

The ABC of Computational Text Analysis

SUPPLEMENTS

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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 sequential number
    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 🔥

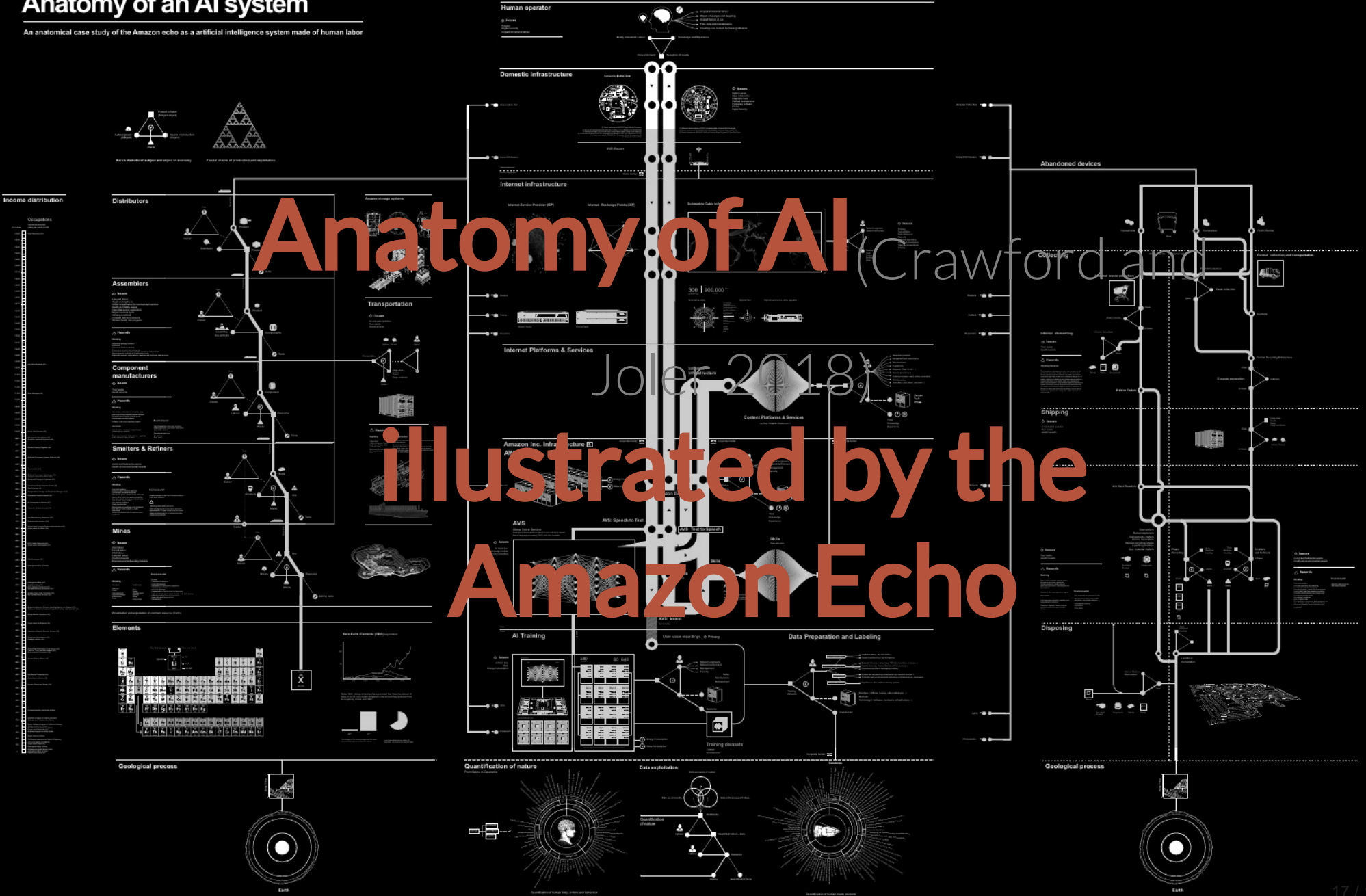
- supervised machine learning
- you can do basically anything with modern NLP
 - train on human-annotated data
- effort, insights and quality may differ
 - for better or worse

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 an AI system

An anatomical case study of the Amazon echo as a artificial intelligence system made of human labor



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>.