
A topographic map with contour lines and a blue river, overlaid with a black barbed wire pattern. The text is centered on a yellow background.

BEYOND ESRI RESOURCE GUIDE



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WHY MOVE BEYOND ESRI?

Many geographers know that Esri's ArcGIS platform is regarded as the "industry standard" and the majority of GIS training programs in geography departments throughout North America and globally train students in GIS using Esri's platforms. Esri is the platinum sponsor of the American Association of Geographers' annual conference each year and in 2022 was the sole [Platinum Sponsor](#), reflecting a \$15,000 or higher investment.

But what is often overlooked in geography, is that Esri is also the leading company offering mapping, and geo-spatial analysis platforms and services, to police departments, law enforcement agencies, branches of the US military, and the US "cimmigration" apparatus. Esri is in the business of training police to utilize GIS tools, by providing [webinars](#); [courses](#); [resources](#) such as blogs with video trainings and case studies about police departments implementing their tools; literature such as [books](#) and [white papers](#) that promote the use of GIS in both policing and corrections; as well as conferences and [summits](#) for law enforcement. All of these elements come together under the umbrella of Esri's "Law Enforcement Solutions" which purport to provide law enforcement agencies with "[The Complete Modern Police Mapping and Analytics System](#)."

Following calls across universities for [Cops Off Campus](#), and the work of solidarity with abolition movements across the world, we call on geographers to begin to divest themselves from the creation of carceral space by moving beyond Esri. We created this guide as a resource of open source and low cost alternatives to Esri, as well as links to projects and publications that challenge the hegemony of Esri and carceral logics in geospatial analytics. Though it might seem difficult to change our approaches to the technology we use, especially given that Esri holds a dominant share of the worldwide GIS market, we believe that this first essential step can only be made by developing an alternative research praxis. We welcome feedback on this edition of the resource guide.

Please be in touch: makingabolitioningeo@gmail.com

[This intro is an edited version of the essay "Beyond Esri: Moving Toward Abolition in Geography" by Jane Henderson and Leah Montange in Society + Space.](#)



PLATFORMS/SOFTWARE FOR MAKING A (BASE) MAP

FELT

Felt is a relatively new startup for making simple maps online
Right now, free
Mark up and export a quick map
Do not use to create or upload your own datasets

FIELD PAPERS

Online tool for making “atlases”
Particularly useful for crowdsourced data collection projects
Will automatically grid an area and export it as multiple PDFs

MAP TILER CLOUD

Web-based
Lets you use different templates and add features

PRETTYMAPP

A kind of neat tool that automatically creates basemap views
May be useful for presentations
Not useful if you need to overlay data

QGIS

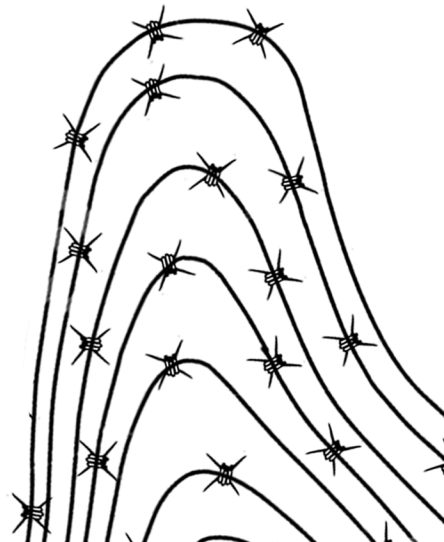
Use QGIS for anything from basic map-making or complex spatial analysis
Everything you can do in ArcGIS, you can also do in QGIS

QGIS User Guide

Desktop software (requires a download—here’s a [Twitter tutorial for first-time users](#))

SCRIBBLE MAPS

Web software, similar to Felt, for marking up basic maps
For now, they have a free tier
Not good for doing spatial analysis





GEOGRAPHIC INFORMATION SYSTEMS (MOST ARE FREE)

DIVA GIS

Comes with free data

GRASS

Integrated into QGIS for advanced analytical capabilities, but can also be used on its own

QGIS

SAGA GIS

TERRSET


Not free, but moderately priced

Windows-based

Basic mapping, Image processing, predictive geo-spatial modeling, many many features

WHITEBOX GAT

Open source desktop GIS and remote sensing software package for general applications of geospatial analysis and data visualization.



CREATING "STORY MAP" TYPE-STUFF (AND OTHER EXPERIMENTAL WEB MAPPING APPS)

[KNIGHTLAB AT NORTHWESTERN UNIVERSITY](#)

[LEVENTHAL MAP & EDUCATION CENTER](#) tools for map-making and storytelling
[panel-truck](#)
[MovieMaps](#)

[STORIIIES](#)

A tool by Cogapp for digital storytelling (similar to panel-truck)

[STORYMAPJS](#)

A free tool for creating story maps

[See here](#) for their main site and other examples of their tools

Useful as a replacement for ArcGIS StoryMaps

[STORYMAPJS](#)

This is different from the above tool, but they both do basically the same thing

[A NEAT THREAD ON MAKING EMOJI MAPS](#)

Just kind of fun to know about

GEOREFERENCING TOOL

[ALLMAPS](#)

Developed by Bert Spaan, a free platform for georeferencing
It allows you to georeference any IIF-compliant map without
downloading any software

Still actively under development



FREE ONLINE TOOLS FOR GEOCODING AND DATA CREATION/MANIPULATION

[ETHERMAP](#)

A simple tool for creating point data
Allows for anyone with the link to collaborate/edit
Exports to [GeoJSON](#)

[FLOWMAP.BLUE](#)

Free flowmap maker!
Use this to create maps that capture flows and movements,
e.g., trade routes, travel, etc

[GEOPIFY](#)

Allows you to geocode up to 500 addresses by simply uploading properly formatted CSV or text file

[GEOCODE ADDRESSES WITH GOOGLE SHEETS \(FIRST OPTION\)](#)

Tutorial for geocoding using Google Sheets

[GEOCODE ADDRESSES WITH GOOGLE SHEETS \(SECOND OPTION\)](#)

This one might require some technical finesse

[GEOJSON.IO](#)

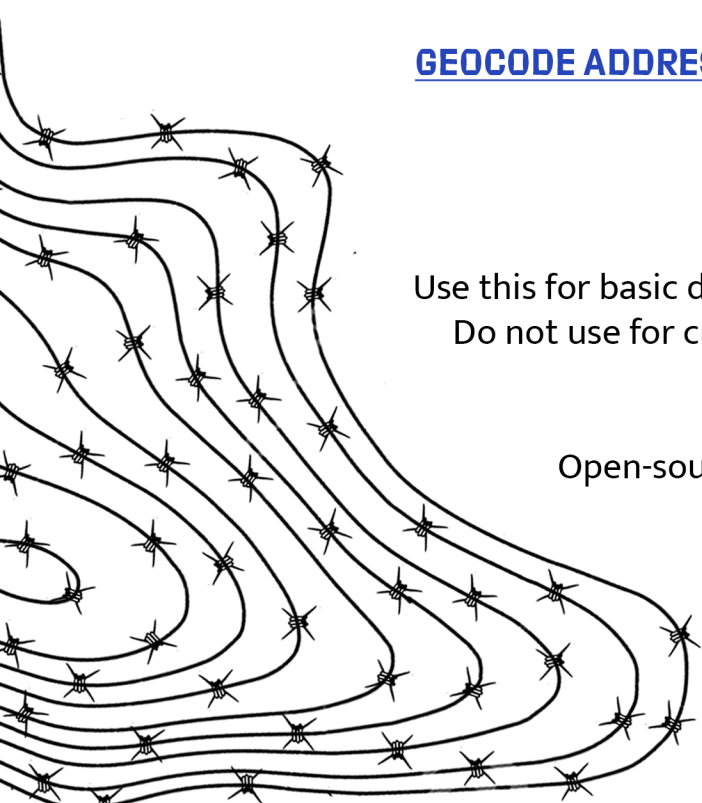
A website for viewing and creating .geojson data
Use this for basic data creating or for viewing existing .geojson data
Do not use for creating data that needs to be topologically sound

[GEONODE](#)

Open-source geospatial data content management system

[MAPSHAPER](#)

Editor for spatial data
Similar to Geojson.io





GEOSPATIAL DATA PROCESSING, ANALYSIS, AND VISUALIZATION

R

R is a language and environment for statistical computing and graphics, containing numerous packages useful for working with geospatial data.

[Geocomputation in R](#) by Robin Lovelace is a free e-book on geographic data analysis, visualization, and modeling in R, including map-making and interfacing with GIS tools. Chapter 9 reviews interactive and static map-making packages in R, notably [leaflet](#) and [tmap](#).

Chapter 10 focuses on ‘bridges’ between R and three mature open source GIS products: [QGIS](#) (via the package `qgisprocess`), [SAGA](#) (via `Rsgacmd`) and [Grass](#) (via `rgrass`).

JAVASCRIPT

JavaScript is a programming language used in building websites (and also in non-web environments), with numerous third-party libraries available for web-mapping and geospatial analysis, including the following.

LEAFLET

Leaflet is a JS library for displaying maps and spatial data

[Here's a handy tutorial from some Leaflet experts!](#)

Do not use Leaflet for data creation or editing

OPENLAYERS

Similar to Leaflet; a JS library for displaying maps and spatial data

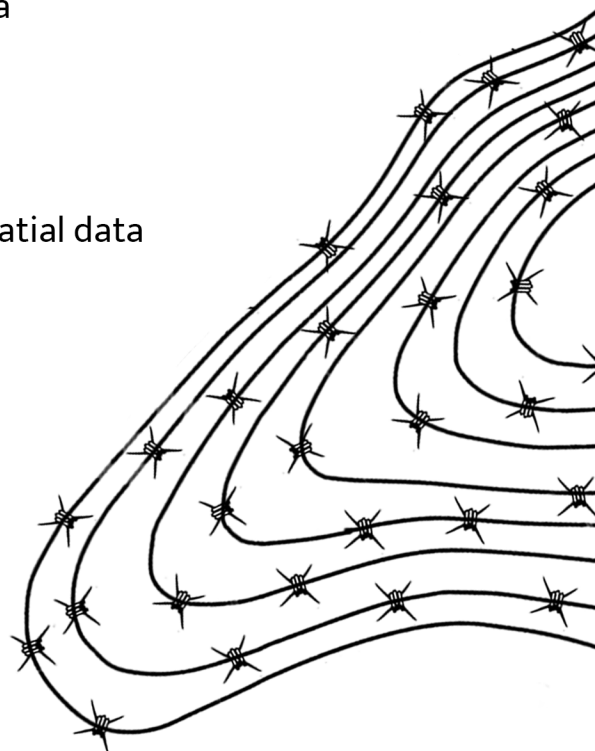
More advanced than Leaflet

This Mapscaping podcast [page](#) focused on OpenLayers is a great place for beginners.

TURF.JS

A JS library for spatial analysis

Use Turf.js to analyze data in a web browser





GEOSPATIAL DATA PROCESSING, ANALYSIS, AND VISUALIZATION

PYTHON

Python is a computer programming language used for automating tasks. It contains several useful libraries for geospatial data analysis, visualization, web mapping, and more, including the following.

Folium

Folium is a Python library that takes structured data and turns it into Leaflet maps

Useful for folks with Python knowledge

Leafmap

Python package for geospatial analysis

GeoPandas and geoplot

Useful for geospatial operations and data visualization in Python
This [tutorial](#) and [examples gallery](#) provide a great place to start.

PyGIS

Python package for spatial analysis and remote sensing

POSTGIS

PostGIS is a geospatial database for storing geospatial data and running SQL-based queries.

The [documentation](#) page of the PostGIS website features regularly updated links to the latest open-source books.





TOOLS FOR CREATING DASHBOARDS TO DISPLAY DATA

SHINY

Open Source, [R-](#) or [Python-based](#)

Can publish dashboards on the web for free as long as your link doesn't meet a certain threshold of use (doesn't work for high-traffic publication), with annual [subscription](#) options for higher-traffic applications.

DASH PLOTLY

Python library for building data visualization interfaces

Similar to Shiny

Originally only for Python language, but grown to include implementations for R and Julia

Open source, script based

TABLEAU PUBLIC

Platform to explore, create, and publicly share data visualizations online

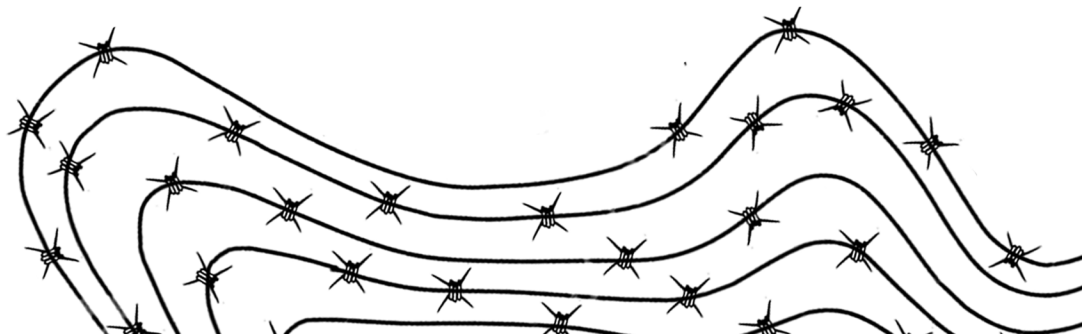
Input different types of data and have them interact together without knowing coding or programming – user interface friendly

Tableau Public is free, and the full Tableau platform has [licensing](#) options

DATA/CODE STORAGE, SOFTWARE DEVELOPMENT, AND VERSION CONTROL

GITHUB

[GitHub Education](#) allows students and educators to create free organizational accounts with access to create public and private repositories for projects.





TRAININGS AND TUTORIALS

DATA CAMP HAS WORKSHOP ON [R](#)- AND [PYTHON](#)-BASED MAPPING

[GEOSPATIAL ANALYSIS WITH R WITH LYNDON ESTES](#)

[GIS AT COLORADO STATE PROGRAMMING WORKSHOPS AND RESOURCES](#)

[GEOCOMPUTATION WITH R BY ROBIN LOVELACE](#)

[YARRR! THE PIRATE'S GUIDE TO R BY NATHANIEL D. PHILLIPS \(THE BEST\)](#)

[INTRO TO GIS WITH QGIS BY FRANK DONNELLY](#)

[QGIS TRAINING MANUAL](#)

[QGIS TUTORIALS AND TIPS](#)

[SPATIAL DATA SCIENCE WITH R](#)

[BLOG WITH EVERYTHING R AND SPATIAL](#)

[HOW TO USE LEAFLET FOR MAPPING IN R](#)

[NORMAN B. LEVENTHAL MAP & EDUCATION CENTER AT THE BOSTON PUBLIC LIBRARY \(CHECK YOUR LOCAL LIBRARIES FOR MAPPING AND DATA RESOURCES\)](#)

[VISUALIZING DATA](#)



[596 Acres](#)

[Anti-Eviction Mapping Project](#)
[Landlord Tech Watch](#)
[Narratives of Displacement and Resistance](#)

[Amber Bosse](#)

[Counter Cartographies Collective](#)
[Counter/Mapping Queen Mary University](#)

[Community Justice Exchange - National Bail Fund Network](#)

[From Data Criminalization to Prison Abolition](#)
[The Databases that Feed the System - Our Bestiary](#)

[Data Works North Carolina](#)

[The Demarest Factor: US Military Mapping of Indigenous Communities in Oaxaca, Mexico](#)
(free documentary online)

[Frank Donnelly](#)

[Durham Community Health Indicators Project](#)

RESOURCES PROJECTS AND PEOPLE



[Hacking into History](#)

[The Holistic Security Manual](#)

[Mapping Atlanta](#)

[Mandatory Reporting is Not Neutral](#)

[No Tech for ICE](#)

[Nova Cartografia Social da Amazônia](#)

[People of Color Psychedelic Collective](#)

[Radical Roadmaps](#)

[Ian Spangler](#)

[Tim Stallman](#)

[Stop LAPD Spying](#)
[Automating Banishment: The Surveillance and Policing of Looted Land](#)



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