# Outline of a Human Informatics

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# Outline


1. Human Informatics
   - A need for Human Informatics
   - SDU eScience Center
   - SDU DataKube
2. Recent projects
   - Dating Documents
   - Effect of advertisements
   - Literature and affective computing
   - Dynamic author profiling





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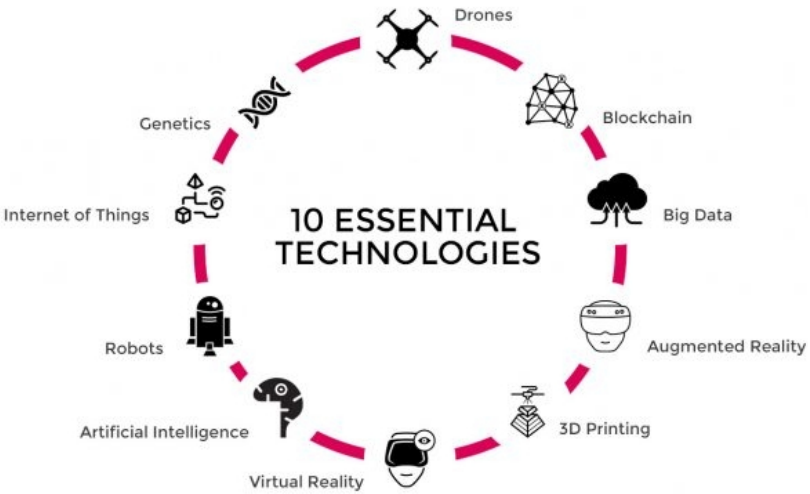
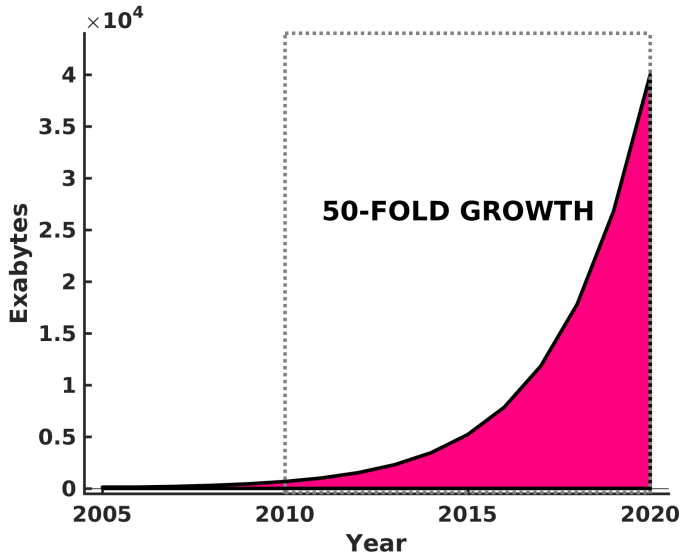
Dynamic author profiling


SDU

# A need for Human Informatics




**the data deluge** is transforming knowledge discovery and understanding in every domain of human inquiry

**a large part of these data are soft and unstructured** $\Rightarrow$ to get value from these data, humanities (and social sciences) must utilize automation

**human informatics - automatic information processing in the humanities**

K. Steinbuch (1957) Informatik: Automatische Informationsverarbeitung [Berlin: SEG-Nachrichten]

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# eScience Infrastructure at SDU



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14.016 cores, 392 slim nodes, 64 fat nodes, 72 GPU nodes with two Nvidia K40/node

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the center is expanding its userbase to include more SSH relevant areas and competencies, e.g., DL, NLP, computer vision

cloud offers a fully GDPR complient environment for cloud computing with a cumulative codebase

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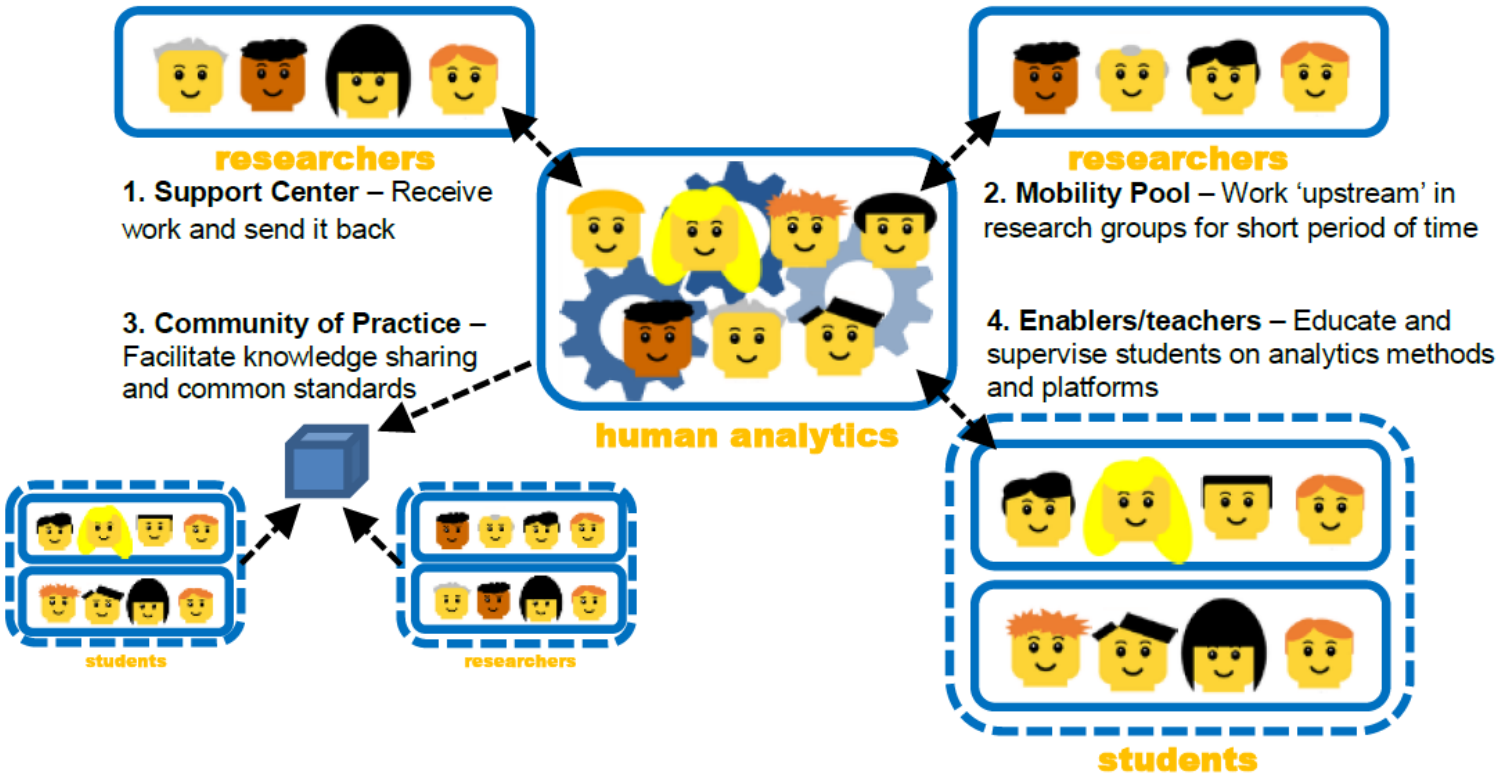
# SDU DataKube

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research support through collaboration (pilot, shared funding, shared authorship)

recently turned to tool and competency development - software development in the humanities




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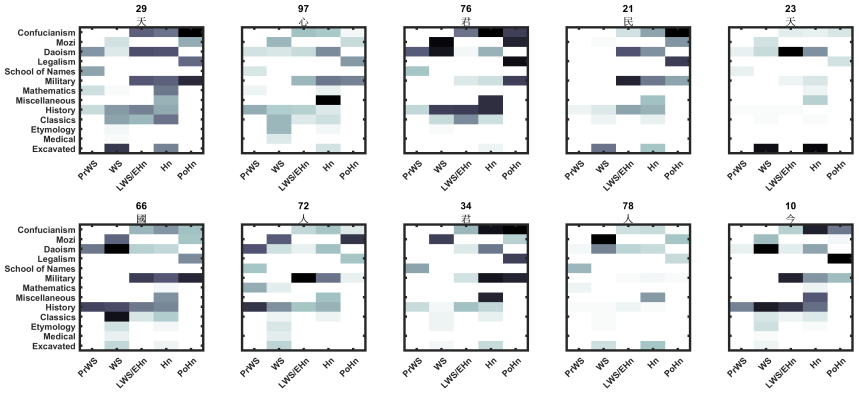
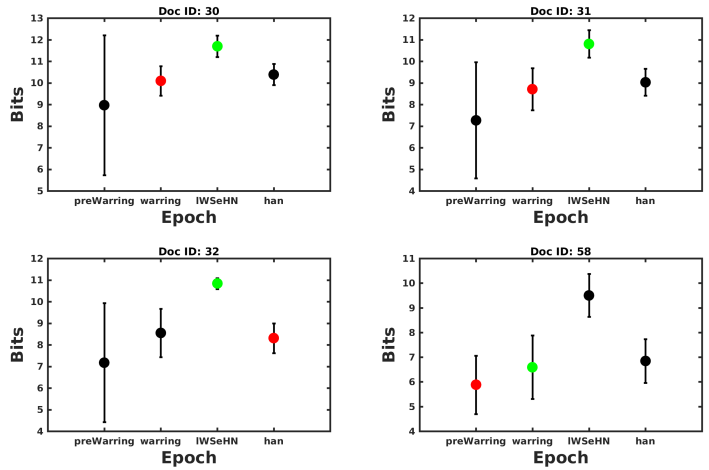
# Dating Classical Chinese Documents




Thematic structure in CTEXT corpus conditioned on period and genre




Average distance from each period, classical period, and alternate period

Nichols et al (2018). Modeling the Contested Relationship between Analects, Mencius, and Xunzi. JAS 77(1).

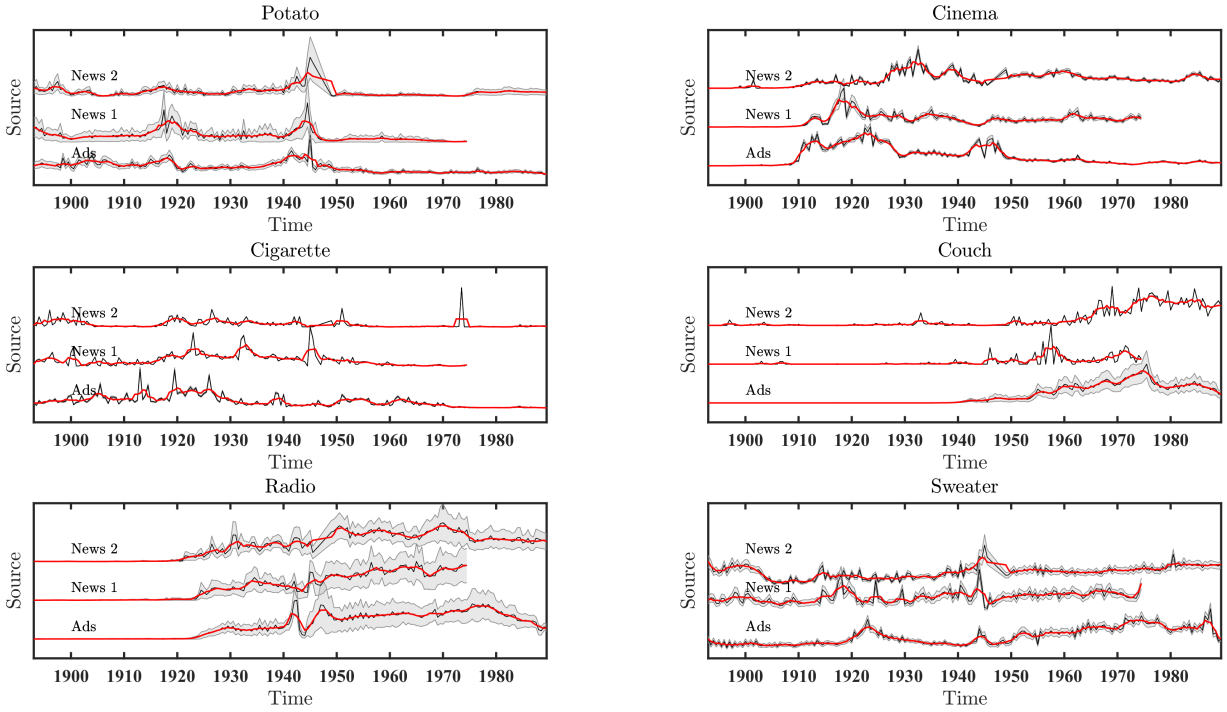



Figure 1: Articles and advertisements from *De Tijd* (1890-1974) and *De Telegraaf* 1893-1989, $N \simeq 30E^6$.

Shaping: *advertisements* $\rightarrow$ *articles*

Reflecting: *articles* $\rightarrow$ *advertisements*

Complex: *advertisements* $\leftrightarrow$ *articles*

Wevers, M., Nielbo, K.L., & Gao, J. (*in review)* Tracking the Consumption Junction.

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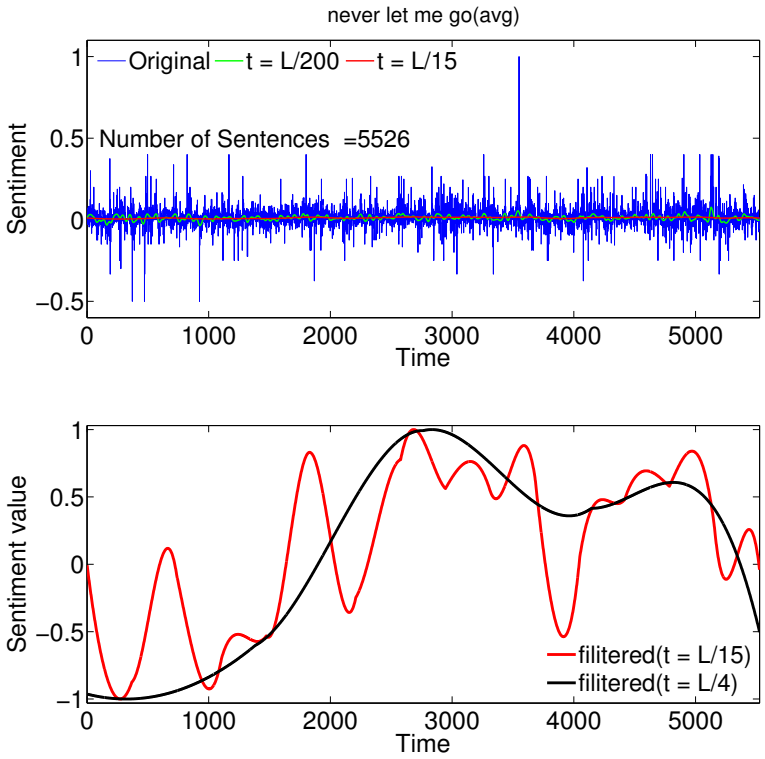
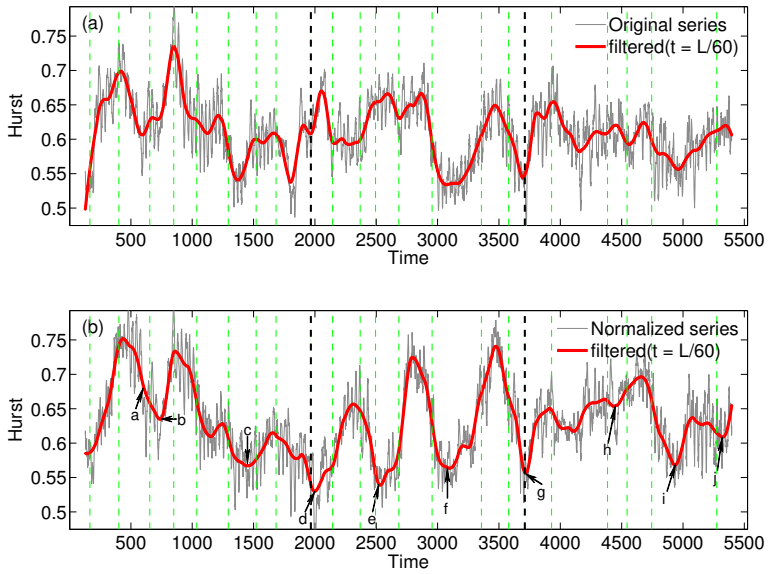
# Literature and affective computing



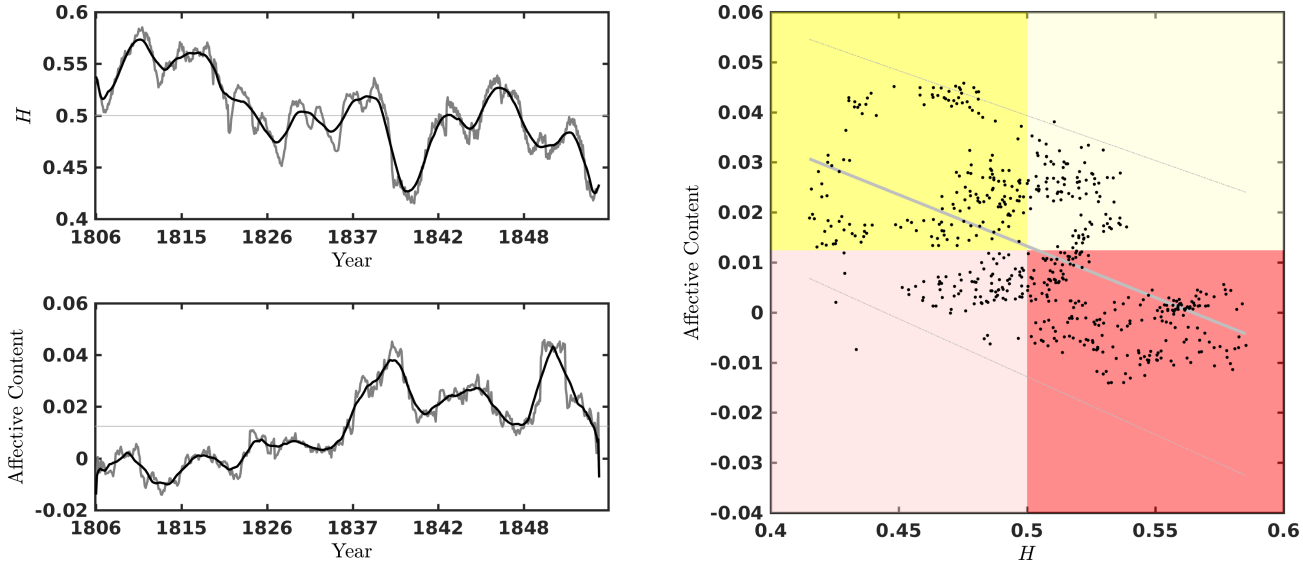

Story arc of Kazuo Ishiguro's 2005 novel *Never let me go*




Evolution of the Hurst parameter under 256 window size of original and normalized sentiment time series

Hu, Q., Liu, B. Thomsen, M.R., Gao, J. & Nielbo, K.L. (*in review*). Dynamic evolution of sentiments in *Never Let Me Go*.

# Dynamic author profiling




Combining persistent entropic trends with sentiment analysis and causal modeling, we can study "the tormented artist" phenomena in intellectual history.

| Time period | Age of onset | $H(X)$ | Behavior | Profile |
|---|---|---|---|---|
| 1806-1826 | 23 | $H > 0.5$ | *persistent* | theoretician |
| 1826-1839 | 43 | $H \approx 0.5$ | *short memory* | pragmatic |
| 1839-1845 | 56 | $H < 0.5$ | *anti-persistent* | breakthrough |
| 1845-1848 | 62 | $H \approx 0.5$ | *short memory* | disease |
| 1849-1872 | 65 | $H < 0.5$ | *anti-persistent* | politician |

Nielbo, K. L., K.F. Baunvig, B. Liu & Gao, J. (2018). A Curious Case of Entropic Decay. DSH ?(?).



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## THANK YOU

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slides: http://knielbo.github.io/files/kln_hinformatics.pdf

**& credits to**

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