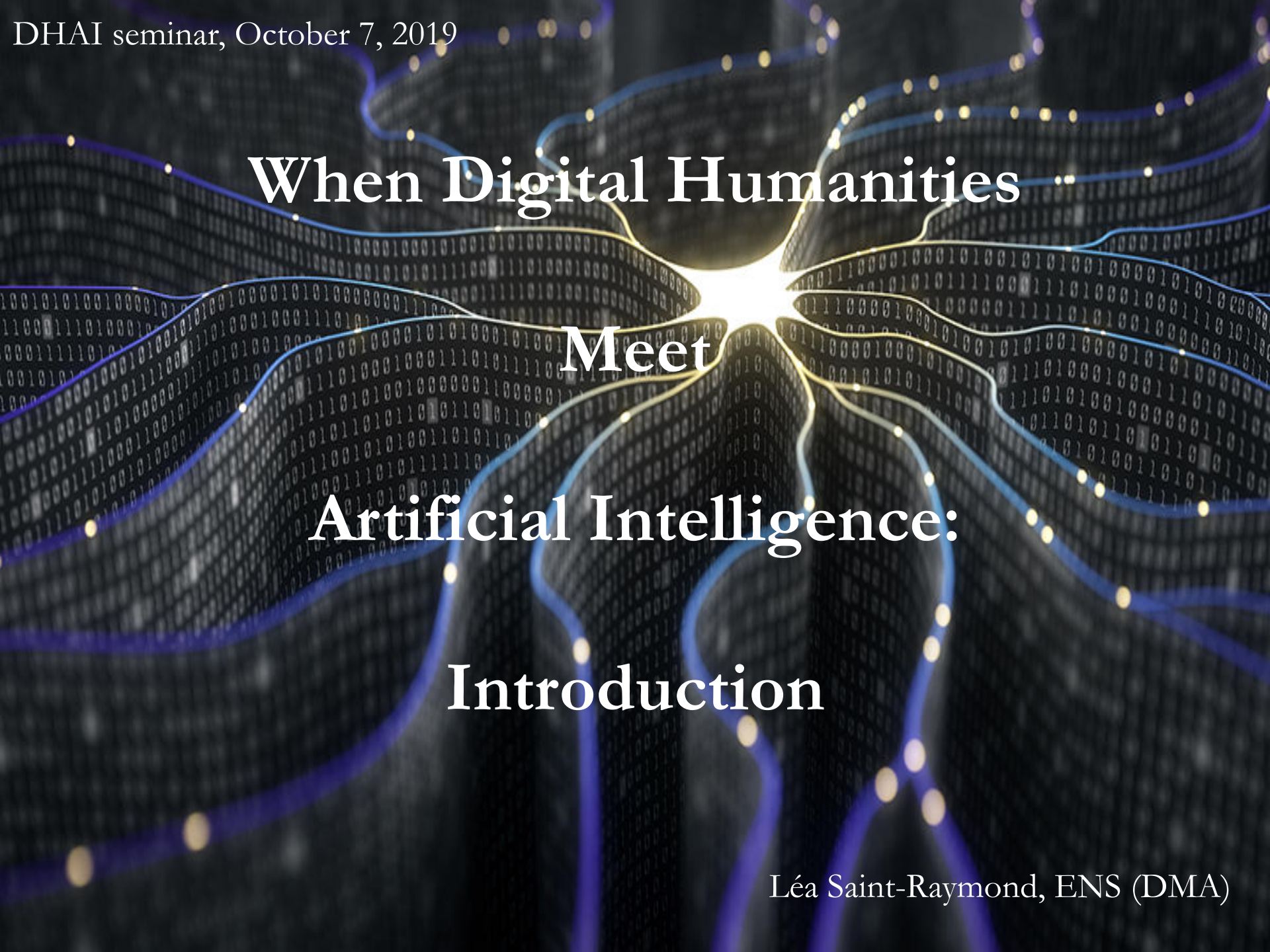
DHAI seminar, October 7, 2019



When Digital Humanities Meet Artificial Intelligence: Introduction

Léa Saint-Raymond, ENS (DMA)

1. A brief history of the encounter DH-AI
2. The meeting points…
3. … and the issues / tensions behind

1. **A brief history of the encounter DH-AI**
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1886: linear regression (Francis Galton)
1904: factor analysis (Charles Spearman)
1906: Markov chain

« Digital humanities »

2004

2007

Big data

AI winter

1950

Alan Turing
« Artificial intelligence »

1969

Minsky & Papert

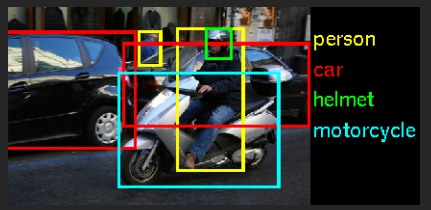
1980

Conceptual clustering
(R. Michalski)

1997

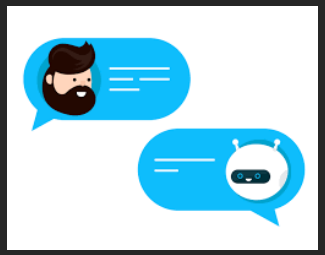
Deep Blue vs.
Kasparof

2012



ImageNet Challenge, victory
of an artificial neural network

New algorithms:
1956: Alpha-bêta pruning (J. McCarthy)
1957: perceptron (F. Rosenblatt)
1959: Dijkstra's algorithm (E. Dijkstra)
1963: support vector machine (SVM)
1964-1966: 1st chatbot ELIZA



Supervised learning:
1986: ID3 algorithm (R. Quinlan)
1988: TD-lambda algorithm –
reinforcement learning (R. Sutton)
1992: ant colony optimization (M. Dorigo)
1992: kernel trick (Vapnik, Boser, Guyon)

Success of SVM

2016

AlphaGo vs.
Lee Sedol

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Texts

Images

Natural language processing

Texts

Images

Natural language processing

- Lexicometrics

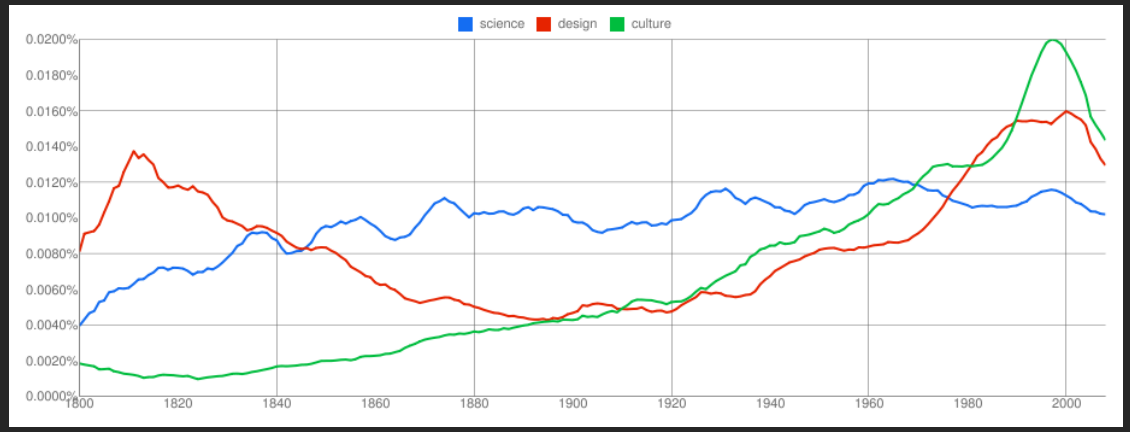
(Cointet Parasie, 2018)

Texts

Images

Natural language processing

- Lexicometrics



« Culturomics » (Michel & al., 2010)

(Cointet Parasie, 2018)

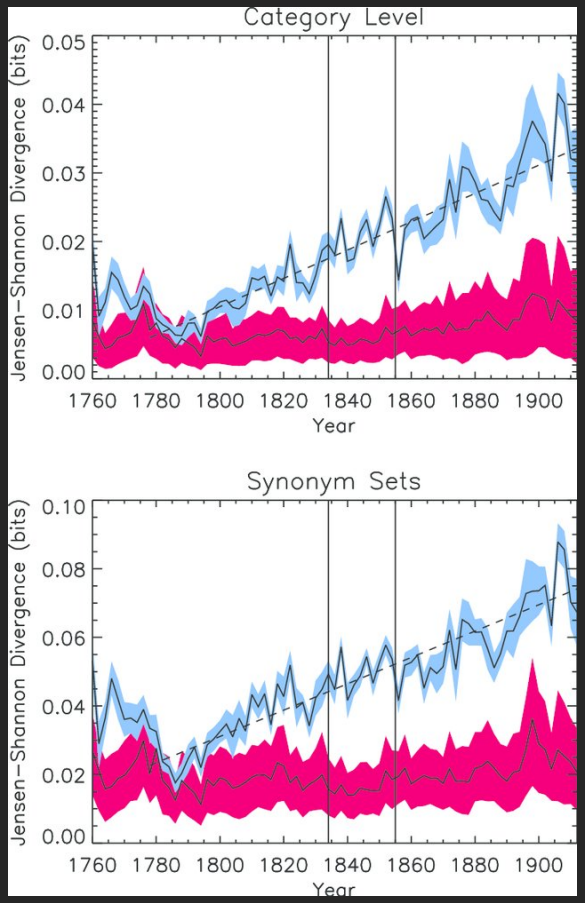
Texts

Natural language processing

- Lexicometrics

(Klingenstein, Hitchcock, DeDeo, 2014)

Images



(Cointet Parasie, 2018)

Texts

Images

Natural language processing

- Lexicometrics
- Sentiment analysis

(Cointet Parasie, 2018)

Texts

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Natural language processing

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- Stylistic analysis

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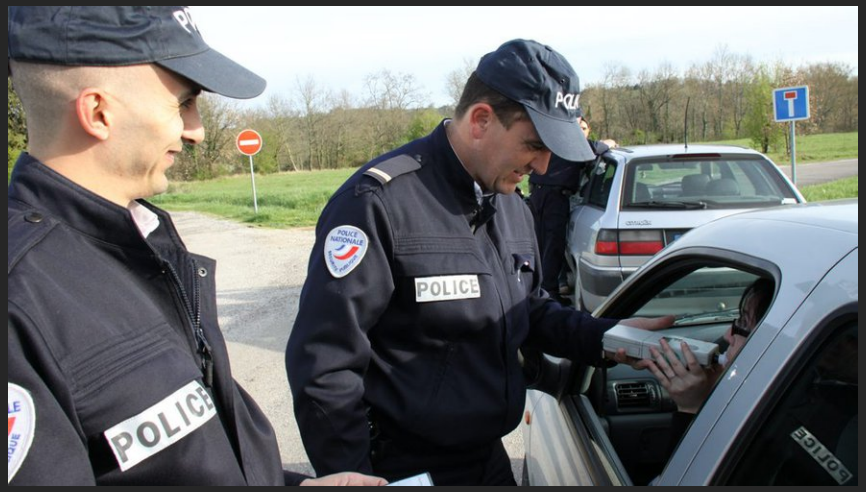

(Voigt & al., 2017)

(Cointet Parasie, 2018)

Texts

Images

Natural language processing

- Lexicometrics
- Sentiment analysis
- Stylistic analysis
- Semantic networks

(Cointet Parasie, 2018)

Texts

Images

Natural language processing

- Lexicometrics
- Sentiment analysis
- Stylistic analysis
- Semantic networks
- Word embedding

(Cointet Parasie, 2018)

Texts

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Theodoric the Great
(Bjerva & Praet, 2015)

(Cointet Parasie, 2018)

Texts

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Natural language processing

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- Word embedding
- Topic models (David Blei)

(Cointet Parasie, 2018)

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History
Sociology

(Cointet Parasie, 2018)

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(Fligstein & al, 2017)

(Cointet Parasie, 2018)

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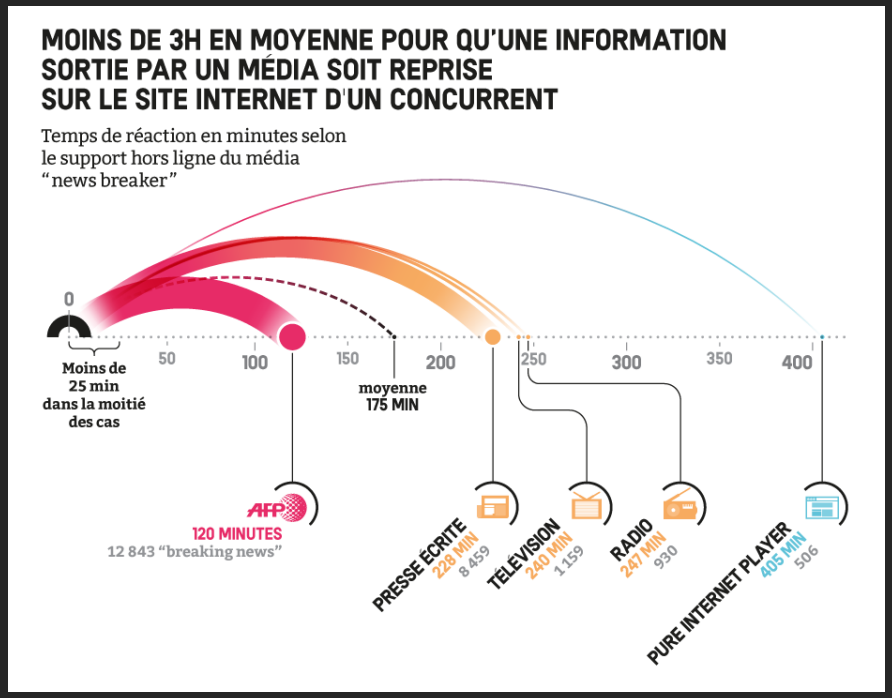

(Cagé & al., 2017)

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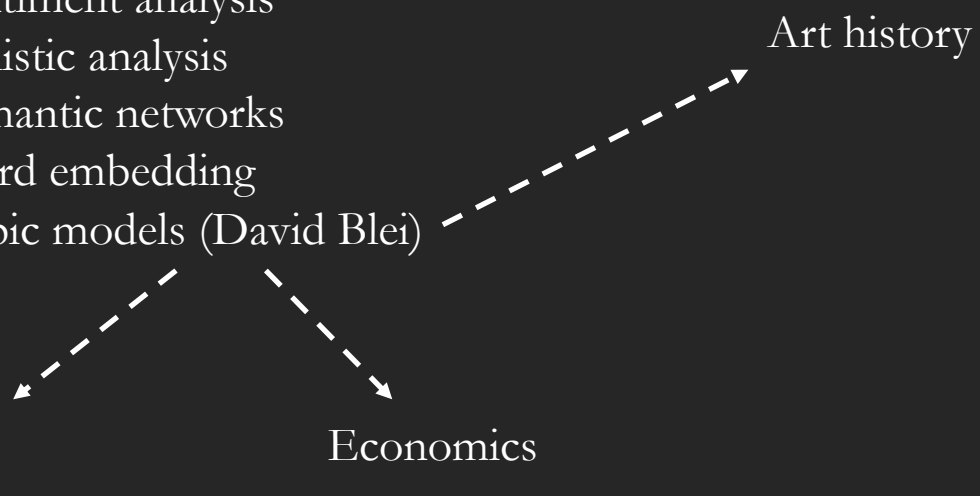

(Cointet Parasie, 2018)

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Art history

History
Sociology

Economics

Figure 5. Segmentation and classification results of horses and cows. The regions in red color are the segmentations of the animals. The regions of other colors stand for three classes of backgrounds. The last row shows that our method can find the object in inverted direction and under significant occlusion.

(Cao & Fei-Fei, 2007)

Texts

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Natural language processing

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Art history

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Sociology

Economics

Deep learning

(EnHerit project)

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- AI in DH: the end of human interpretation?

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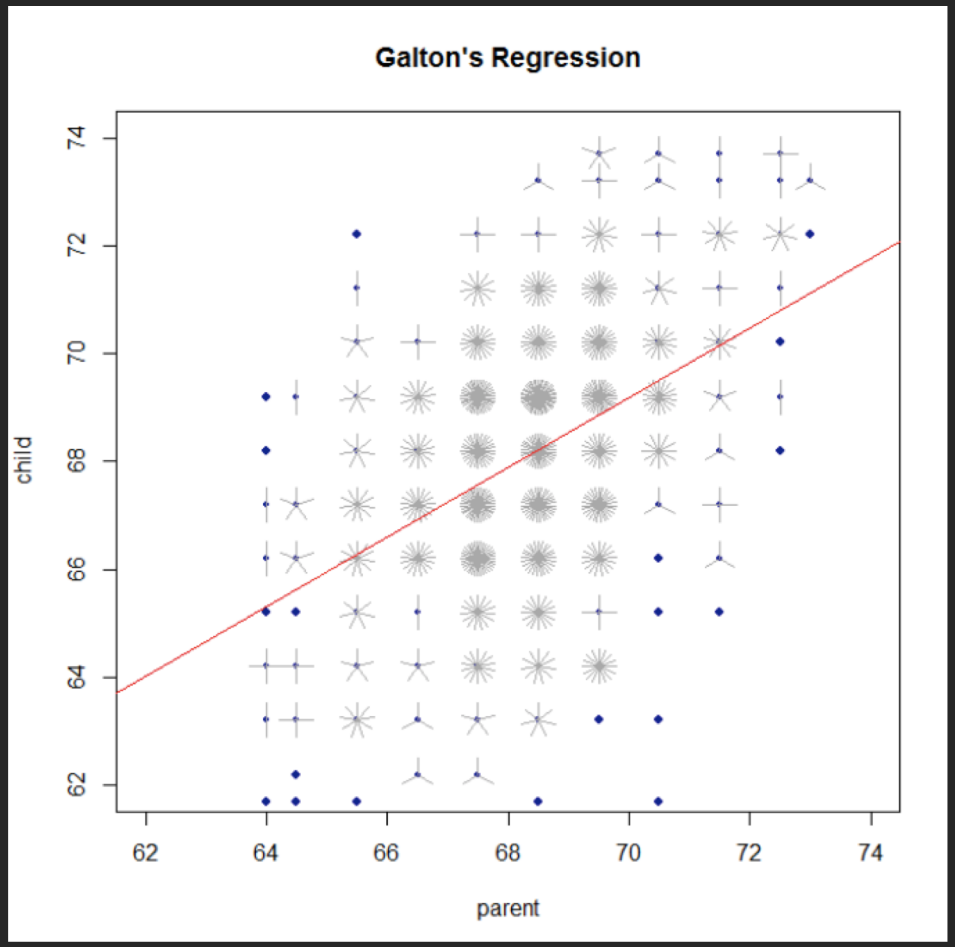

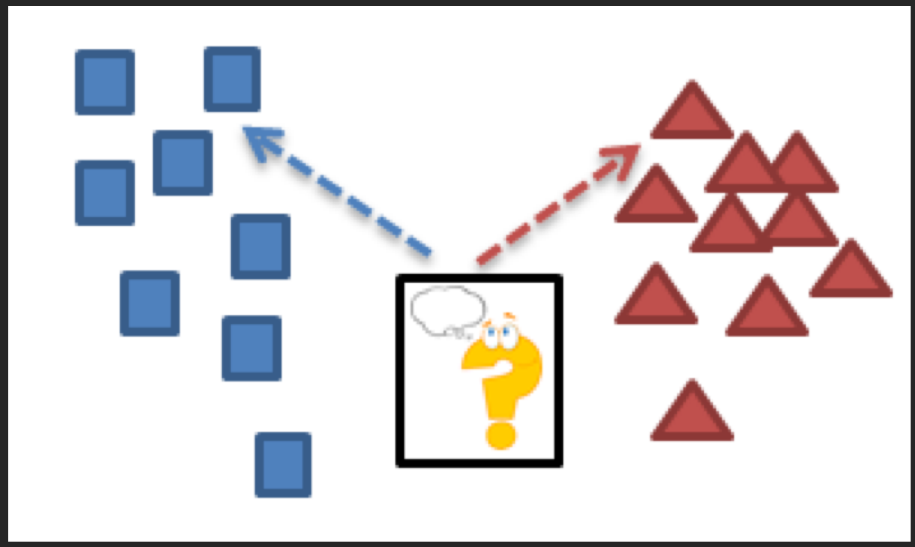

Parametric regressions vs. supervised learning

(Boelaert and Ollion, 2018)

- AI in DH: the end of human interpretation?
- Does « Data deluge » benefit DH researchers ?

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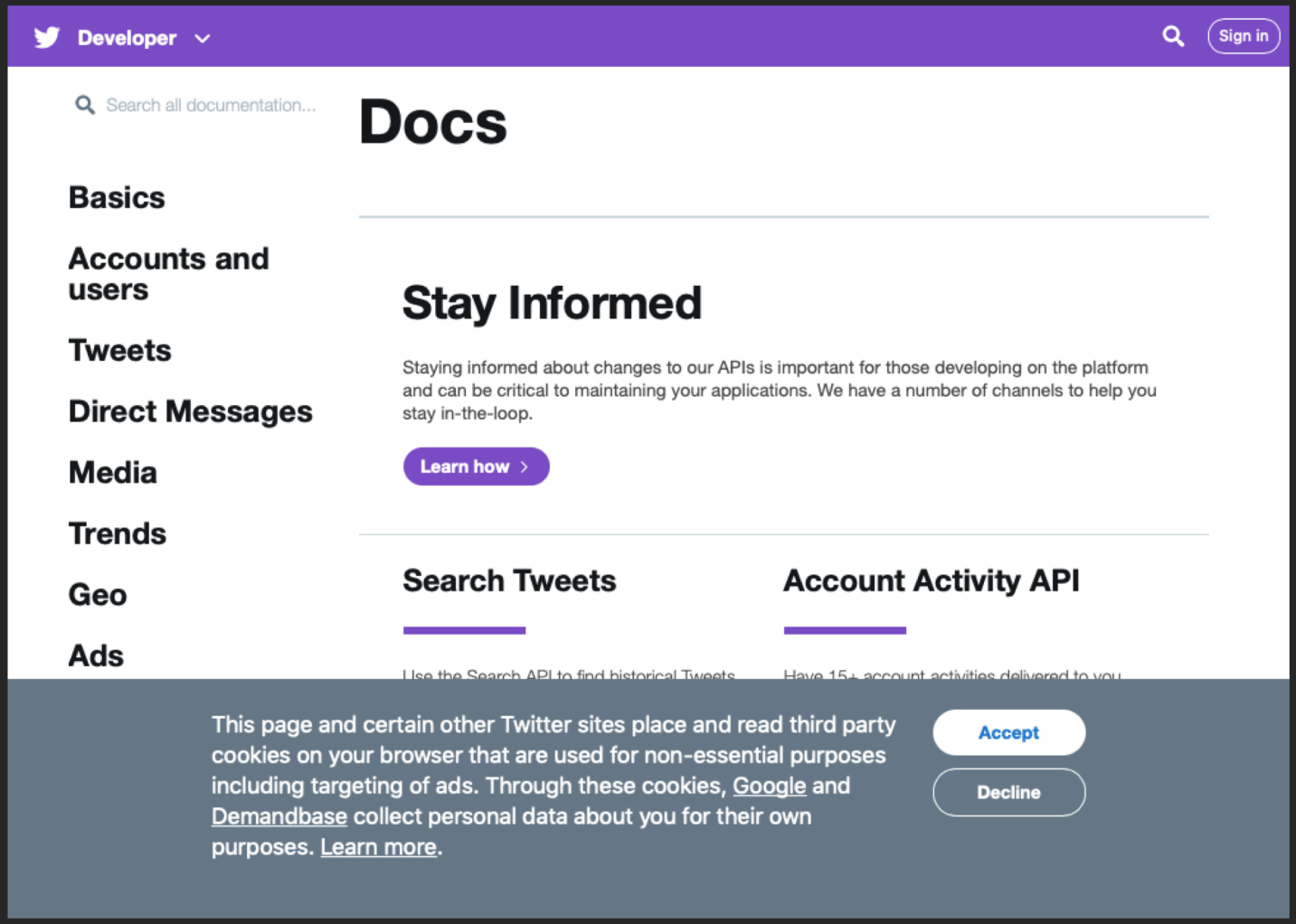

- AI in DH: the end of human interpretation?
- Does « Data deluge » benefit DH researchers ?
- Institutional issues

Facebook AI Research

Advancing the field of machine intelligence

We are committed to advancing the field of machine intelligence and are creating new technologies to give people better ways to communicate. In short, to solve AI.

Facebook Artificial Intelligence researchers seek to understand and develop systems with human-level intelligence by advancing the longer-term academic problems surrounding AI. Our research covers the full spectrum of topics related to AI, and to deriving knowledge from data: theory, algorithms, applications, software infrastructure and hardware infrastructure. Long-term objectives of understanding intelligence and building intelligent machines are bold and ambitious, and we know that making significant progress towards AI can't be done in isolation. That's why we actively engage with the research community through

centerNet

An international network of digital humanities centers

Home About Centers Contact Initiatives Join centerNet News

About

centerNet is an international network of digital humanities centers formed for cooperative and collaborative action to benefit digital humanities and allied fields in general, and centers as humanities cyberinfrastructure in particular. Anchored by its new publication DHCommons, **centerNet** enables individual DH Centers to network internationally — sharing and building on projects, tools, staff, and expertise. Through initiatives such as Day(s) of DH and Resources for Starting and Sustaining DH Centers, **centerNet** provides a virtual DH center for isolated DH projects and platform for educating the broader scholarly community about Digital Humanities.

centerNet's History

centerNet developed from a meeting hosted by the U.S. National Endowment for the Humanities and the University of Maryland, College Park, April 12-13, 2007 in Washington, D.C., and is a response to the American Council of Learned Societies report on Cyberinfrastructure for the Humanities and Social Sciences, published in 2006. Since its inception in April 2007, **centerNet** has added over 200 members from about 100 centers in 19 countries to our International Directory of Digital Humanities Centers. Regional centerNet affiliates have been established in Asia Pacific, Europe, North America, and the U.K. and Ireland, each with a steering committee.

In 2009, **centerNet** became a founding member with DARIAH, CLARIN, PROJECT BAMBOO, and ADHO of CHAIN: the Coalition of Humanities and Arts Infrastructures and Networks. In June 2010, centerNet formally affiliated with the Consortium of Humanities Centers and Institutes (CHCI) in order to pursue an ambitious agenda of initiatives on matters of mutual interest. Together, the two organizations are fostering disciplinary innovation and transformation in the humanities.

centerNet

An international network of digital humanities centers

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Centers

Centers

Advanced Computing in the Humanities - ACO*HUM

Alabama Digital Humanities Center - ADHC
109A Amelia Gayle Gorgas Library, 711

Alfa Informatica
Groningen, Netherlands

Alliance of Digital Humanities Organisations - ADHO

Alliance of Digital Humanities Organizations

Membership options

Our Mission

The Alliance of Digital Humanities Organizations (ADHO) promotes and supports digital research and teaching across all arts and humanities disciplines, acting as a community-based advisory force, and supporting excellence in research, publication, collaboration and training.

The following organizations are current members of ADHO:

- Association for Computers and the Humanities (ACH)
- Australasian Association for Digital Humanities (aaDH)
- Canadian Society for Digital Humanities / Société canadienne des humanités numériques (CSDH/SCHN)
- centerNet
- Digital Humanities Association of Southern Africa (DHASA)
- European Association for Digital Humanities (EADH)
- Humanistica, L'association francophone des humanités numériques/digitales (Humanistica)
- Japanese Association for Digital Humanites (JADH)
- Red de Humanidades Digitales (RedHD)
- Taiwanese Association for Digital Humanities (TADH)

ADVANCE ISSUE OF DIGITAL SCHOLARSHIP IN THE HUMANITIES (FORMERLY LLC)

Agree to disagree: Modelling co-existing scholarly perspectives on literary text Negation and Speculation Detection. Noa P. Cruz Díaz and Manuel J. Maña López
Author identification with feature transformation method

ADVANCE ISSUE OF DIGITAL HUMANITIES QUARTERLY (DHQ)

Humanistica

ACCUEIL L'ASSOCIATION REVUE BLOG PRATIQUE ADHÉSION

L'association

Découvrez l'**historique** et les **buts** de l'association, ainsi que son **comité de coordination** et ses **membres**.
En savoir plus...

Pratique

Consultez les **documents** de référence, prenez connaissance des **listes de diffusion** et des adresses de **contact** d'Humanistica.
En savoir plus...

Adhésion

Rejoignez la **communauté** des humanités numériques francophones en **adhérant** à Humanistica !
En savoir plus...

Revue

La revue ***Humanités numériques*** vient de voir le jour ! Consultez l'**appel à contributions** pour les premiers numéros.
En savoir plus...

Dernières actualités

Réseaux sociaux

Inria takes part in PRAIRIE Institute launch

CNRS, Inria and PSL University, together with Amazon, Criteo, Facebook, Faurecia, Google, Microsoft, NAVER LABS, Nokia Bell Labs, PSA Group, SUEZ and Valeo are joining their academic and industrial perspective as well as their forces to create in Paris the PRAIRIE Institute, whose objective is to become an international reference in the field of artificial intelligence.

On the occasion of the AI for Humanity summit, the President Emmanuel Macron unveiled France's artificial intelligence strategy. He notably announced the setting up of an "emblematic network of four or five dedicated institutes, anchored in university centres and linking the territory".

The partners in PRAIRIE Institute (PaRis Artificial Intelligence Research Institute) are pursuing three goals :

- to make a significant contribution to driving progress in fundamental knowledge in artificial intelligence (AI) freely distributed among the international scientific community;
- to take part in solving concrete problems with a major application-related impact;
- to contribute to training in the field of artificial intelligence.

The five-year objective is to bring together AI scientific and industrial leaders and make the PRAIRIE Institute a world leader in AI.

Positioning France in the field of artificial intelligence

Beyond its international impact in mathematics and computing, France is among the world leaders in key disciplines such as statistical learning, robotics, automatic processing of natural language and speech, or artificial vision.

Progress in these fields will create disruptions that demand a new integrated framework for AI and, faced with the current international competition, a major positioning challenge for France is emerging.

France has some of the best researchers in the world, excellent training programmes, companies ready to meet the challenge of the forthcoming revolution and an extremely dynamic innovation ecosystem. France has all the conditions to embody innovation in artificial intelligence. The PRAIRIE Institute aims to take up this challenge and propose a strong model for convergence between the academic and industrial worlds.

The PRAIRIE Institute will welcome junior and senior researchers, doctoral and post-doctoral students, as well as visitors. It will be located in Paris and will forge strong partnerships with the key French AI players in research, training, innovation, through a system of governance bringing together academic and industrial stakeholders.