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The ABC of Computational Text Analysis

Supplements

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14 April 2024

Purpose

Here I present some stuff that we did not cover in class.

Tasks

- find various ngrams with wildcards
- check gender specific language

  what follows `she/he` or `her/his`

Topics

Techniques

- text processing
- extracting and aggregating information
- creating simple visualizations
- optical character recognition (OCR)
- scraping files

Data

- using existing datasets
- creating new datasets

🤓 *inputs are more than welcome!*

Data vs. Capta

«Differences in the etymological roots of the terms data and capta make the distinction between constructivist and realist approaches clear. *Capta* is **“taken”** actively while *data* is assumed to be a **“given”** able to be recorded and observed.»

«Humanistic inquiry acknowledges the situated, partial, and constitutive character of knowledge production, the recognition that knowledge is constructed, *taken*, **not simply given as a natural representation** of pre-existing fact.»

Forms of Data

- content data

  clean, plain text data

  preferable as `.txt`

- metadata ~ information about the actual data

  publishing date, authors, source, version

  preferable as `.csv`

show with default application (GUI)

```
open text.txt               # macOS
wslview text.txt            # WSL Ubuntu (Windows)
```

Key Word in Context (KWIC)

```
ptx -f -w 50 */*.txt > ptx.txt
egrep -i "[a-z]  word" ptx.txt
```

Select Column in Dataset

```
cut -d\t -f1    # extract the 2nd column from a tab-separated file
```

Extract texts from tsv:

- http://www.theunixschool.com/2012/05/shell-read-text-or-csv-file-and-extract.html

Variables

```
echo "Starting program at $(date)"
```

Better Tokenization

- tokenization ~ splitting into words

```
# new, improved approach
cat text.txt | tr -sc "[a-zäöüA-ZÄÖÜ0-9-]" "\n"

# old approach
cat text.txt | tr ' ' '\n'
```

Batch Processing

```
for file in *.txt; do           # loop over all text files
 cat "$file" | pipe commands > "proc_$file"
done
```

Batch Renaming

```
rename  " " "_" *.txt   # replace spaces with underscores
# since there are different versions, if this doesn't work try:
# rename 's/ /_/' *.txt
```

```
i=1
for file in *.txt; do           # loop over all text files
 mv -- "$file" "text_$i.txt"    # rename each file with a sequentia
 i=$((i+1))
done
```

Imperfect Data: A Tail of Bias

- social bias

  view from somewhere, stereotypes

- data/archive holes

  lost, uncollected

- corpus curation

  supposition that key-word indicates topic

- noise in data

  OCR errors, inconsistent spelling, non-content

👉 think about the data and mitigate issues

Outlook: NLP is on Fire 🔥

- supervised machine learning
- you can do basically anything with modern NLP

  train on human-annotated data

- effort, insights and quality may differ

  for better or worse

Mind your Data

- Who has a voice in your data?

  social context

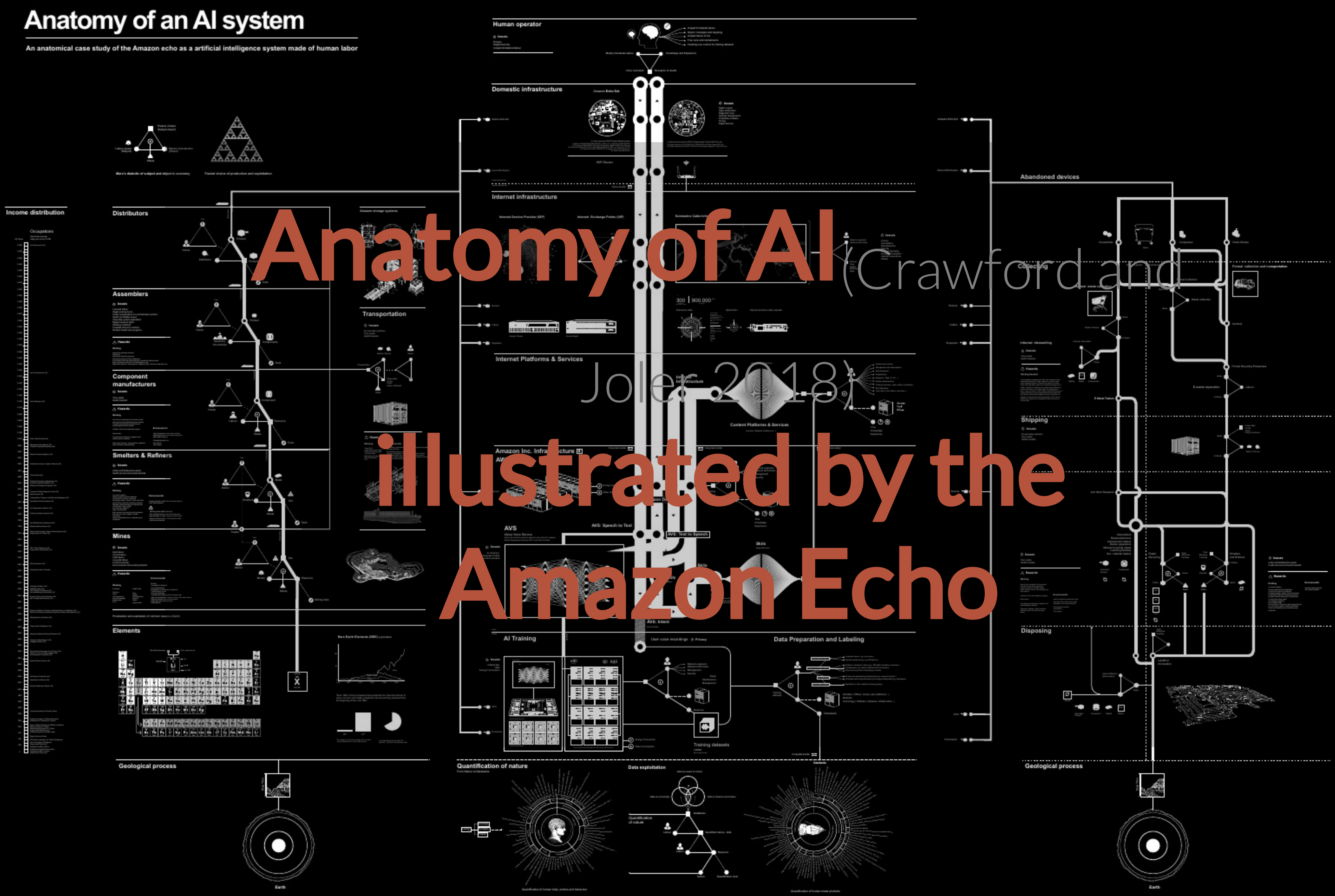
- bigger is not necessarily better

  more vs. more diverse data

- clean your data thoroughly

  noisy vs. clean data

Anatomy of AI (Crawford and Joler 2018) illustrated by the Amazon Echo



Nothing to hide?

- Data for targeting ads to chase climate activists
- TODO

Crawford, Kate, and Vladan Joler. 2018. “Anatomy of an AI System.” Anatomy of an AI System. 2018. http://www.anatomyof.ai.