

# Web Mapping & Analysis

## Introduction

Dani Arribas-Bel

# Today

- Anatomy of the Web Map
- Overview
- Logistics

# Anatomy of the Web Map

Google Maps

https://www.google.com/maps/@53.4074092,-2.9845759,14z

Search Google Maps

Home Set location

Work Set location

Moderate traffic in this area  
Slower than usual with delays of up to 7 min

Liverpool 8°

Restaurants Hotels Bars Coffee More

Satellite

Map data ©2020 United Kingdom Terms Send feedback 500 m

Sign in Arts City Centre

Collapse side panel

The map displays the city of Liverpool, United Kingdom, with various landmarks and road networks. Key areas labeled include VAUXHALL, KENSINGTON, EDGE HILL, ROPEWALKS, KNOWLEDGE QUARTER, and TOXTETH. Major roads shown are A5054, A5038, A59, A5053, A562, A561, A5039, A5037, A5036, A5089, and B5173. Traffic conditions are indicated by yellow lines on the roads. The map also shows the River Mersey and several bridges. Landmarks such as the World Museum, Walker Art Gallery, Primark, Liverpool Metropolitan Cathedral, Liverpool Cathedral, and Toxteth Park Cemetery are marked. The weather is currently 8° Celsius.

OpenStreetMap

https://www.openstreetmap.org/#map=6/54.910/-3.432

GPS Traces User Diaries Copyright Help About Log In Sign Up

Search Where is this? Go

Welcome to OpenStreetMap!

OpenStreetMap is a map of the world, created by people like you and free to use under an open license.

Hosting is supported by [UCL](#), [Bytemark Hosting](#), and other [partners](#).

Learn More Start Mapping

100 km 50 mi

Scotland Aberdeen Dundee Newcastle upon Tyne Carlisle Preston Leeds Sheffield Hull Liverpool Nottingham Lincoln England Birmingham Peterborough Norwich Cambridge London Worcester Gloucester Oxford Cardiff Swansea Bath Exeter Southampton Portsmouth Brighton Dunkerque Plymouth Hause-de- Lille Middelburg Brugge Haarlem Den Haag 's-Hertogenbosch Groningen Oldenbu Assen Zwolle Arnhem Münster Vlaanderen Düsseldorf Aachen Bonn Koblenz Belgie / Belgique / Belgen

Rogaland

© OpenStreetMap contributors • Make a Donation. Website and API terms



Consumer  
Data  
Research  
Centre

An ESRC Data  
Investment

CDRC

Data

Maps

Indicators &amp; Stories

NRDF

# CDRC Maps

Mapping selected datasets from  
CDRC Data, part of the Consumer  
Data Research Centre.

## DATA CHOOSEN

Geodem Indicators Metrics

Select a map:

Index of Multiple Deprivation 2019

## MAP OPTIONS

Layers: Land Labels

Overlays: Pin Clear

Tip: Try dropping KML or  
GeoJSON files onto map.

Postcode:  Go

## CENTRES & CATCHMENTS

## JUMP TO CITY

Aberdeen Birmingham Brighton  
Bristol Cardiff Edinburgh Glasgow  
Leeds Liverpool London  
Manchester Newcastle Plymouth

[Tweet](#)

Prenton

Important note: Classifications are an  
average across the local area, rather than for  
individual houses, therefore the colour coding  
on a building is not necessarily indicative of  
that building.

## INDEX OF MULTIPLE DEPRIVATION 2019

2010

2015

2019

Value Change

Liverpool

Wavertree

Chiltern 004D.

ID: E01017793

Decile

6

Rank

18775

## MAP KEY

## Index of Multiple Deprivation 2019

The Indices of Deprivation for England  
in 2019 - showing the overall rank (out  
of 32844), split into deciles.

[Download these data](#)

Most deprived decile

2nd

3rd

4th

5th

6th

7th

8th

9th

Least deprived decile

Data missing

Data not available

About/Attribution

The Indices of Deprivation  
for 2019 were calculated by  
the OCSI on behalf of the  
UK Government. The data

# Building blocks of a web map

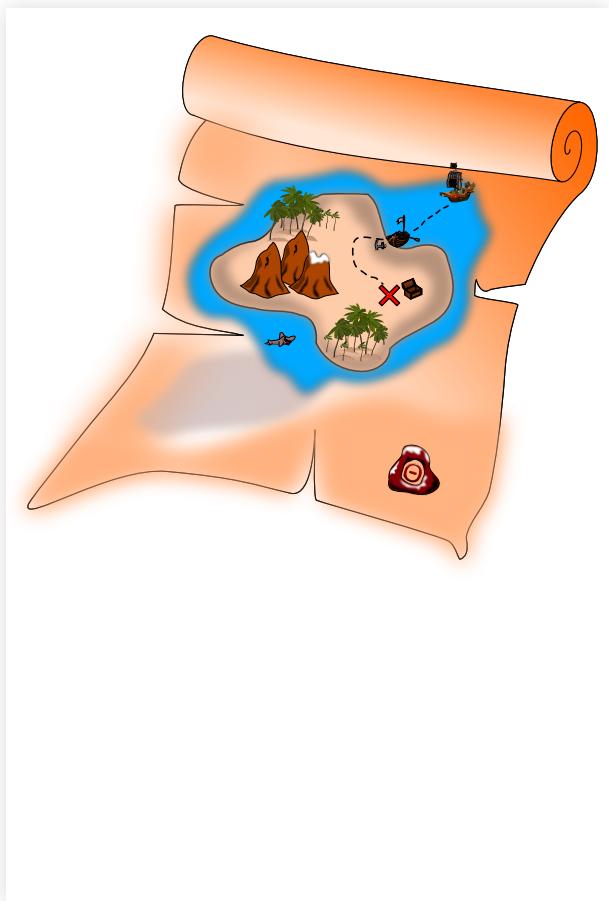
- (Geo-)Data
- Hardware
- Software
- (Effective and beautiful) Design

# (Geo-)Data

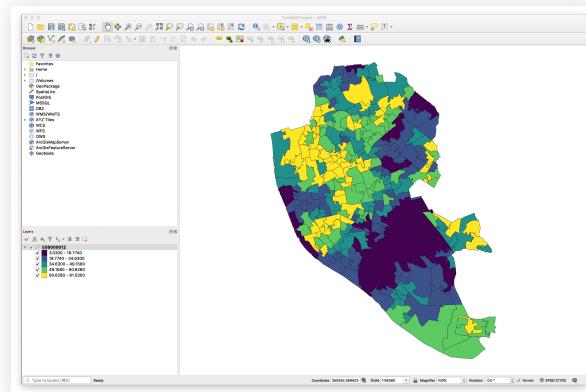
*“Data graphics visually display measured quantities by means of the combined use of points, lines, a coordinate system, numbers, symbols, words, shading, and color”*

*The Visual Display of Quantitative Information.* Edward R. Tufte

# Hardware

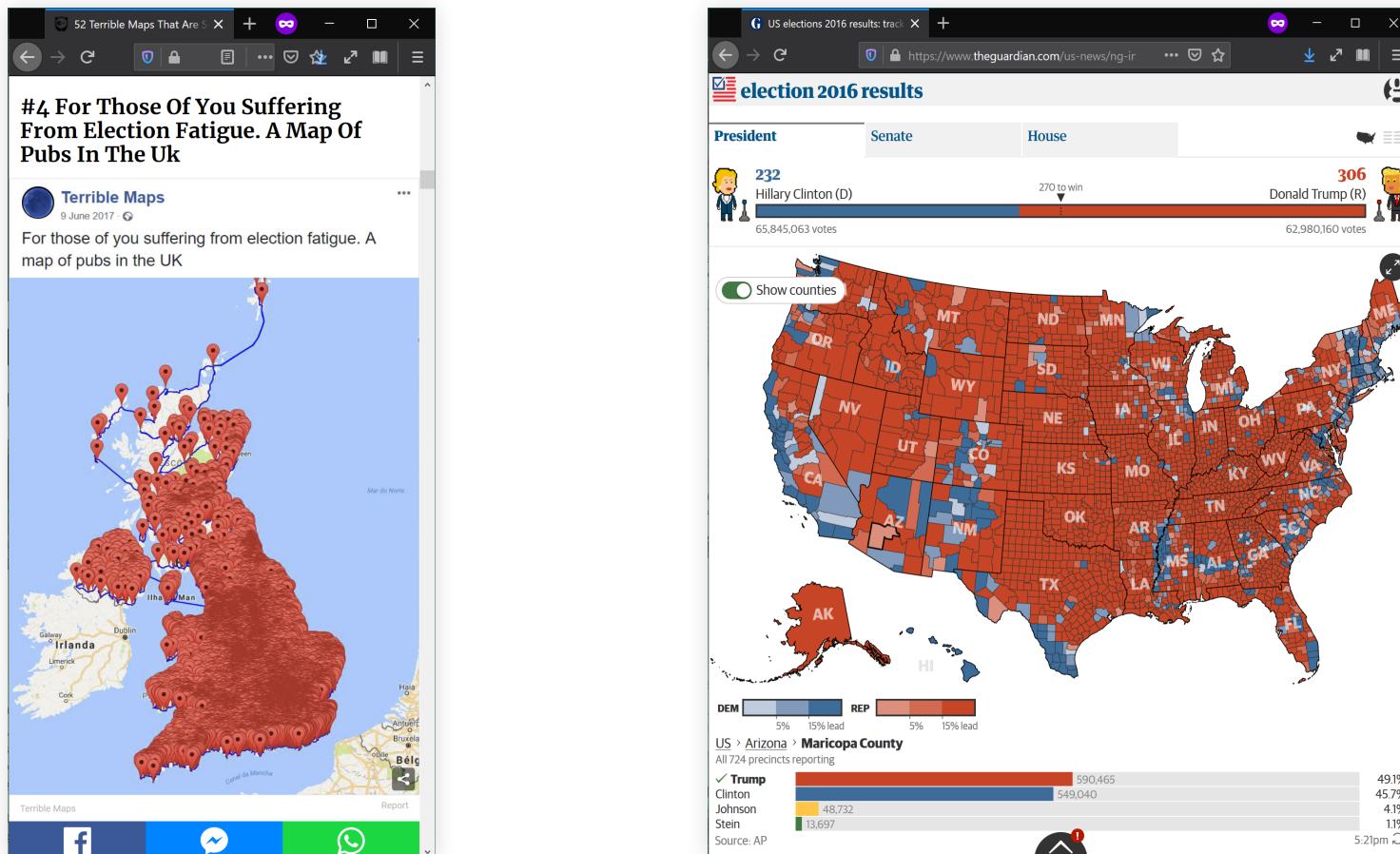


# Software

A screenshot of a terminal window titled 'alpha\_shapes.py [source] /tmp/tktemp100.log - OMM'. The window displays a block of Python code. The code is a port of the alpha-shape algorithm from C++ to Python, based on the original implementation by Tim Knibbel. It includes imports for numpy, scipy.spatial, and timeit, and defines a JIT compiler for the alpha\_shape function. The code also includes a docstring and examples demonstrating its use with arrays of points and their coordinates.

url

# Design



url

# Overview

# Content

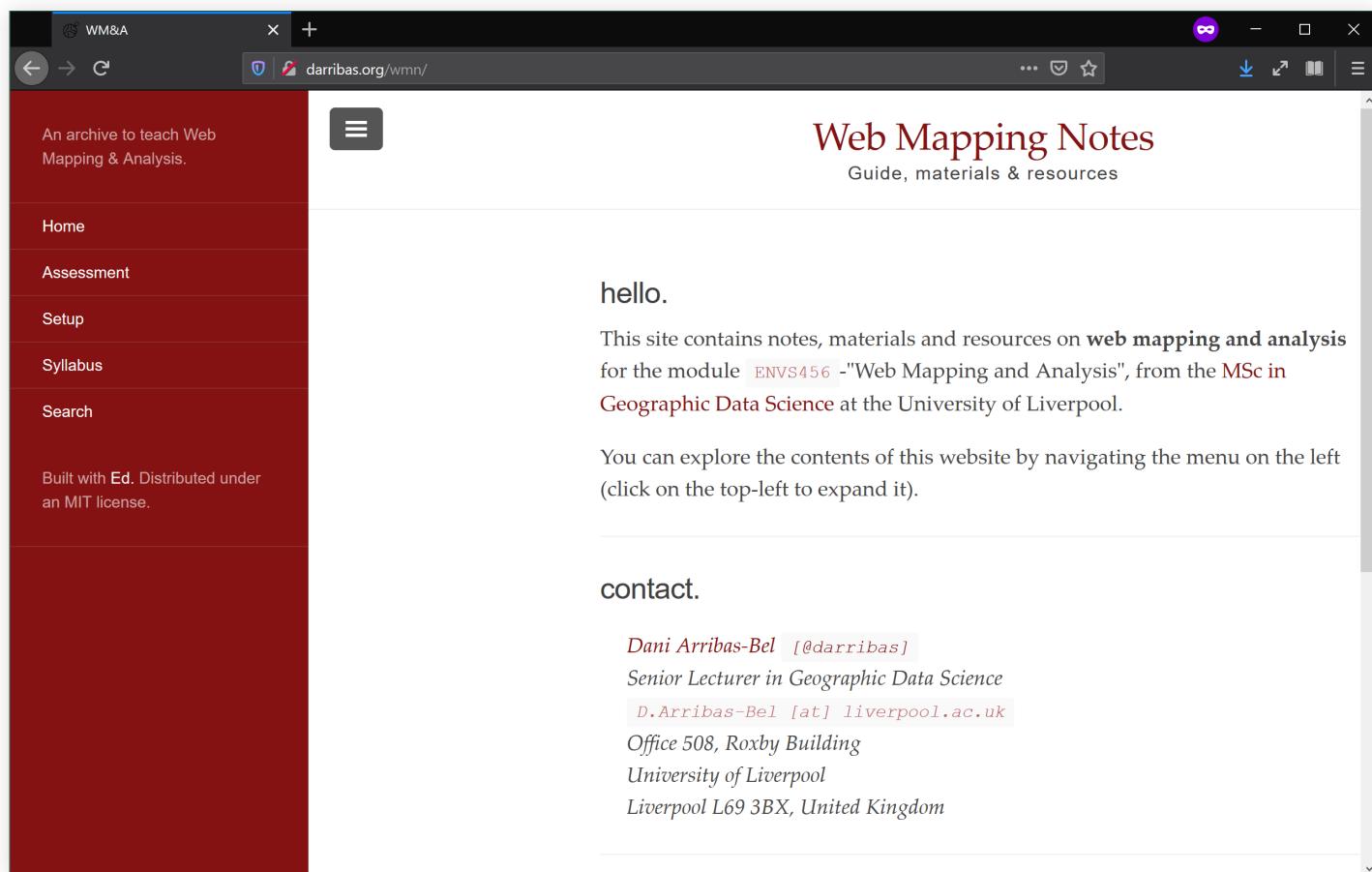
- W1 Introduction & Context
- W2 - 4: Data Backends
- W5: Assignment I
- W6 - 8: Frontend Topics
- W9: Dashboards
- W10: Technology Gallery

# Assessment

- Two pieces of **coursework** (50%/50%)
- *Equivalent* to 2,500 words each
- Due on **W-6** and **W-11**
- Description in lectures + lab clinics

# Logistics

# Website



[darribas.org/wmn](http://darribas.org/wmn)

# Lecture/Labs

**Lectures:** *Fridays 1pm-2pm @Teams*

- Live streams + video archive
- Underlying concepts + Context

**Labs:** *Fridays 3pm-5pm @Teams*

- Hands on
- Interactive

# Teams

The screenshot shows the Microsoft Teams application interface. The left sidebar has a dark theme with white icons and text. It includes links for Activity, Chat (with 1 unread message), Teams (selected), Assignments, Calendar, Calls, Files, and Apps. The main area shows the 'ENVS456' team page. The top navigation bar has back/forward arrows, a search bar, and a user profile icon. The team navigation bar includes General, Posts, Files, Class Notebook, Assignments, Grades, and a plus sign for new items. The 'General' tab is selected. The main content area displays a welcome message: 'Welcome to ENVS456' and 'Choose where you want to start'. It features an illustration of a blue notebook, red scissors, and colored pencils. Below the illustration are two buttons: 'Upload Class Materials' and 'Set up Class Notebook'. At the bottom, there's a text input field with placeholder text 'Start a new conversation. Type @ to mention someone.' and a toolbar with various communication and file sharing icons.

Activity

Chat (1)

Teams

Assignments

Calendar

Calls

Files

...

Apps

Help

< All teams

ENVS456

...

General

Posts

Files

Class Notebook

Assignments

Grades

+

Search or type a command

General

Welcome to ENVS456

Choose where you want to start

Upload Class Materials

Set up Class Notebook

Start a new conversation. Type @ to mention someone.

A ⌂ ☺ GIF 🎉 ➡️ 📁 ...

...

# Homework

- Bring at least one example of web mapping that you find compelling
- Contribute the link to Teams



Web Mapping & Analysis by Dani Arribas-Bel is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.