SPATIAL DATA STORYTELLING FOR CLIMATE ACTION

Exploring the intersection of community resilience, research, and science communication

a lightning talk by Olivia Zhang, Path to Purpose Fellow ‘24

AGENDA

- Environmental Justice
- What is GIS?
- What is AI?
- GeoAI Applications for Environmental Justice

Environmental Justice

Climate change **disproportionately impacts** low-income communities that are predominantly people of color, referred to as *environmental justice communities*.

In order to effectively address environmental injustice, we must work with communities to **co-create solutions** that are equitable and sustainable.

Environmental Racism

Environmental racism refers to the racial disparity in facing climate change and accessing sanitary and clean environments (Patnaik et al., 2020).

WHAT IS GIS?

Geographic Information Systems

A tool used to analyze, visualize and map data that has a location

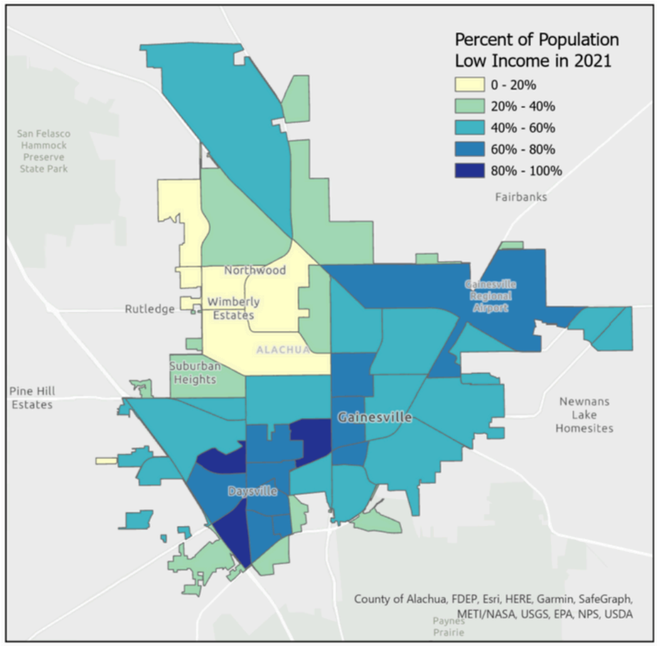
Helps us understand spatial patterns

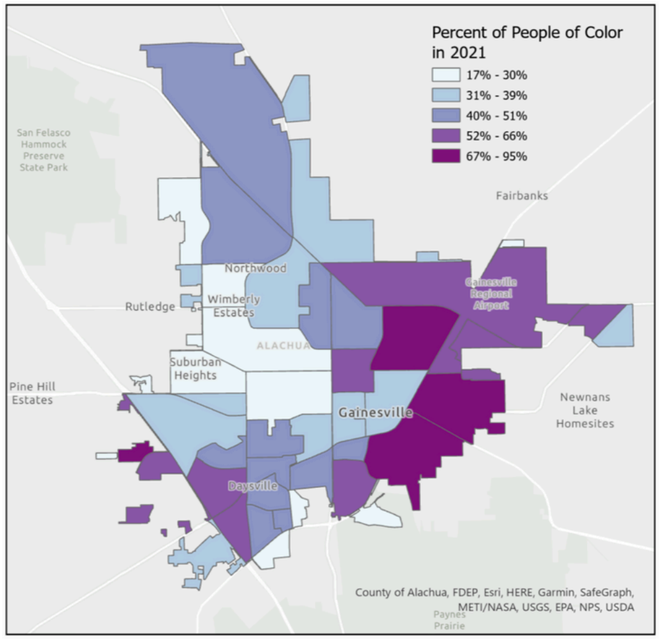
Examples

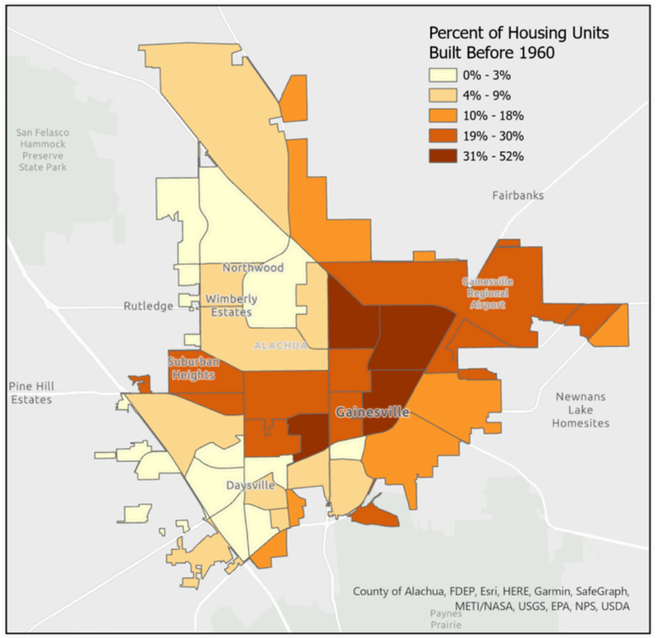
- Food deserts: which areas have limited access to healthy, affordable food?
- Sea level rise: which areas are vulnerable to sea level rise?
- Extreme heat: which areas are seeing the impacts of extreme heat?

GIS IN ACTION

Environmental Justice in Gainesville







Maps showing Census tracts of Gainesville, based on 2021 data sourced from US EPA Environmental Justice Screening and Mapping Tool (EJSCREEN) downloaded from the Florida Geographic Data Library.

WHAT IS AI?

Artificial Intelligence

Technologies that allow computers to make sense of data

Applications in Climate Analysis

- Predicting future land cover change based on historical and present data
- Identifying pollution in satellite images
- Predicting likelihood of wildfire occuring

AI is one part of the solution: Combined with policy and community-engaged research, we can collaborate to address the climate crisis

GeoAI

Intersection of AI and Geospatial Analysis

Finding patterns in spatial data, making predictions, forecasting

Using the past to understand the present and predict the future

- Extreme heat
- Sea level rise
- Pollution

GeoAI is used in response to natural disasters, agriculture, public health, and more

However, GeoAI isn’t always accessible to communities experiencing climate change impacts. We need to ensure that it is used in an ethical and responsible way, in tandem with policy, community organizing, and other pathways of public service

References

Patnaik, A., Son, J., Feng, A., & Ade, C. (2020, August 15). Racial disparities and climate change. Princeton Student Climate Initiative. Retrieved November 19, 2022, from https://psci.princeton.edu/tips/2020/8/15/racial-disparities-and-climate-change

GeoAI: AI-driven geospatial workflows. Esri. https://www.esri.com/en-us/capabilities/geoai/overview

Climate Change AI. https://www.climatechange.ai/