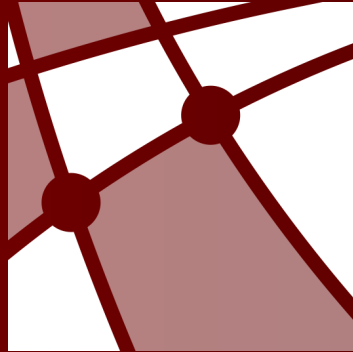


Teaching Reproducible Spatial Analysis in R

Angela Li
University of Chicago
Center for Spatial Data Science
July 11, 2019



“R Spatial Advocate”



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@CivicAngela



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**“No one’s done your job
before”**

- My boss



Introduction

Workshop Organization

Prior Knowledge

Topics

Additional information

Project Setup

GIS and Spatial Data

1 Introduction to Spatial Data

2 Single-Dataset GIS Operations

3 Multiple-Dataset GIS Operations / Vis...

4 Multiple-Dataset GIS Operations / Vis...

Visualization

5 R Markdown and Custom Maps

6 Custom and Animated Maps

7 Interactive Maps

8 Interactive Maps with Shiny

Raster Data

9 Introduction to Raster Data

Interpolation and Kriging

10 Introduction to Interpolation



R Spatial Workshop Notes

Spring Quarter 2019

Angela Li

Introduction

This site contains workshop notes from the Workshops are held on **Wednesdays at 10a** running these workshops are to teach resea

You are welcome to join us in **Searle 240B** community! Bring a laptop to follow along.

Workshop Organization

Each chapter of this [bookdown](#) book represents be uploaded after the workshop so you can

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GIS and Spatial Data

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2 Single-Dataset GIS Operations

3 Multiple-Dataset GIS Operations / Vis...

3.1 Learning Objectives

3.2 Functions Learned

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Visualization

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Raster Data

9 Introduction to Raster Data

Interpolation and Kriging

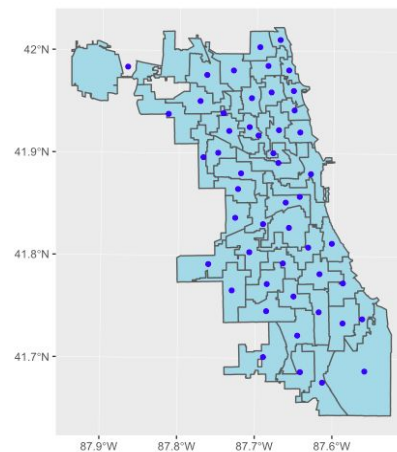
10 Introduction to Interpolation

11 Interpolation with Array of Things Data



I can also change colors and other settings.

```
ggplot() +  
  geom_sf(data = ward98, fill = "lightblue") +  
  geom_sf(data = centroids, color = "blue")
```



So far, we've plotted data that was from the same original dataset. What if we want to add a layer with Chicago's waterways?

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R Spatial

Spring Qua

Angela Li

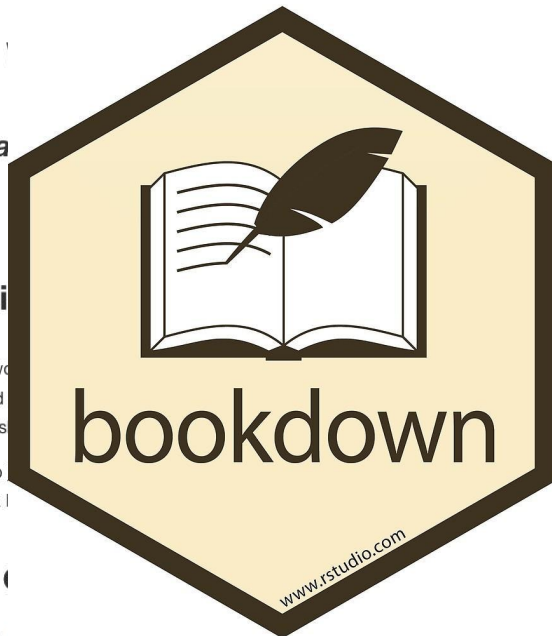
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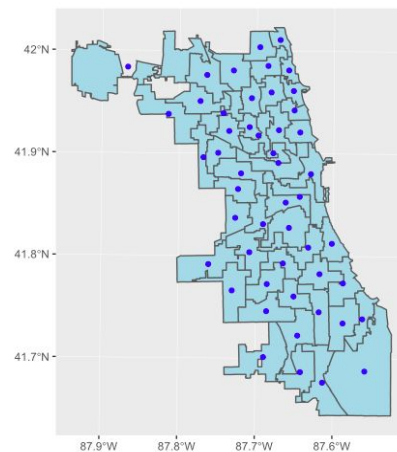
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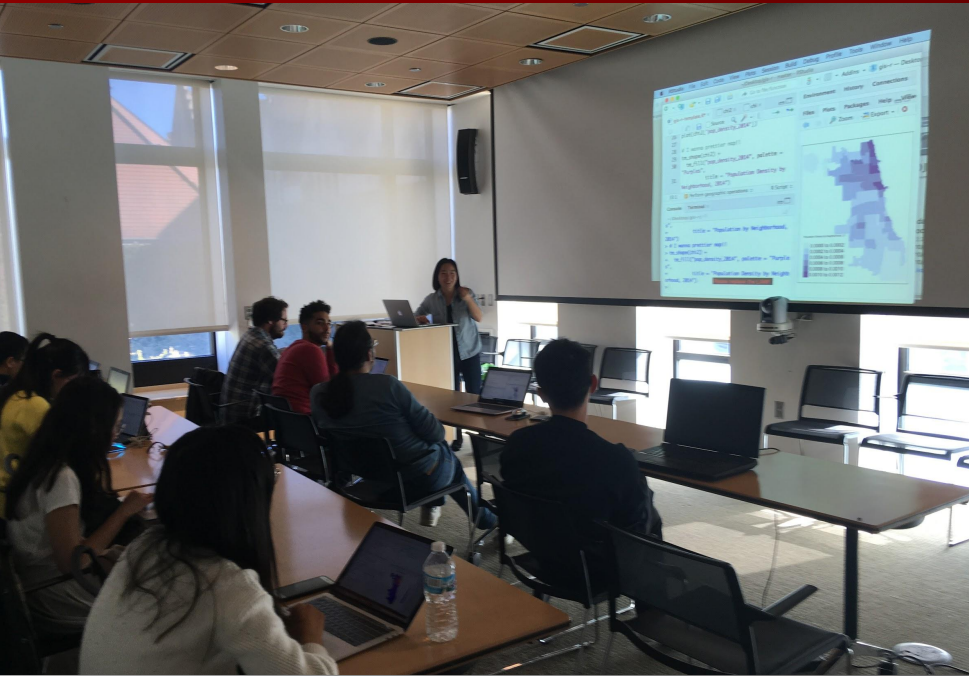
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Pilot Workshops



“Here’s how to make this rate map...”

Pilot Workshops

“It doesn’t work
for me...”



troubleshooting spatial workflows in practice

A **spatial join** is not the same as an **attribute join**. A spatial join is based on the spatial relationship between two datasets (attribute) values between two datasets. For example, you can check if this point is inside this polygon.

You can try doing an **attribute join** on command line using `dataset`, and the command `left_join()` for



The order in which you give arguments to `st_intersects` matters! I always have to look it up, but for point-in-polygon, you want the polygon first, then the points.



Note: This is where projection is extremely important. If you get an error message that says:

```
Error: st_crs(x) == st_crs(y) is not TRUE
```



that probably means that you forgot to project one of your datasets. Check the CRS with both and fix it with `st_transform`.

troubleshooting spatial workflows in practice

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contributions back

Clarify difference between `st_intersection()` and `st_intersects()` #953

 **Closed** angela-li opened this issue on Jan 19 · 2 comments



angela-li commented on Jan 19

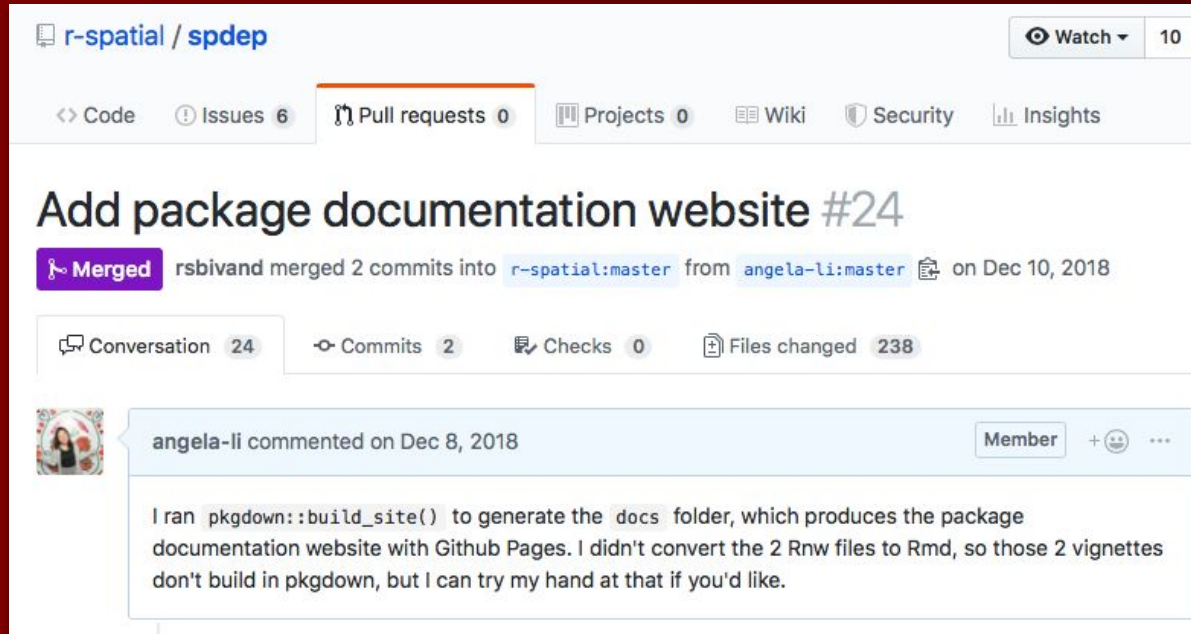
Member



It's easy to get confused between `st_intersection` and `st_intersects` because their names are so similar (People often type "`st_intersects`" when "`st_intersection`" is what they intend). I propose adding a note in the function documentation for each regarding the other function.

Additionally, we could also add a note in the vignettes clarifying the differences between the two.

contributions back

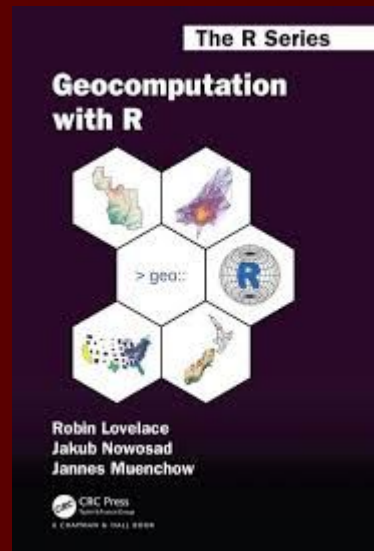


The screenshot shows a GitHub pull request for the repository `r-spatial / spdep`. The pull request title is "Add package documentation website #24" and it is in a "Merged" state. The pull request was merged by `rsbivand` into the `r-spatial:master` branch from the `angela-li:master` branch on December 10, 2018. The pull request statistics show 24 conversations, 2 commits, 0 checks, and 238 files changed. A comment from `angela-li` dated December 8, 2018, is visible, stating: "I ran `pkgdown::build_site()` to generate the `docs` folder, which produces the package documentation website with Github Pages. I didn't convert the 2 Rnw files to Rmd, so those 2 vignettes don't build in pkgdown, but I can try my hand at that if you'd like."

it's worth it!



thank you!



Learn Spatial Analysis

Online resources, tutorials, and more

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spatialanalysis.github.io

Spatial data in the R ecosystem.

- Contributing to open source spatial packages in R, improving documentation for common packages, and developing new software where functionalities are missing.

Please check back frequently as this site will be updated while we develop new resources!

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