Summer Institute in Computational Social Science at NDSU 2022

Collecting digital trace data

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Today’s agenda

Morning:

- Overview of digital trace data
- Data collection tutorial
- Research speed-dating

Afternoon:

- Group activity & Report
- Participant research presentation
    - Jamie Chen: Digital Business Models in Service Management
    - Loi Nguyen: Management Innovation: A Qualitative Case Study

What is digital trace data?

Social media

Geo-spatial data

News websites

Digital archives

Discussion: other kinds of data?

Strengths and weaknesses of digital trace data

Strengths: Always-on, unobtrusive, capture relationships

Weaknesses: proprietary, non-representativeness, drift, algorithmic confounding, unstructured, other bias

How to leverage the strengths?

How to alleviate the weakness?

Ways of collecting digital trace data

Downloading existing dataset

Screen/web scraping

API

Downloading existing dataset

https://datasetsearch.research.google.com

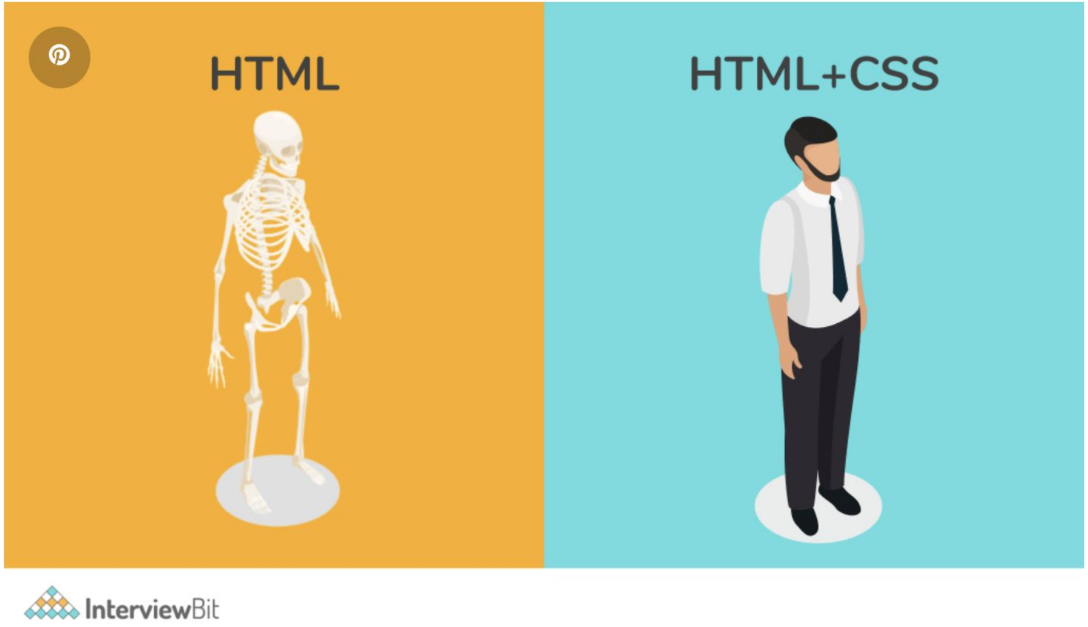
Macro-level data: World Bank, OECD, government, etc.

Traditional micro-level data: GSS, Pew Research, etc.

Public accessible platform data: Ad data, legal request data, special topics, etc.

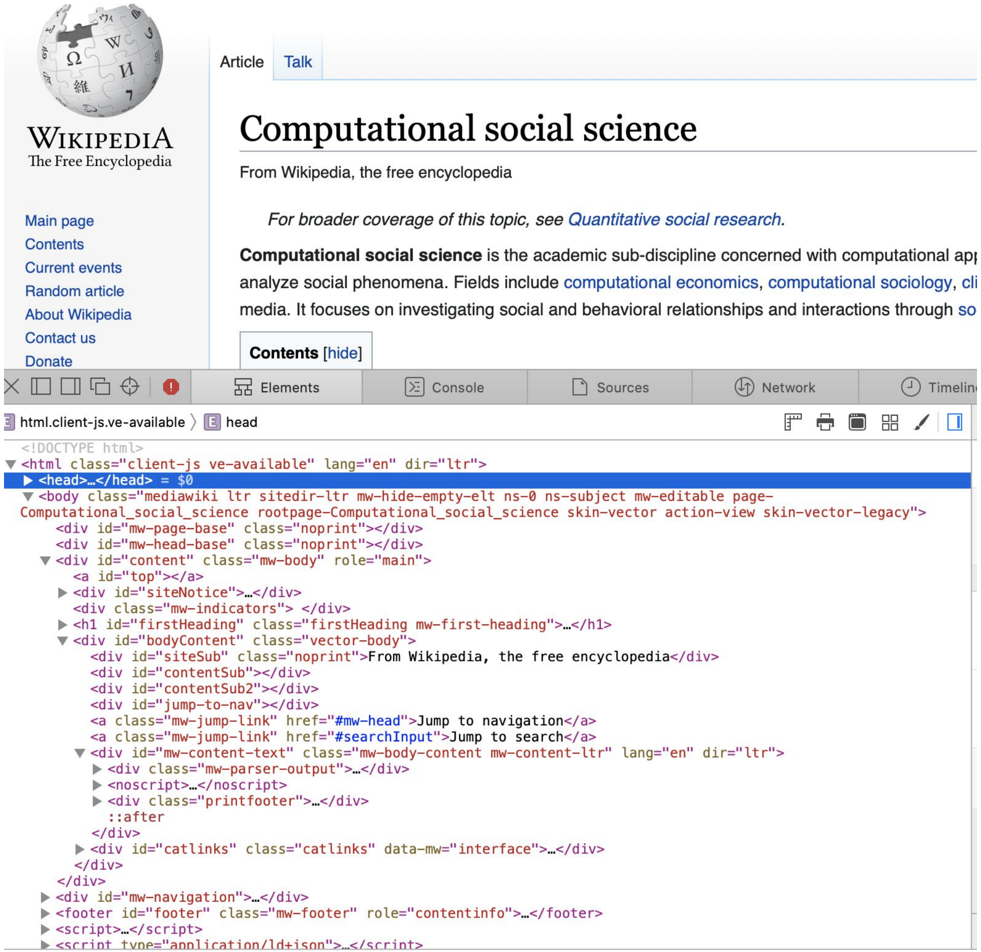
Research data: GitHub, Open Science Framework, Harvard Dataverse, ICPSR, etc.

Screen/web scraping



Developer tool

Inspect html/css codes



Computational social science

From Wikipedia, the free encyclopedia

For broader coverage of this topic, see Quantitative social research.

Computational social science is the academic sub-discipline concerned with computational app analyze social phenomena. Fields include computational economics, computational sociology, cli media. It focuses on investigating social and behavioral relationships and interactions through so

Contents [hide]

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Screen/web scraping workflow

Installing/loading R package: RVest, tidyverse, ggplot

Choosing webpage

Extracting content

Basic cleaning

Exploratory data analysis

Tool time: web/screen scraping

Code along!

Using API

Application Programming Interface: customized requests of data from the server/owner

Strengths: efficiency, personalization, automation, integration, broad scope, structured

Weaknesses: availability, query limitation, affordability, maintenance

Available APIs

Twitter API

Reddit API

NYT API

...

API workflow

Read API documentation

Sign up for a developer account

Once approved, set up an App

Save your credentials (keys and tokens)

Set up user authentication information

Get your R environment set up

Start your first API request

Data wrangling

Twitter Academic API

Launched in Jan. 2021

Full history of Twitter content

10 million tweets per month (academic research access)

Tool time: Twitter API

Code along!

Small group activity Day 2

Summary

An open-ended group exercise to collect digital trace data, formulate research questions, and/or incorporate a hybrid research design.

Activity

- Split into small groups and select person(s) to take notes and report group process/results.
- 13:40-13:50: brainstorm potential research ideas and select one to pursue
- 13:50-14:00: discuss sampling strategy, strengths & weaknesses of the data
- 14:00-15:20: collect data
- 15:20-15:30: reflect on the strengths/limitations of what you have completed and ways to address
- 15:30-16:00: come back together as a large group and discuss projects at the end of the day

Adapted from SICSS-Rutgers, 2021