

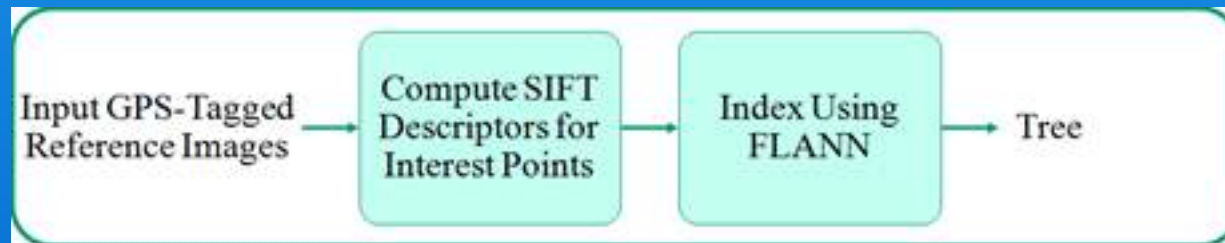
Week 4

Corey Pittman

Purpose

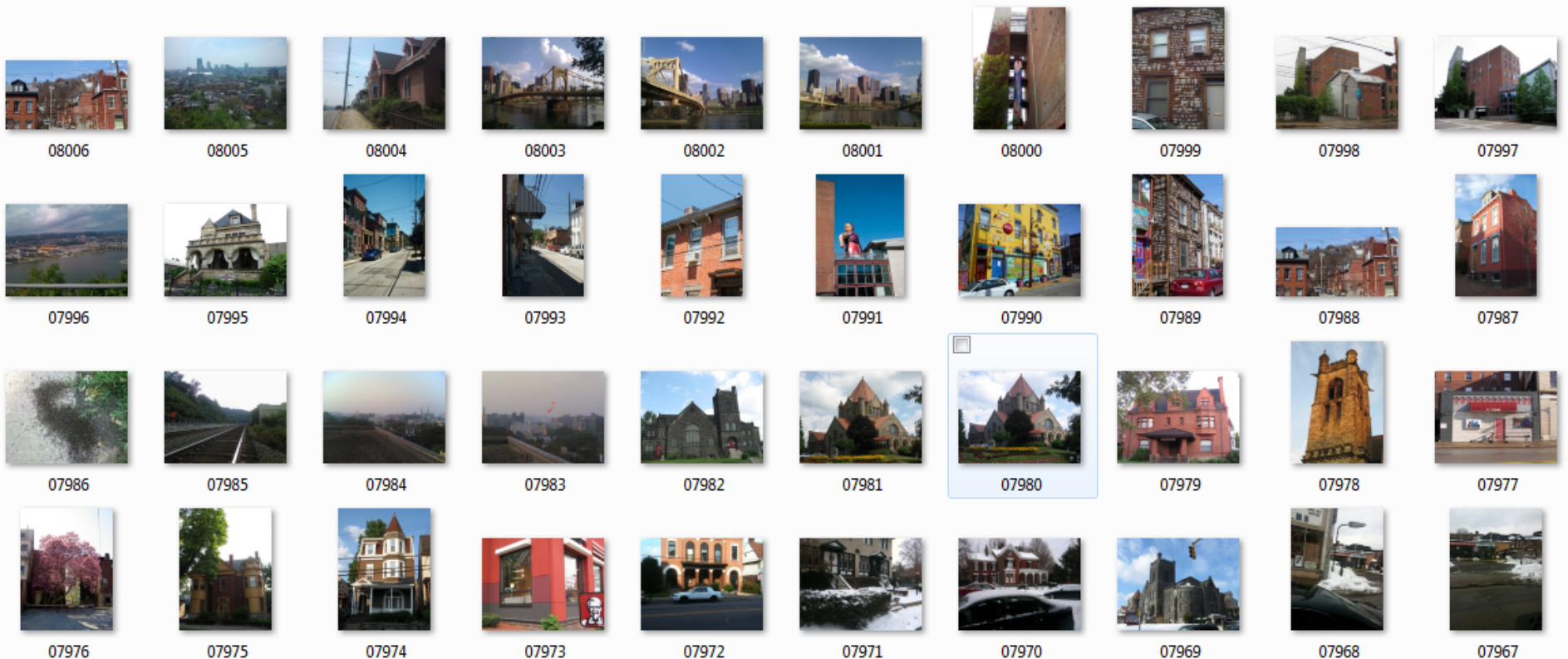
- Replace Google Street View Dataset with user uploaded images of areas.
- Could be used in lieu of Street View in places lacking it. (Asia)
- Sampled databases include Picasa, Panoramio, and Flickr.
- After collecting images, they are processed into SIFT descriptors and placed in k-means trees.
- The ECCV 10 pipework is then followed.

The initial changes are in the first pipeline of the "Where am I?" project. The input images are nonuniform and unstructured.



Initial Goals

- Find useful images from databases and structure them in a similar way to Google Street View dataset.
- Download these images and filter them down to only meaningful images.



Collection Process

- For Flickr, I adapted the IM2GPS code to our purposes.
- For Panoramio and Picasa, I designed and implemented a crawler that uses the Picasa and Panoramio data APIs, after many problems with poor documentation.
- Other possible sources include Smugmug, Imagebucket, and Zoomr.

Flickr

- Used tags to search for images in the database.
- Pre-filter: 3735 images
- Post-filter: 1048 images (28% meaningful)



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Panoramio

- Initial plan used recursive crawl.
- Wrote a crawler that used Data API (REST) to return JSON format image information (Image URL, latitude, longitude).
- Post-filter: 3817 images

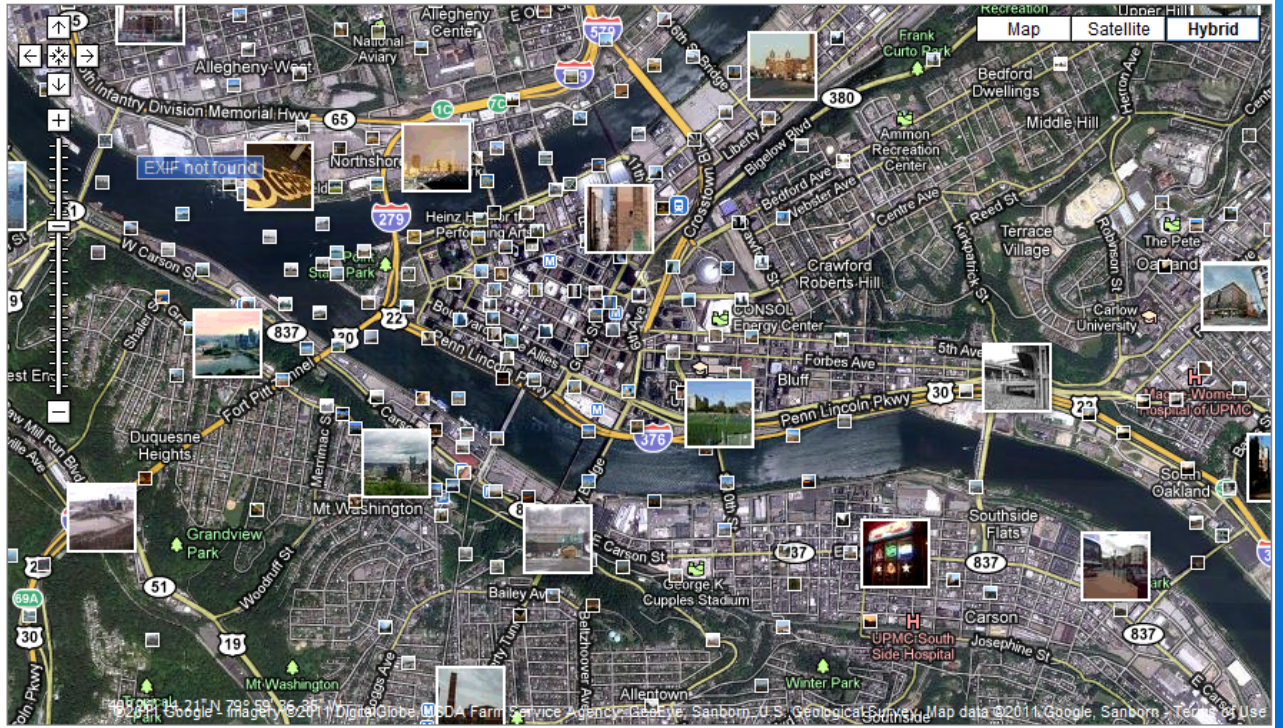
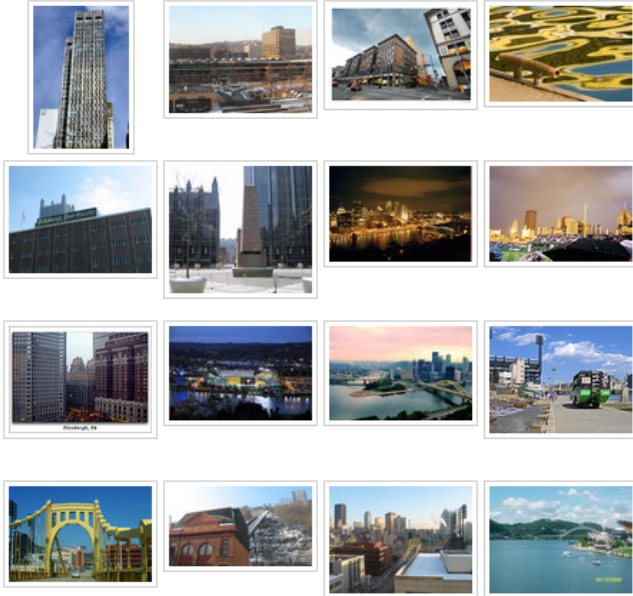


Panoramio Problems

- Crawling through the widgets was very difficult.
- Tried to create a spidering crawler for the image page, but it searched along a pool of about 40 images instead of all images.
- Also tried to download all images from a map area as displayed in next slide.
- Finally found the Data API documentation and used that to write the crawler.

Popular Recent

Also show photos not selected for Google Earth



World Map > USA > PA > Pittsburgh

Under the Fort Duquesne Bridge

See in Google Earth Share on: [Social Media Icons]



by [George Sled](#)

This photo is selected for Google Earth [?] - ID: 23757419

[More photos by George Sled](#)

in Point State Park, 101 Commonwealth Pl # 1, Pittsburgh, PA 15222-1249, USA

40° 26' 35.61" N 80° 0' 27.79" W
 Misplaced? [Suggest new location](#)

Picasa

- Similar to Panoramio Crawler, used Data API to crawl.
- Pre-filter: 25,598 images
- Post-filter: 3,261 images (12.7% meaningful)



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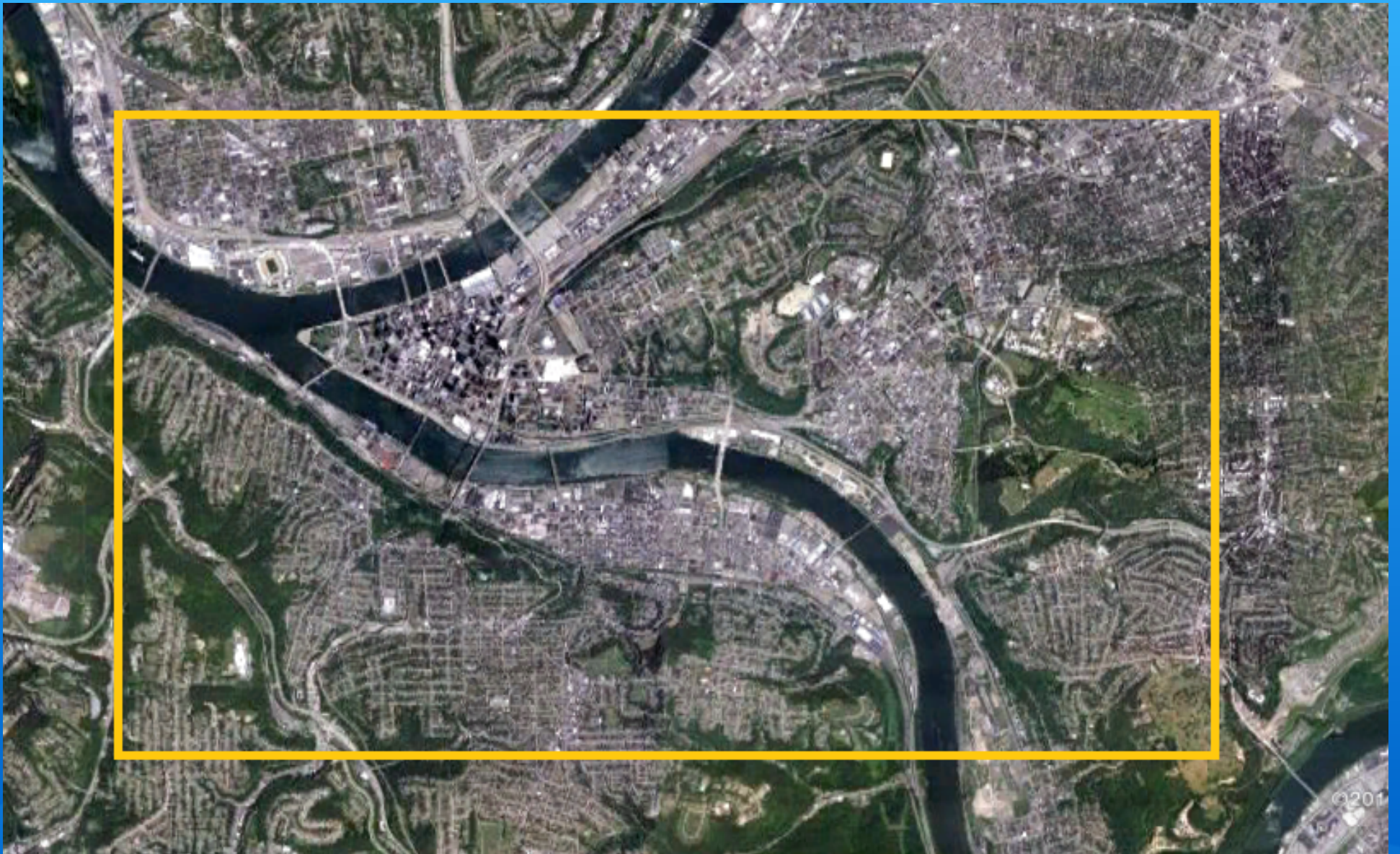
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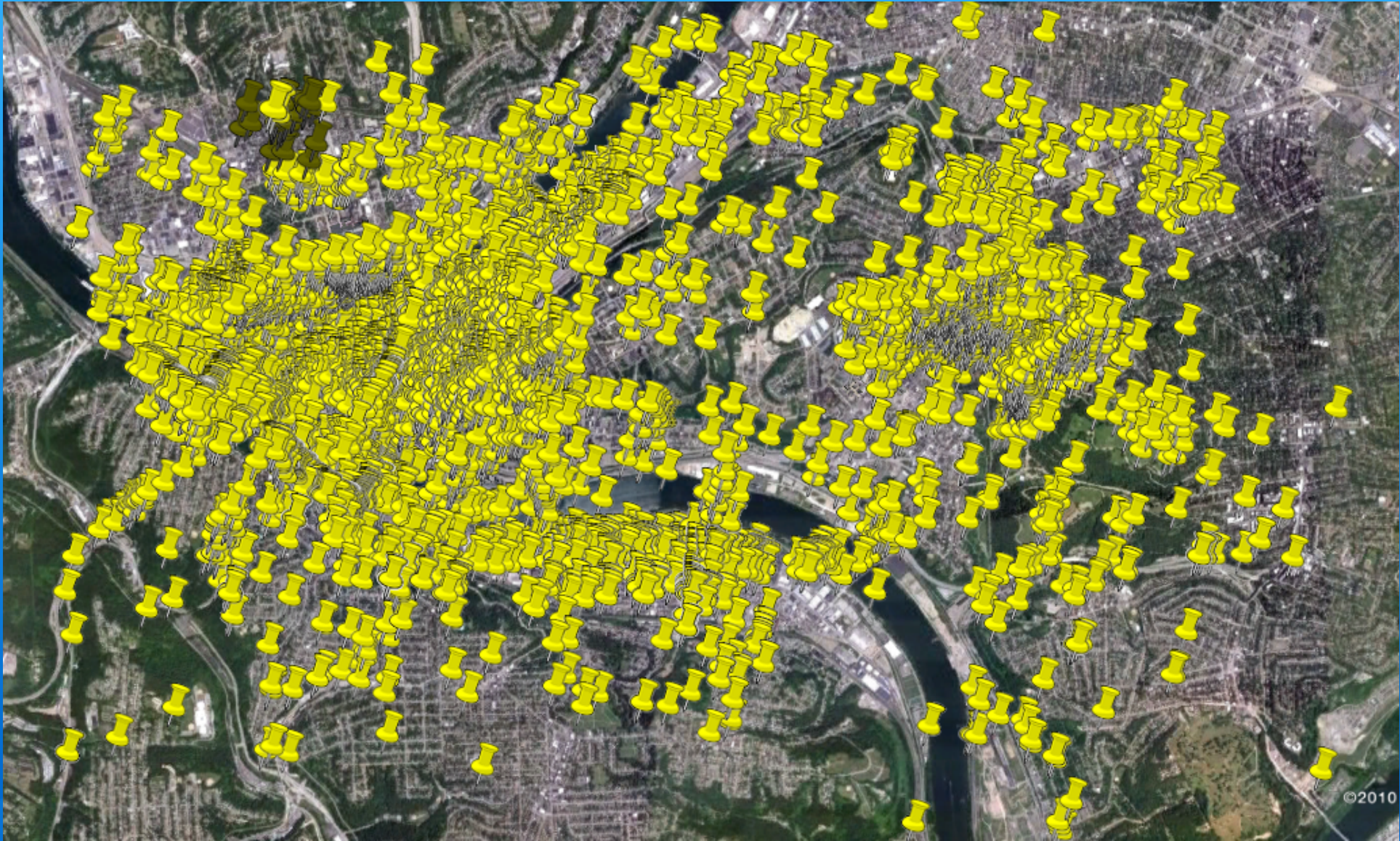
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Designates search area

Comparison of Dataset to Street View



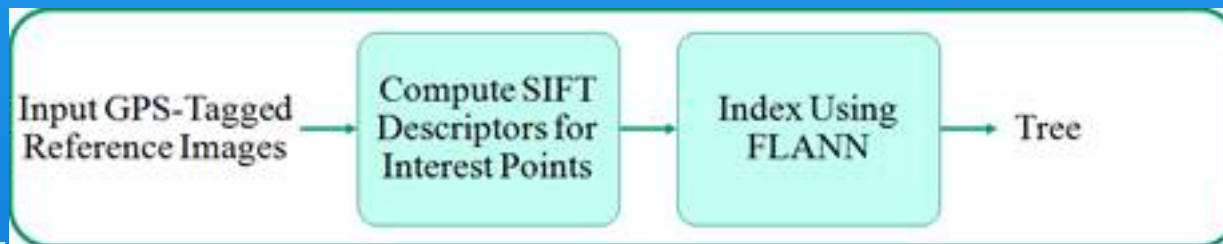


Problems

- Incorrectly tagged images seem to be common. query results will show the effect of this.
- Solution would be to localize all dataset images with the Google Street View database to check the new dataset's accuracy.

Progress and Next Steps

- Only need to build the trees and localize images now. Descriptors have been extracted.



- Will look at downsides of the current algorithms for these images.