AccessGeoVisDC: Interactive Visual Exploration of Physical Accessibility

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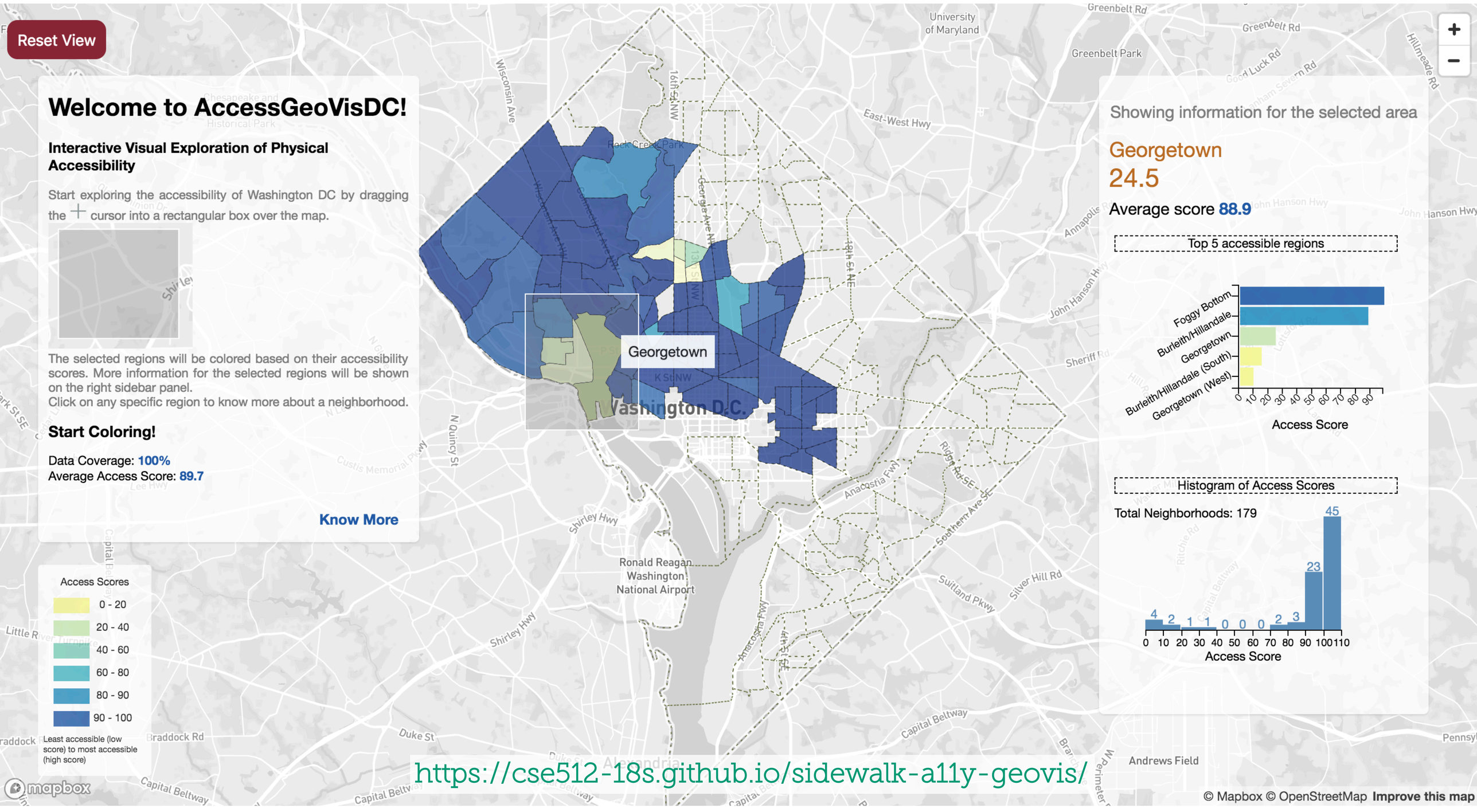


Problem

- Creating **interactive geospatial visualization systems** for **large-scale** geographic datasets
- Application domain: **Physical Accessibility of Cities**
- Accessibility **dataset** contains **>250,000 data points** spread across **1075 miles** of Washington DC
- Main **visualization task**: Find the accessibility of a region and the factors influencing the region's accessibility

1075 miles

255,000 labels

PROJECT SIDEWALK
HTTP://PROJECTSIDEWALK.IO

Design Case Study on Project Sidewalk[1] (projectsidewalk.io)

"How accessible is my neighborhood?"

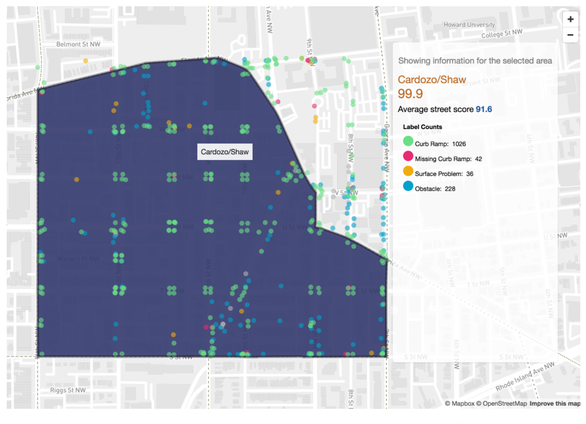
"Why does a neighborhood have poor accessibility?"

"Which are the most accessible neighborhoods?"

Visualization Techniques

- Shneiderman's **Overview first, zoom and filter, then details-on-demand** approach
- Main technique: **semantic zooming** across different visualization levels
- Supported **Interaction Primitives**: hovering and clicking; zooming and panning; brushing and linking
- Used a coloring metaphor to create a choropleth based visualization
- Made use of instructive panels to guide user at every step

Street Level



Feature Level

[1] Manaswi Saha, Kotaro Hara, Soheil Behnezhad, Anthony Li, Michael Saugstad, Hanuma Maddali, Sage Chen, and Jon E. Froehlich. 2017. A Pilot Deployment of an Online Tool for Large-Scale Virtual Auditing of Urban Accessibility. In *Proceedings of the 19th International ACM SIGACCESS Conference on Computers and Accessibility* (ASSETS '17). ACM, New York, NY, USA, 305-306. DOI: https://doi.org/10.1145/3132525.3134775

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