Helping entrepreneurs create great local businesses ...a new opportunity for Yelp

Mike Amodeo
Tom Seddon
UC Berkeley, School of Information
Master of Information and Data Science students

Berkeley SCHOOL OF INFORMATION

Yelp connects people with great local businesses...

...what if Yelp could also help <u>create</u> great local businesses?

How can Yelp do more with its data?

Much of the published work on Yelp's dataset has concentrated on applying novel techniques for language and sentiment analysis of reviews.

This has provided a lot of very useful and interesting results…

…but…

…we wondered if there were other ways to use Yelp's unique data…

…to support and enhance Yelp's mission…

…and more directly link to Yelp's strategy to enhance monetization.

Yelp can help business owners

Yelp makes money from two main sources

- Advertising
- Transactions (small but growing)

Fees paid largely by business owners

Yelp's existing investment in its sales force and community managers provides great contact opportunities to help these business owners with other problems.
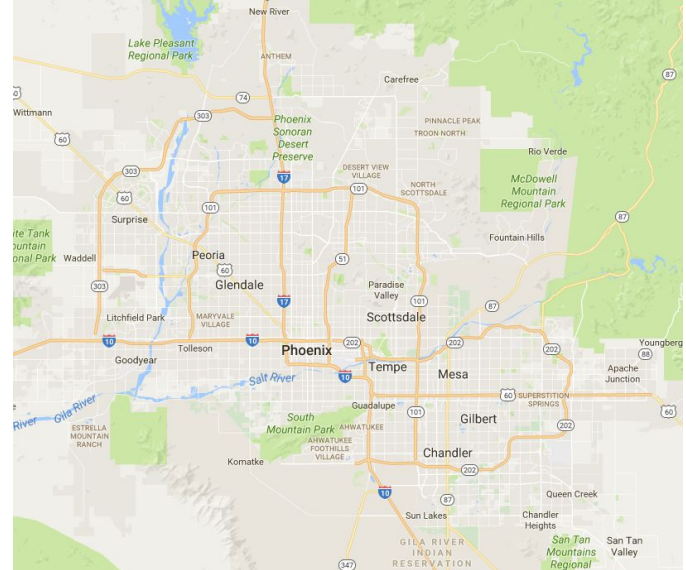
So are there new problems that business owners have, that Yelp is in a unique position to help with?

Business owners need help with <u>location</u>...

You have a great idea for a business...

...but where should you open it?

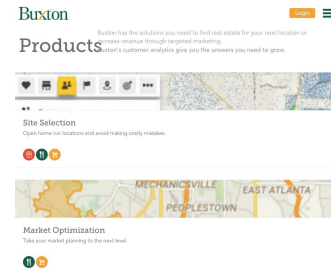# Existing approaches have problems…

Advice from a local commercial real estate broker…

- Can I trust them?
- How do I know they looked everywhere in town, not just where they know?
- Are they just showing me where they have listings?
- How well do they know demand for my business?

…or expensive, proprietary tools

- Really expensive
- Too complicated for most entrepreneurs to trust - they want to be able to understand why this location is picked
- Always need to do 'feet on the street' research anyway, so data only gets you so far

How to identify an attractive location?

Two important questions…

Where is there a lot of demand…?

Where is there weak competition…?

Can look for places where there is already supply

Can look for places where existing customers are unhappy

Yelp has a unique ability to answer both of these...
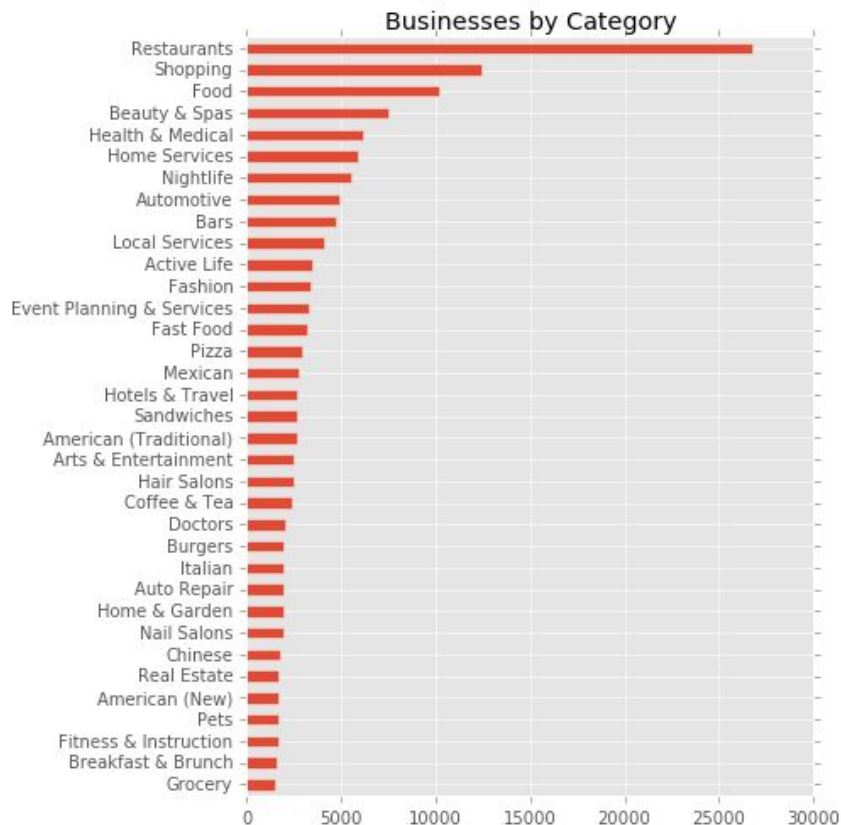
Can look for places where there is already <u>supply</u>

Can look for places where existing customers are <u>unhappy</u>

Comprehensive database of both existing <u>and</u> closed businesses

Comprehensive database of customer sentiment about the existing businesses

We illustrate this using the Pizza category

Restaurant is largest single category
- (business can be in multiple categories)

Pizza is second most common category of Restaurants
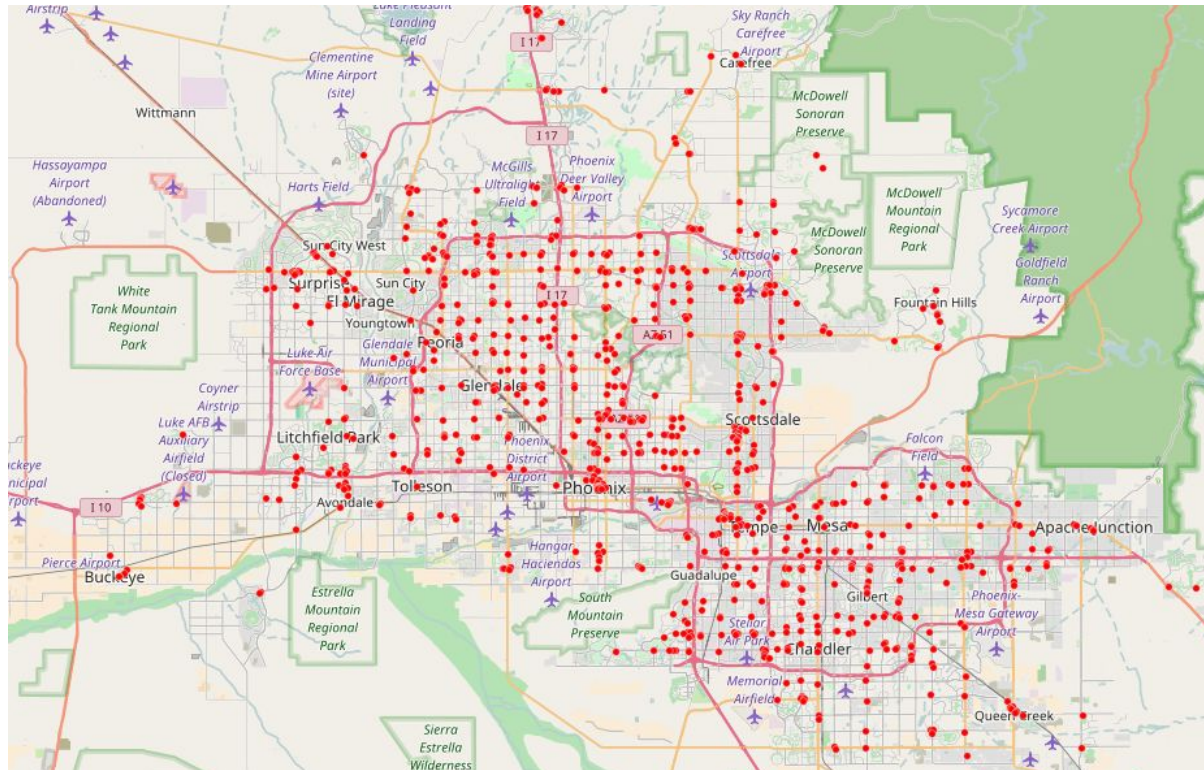
Good distribution across metros

Good spread of star rating

Everybody likes Pizza!

Methodology

1. Identify strong demand
   a. Use existing pizza locations as a demand proxy
   b. Find locations with a lot of existing pizza stores --> high demand

2. Identify weak competition
   a. Find locations where existing pizza stores have bad rating

3. Combine the two to create priorities

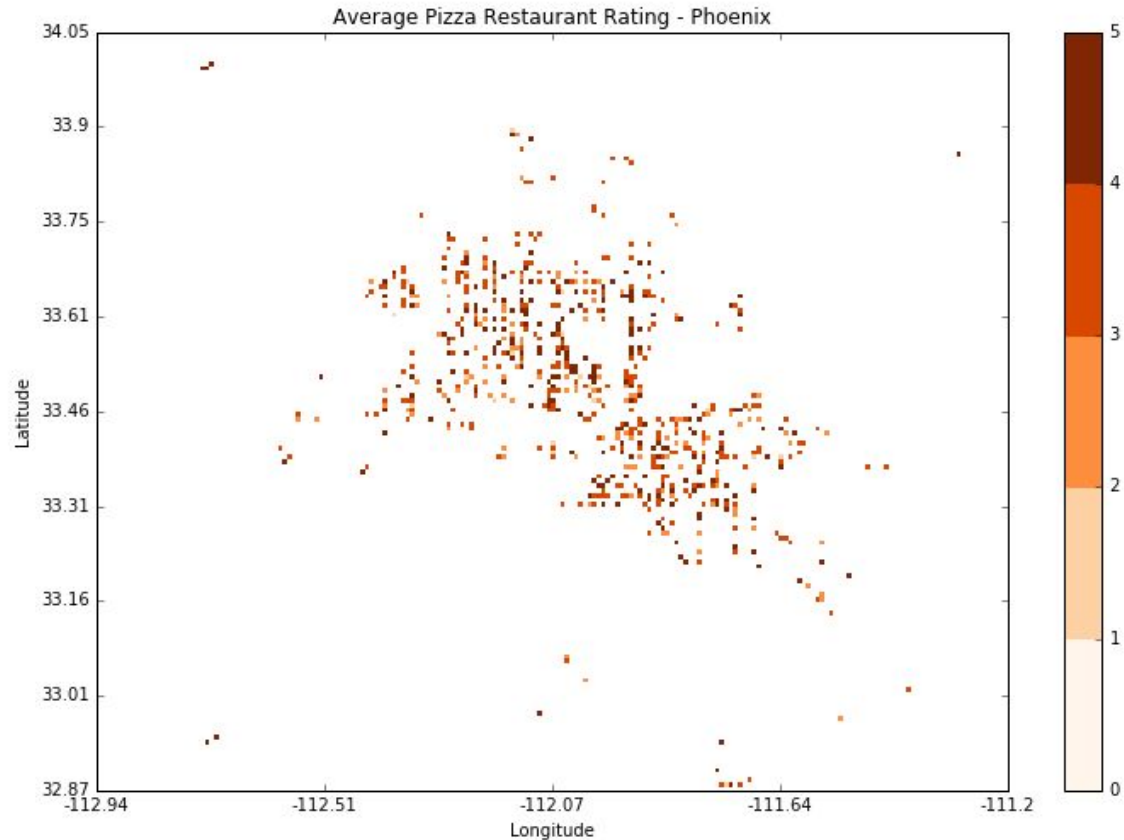4. Identify real estate that might be suitable to convert

There are a lot of Pizza places in Phoenix...

…we group them to show where demand is high…

Count of Pizza Restaurants - Phoenix
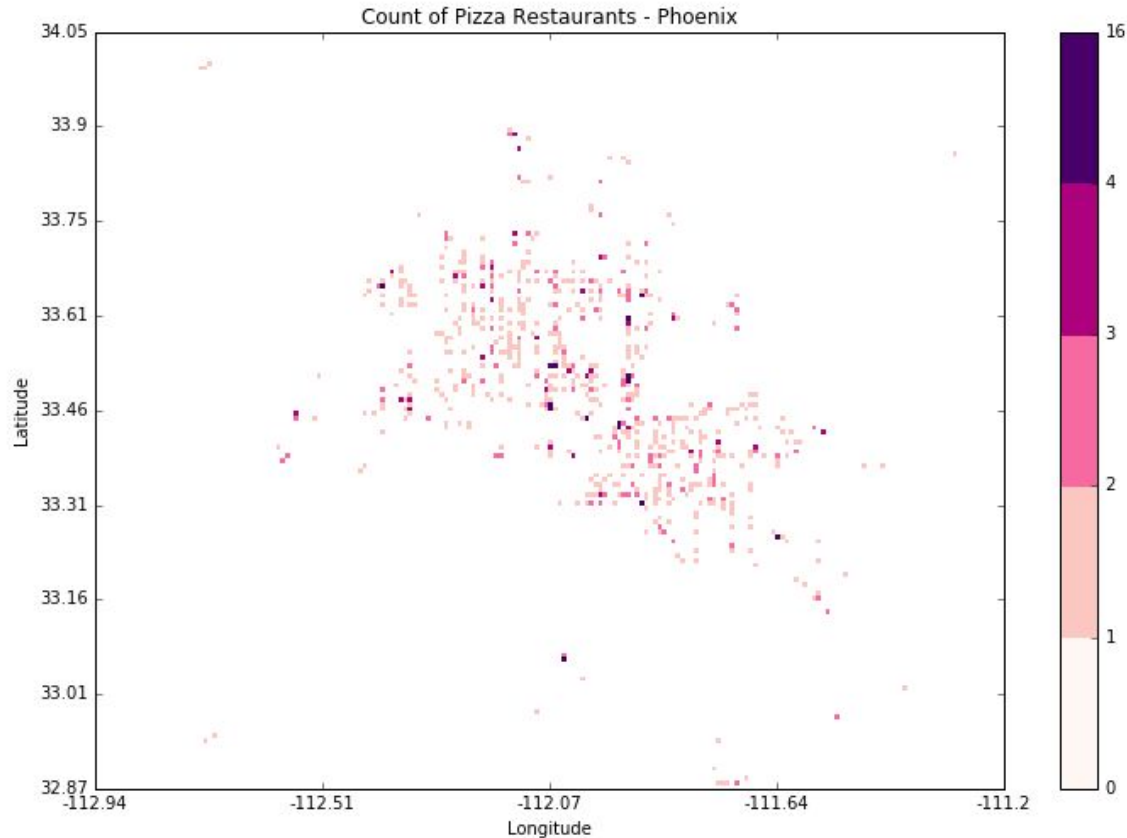
…and group to show variation in rating…

Average Pizza Restaurant Rating - Phoenix

...then apply a prioritization matrix...

Establish high priority areas as those with high demand (large counts) and weak competition (low existing ratings). Counts will vary by business type and locations.
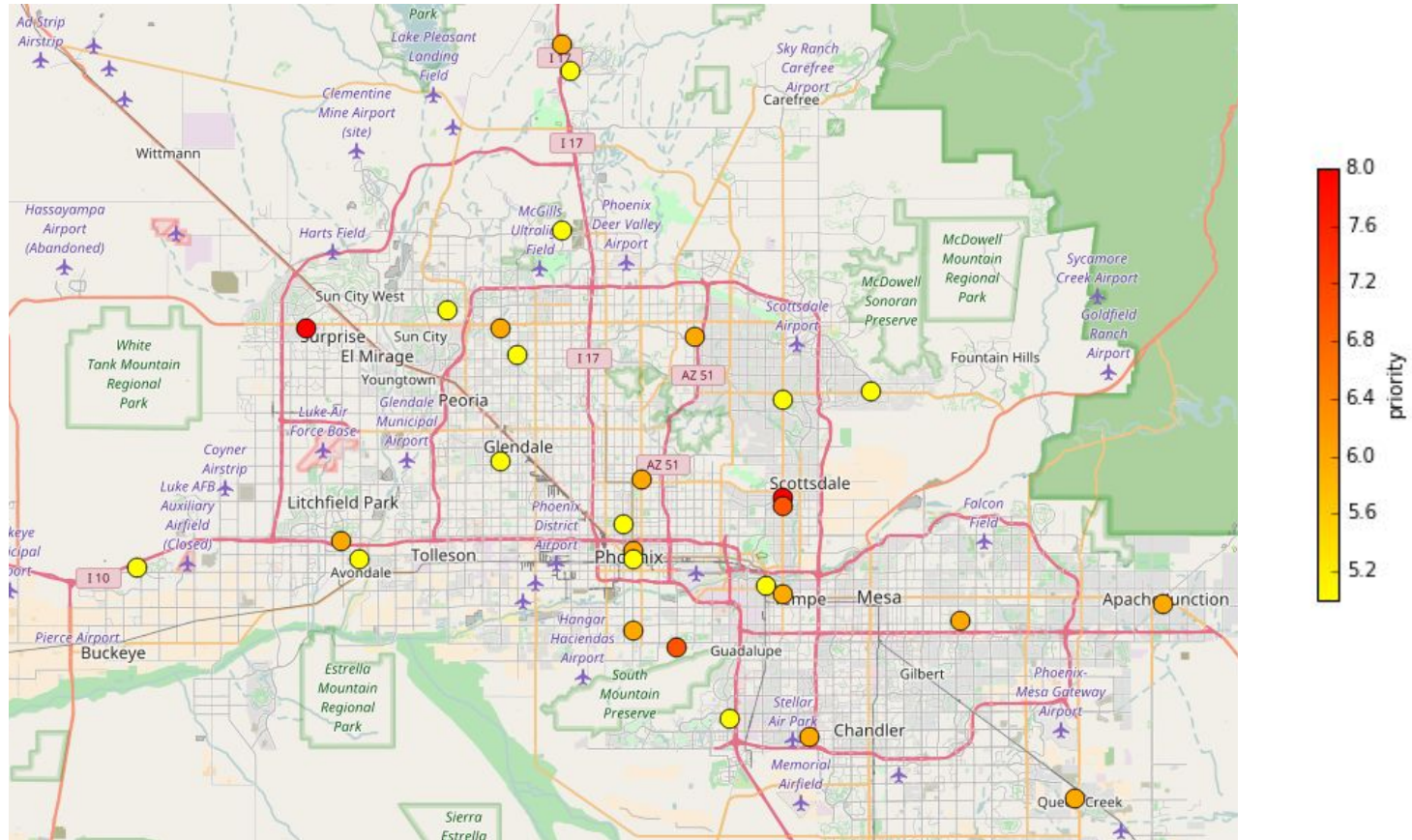
Count of cells		Average Rating of Pizza Places							
		0	0.5 - 2.5	3	3.5	4	4.5	5	All
Counts of Pizza Places	0	32,301	0	0	0	0	0	0	32,301
	1	0	115	92	113	136	44	5	505
	2	0	11	25	32	36	8	1	113
	3	0	1	8	11	9	1	0	30
	4	0	0	0	5	3	1	0	9
	5 - 16	0	0	2	1	2	1	0	6

Priority
9
8
7
6
5
4
3
2
1

14

...to give us a chart of priority locations...

Priority Pizza Opportunities - Phoenix
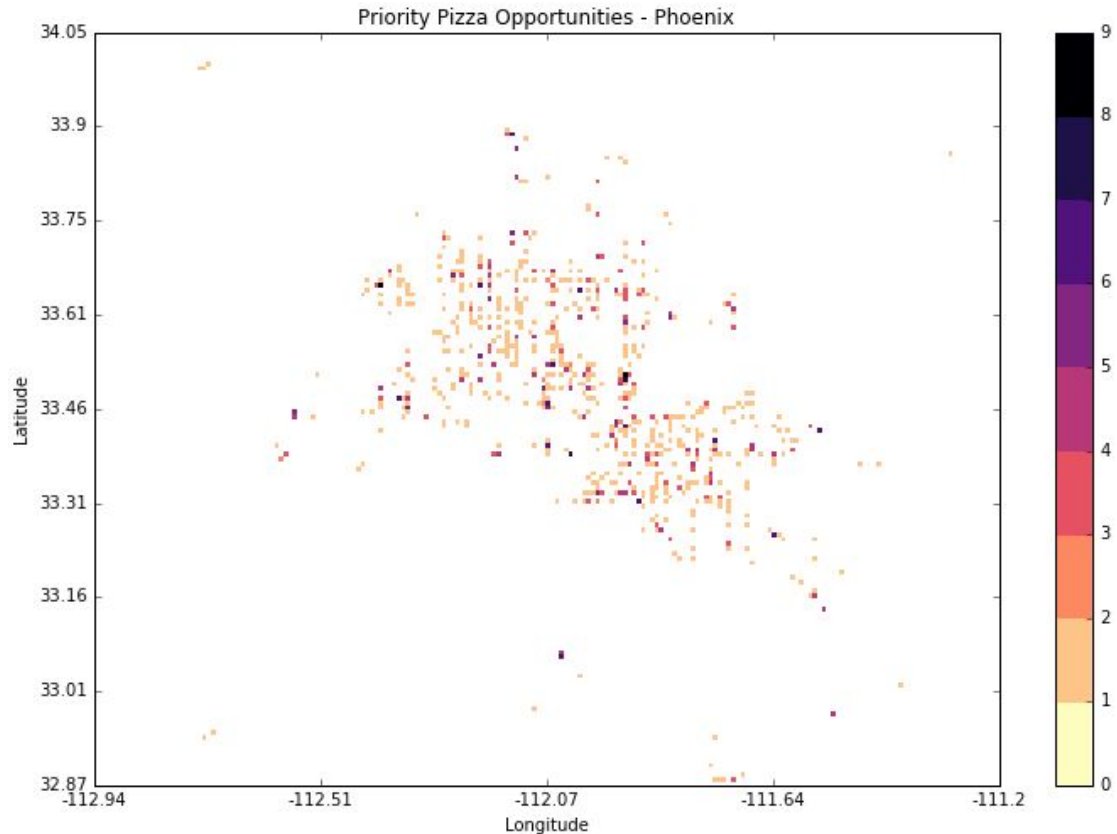
…that we can plot on a map…

Yelp's data can even pinpoint specific targets

Methodology for target locations:

- Existing Poorly Rated Restaurants
  - Restaurants with below average user ratings
  - Potential to buy these failing businesses and reopen

- Closed Businesses
  - Vacant restaurants potentially indicate available locations with cost savings for food service infrastructure
  - Check closed restaurants against all open businesses to ensure no open business in Yelp dataset at same address

…and zoom in to show detail of highest priorities

Legend:
- Closed Restaurants
- Open Pizza Restaurants
- Poorly Rated Restaurants

...and zoom in to show detail of highest priorities
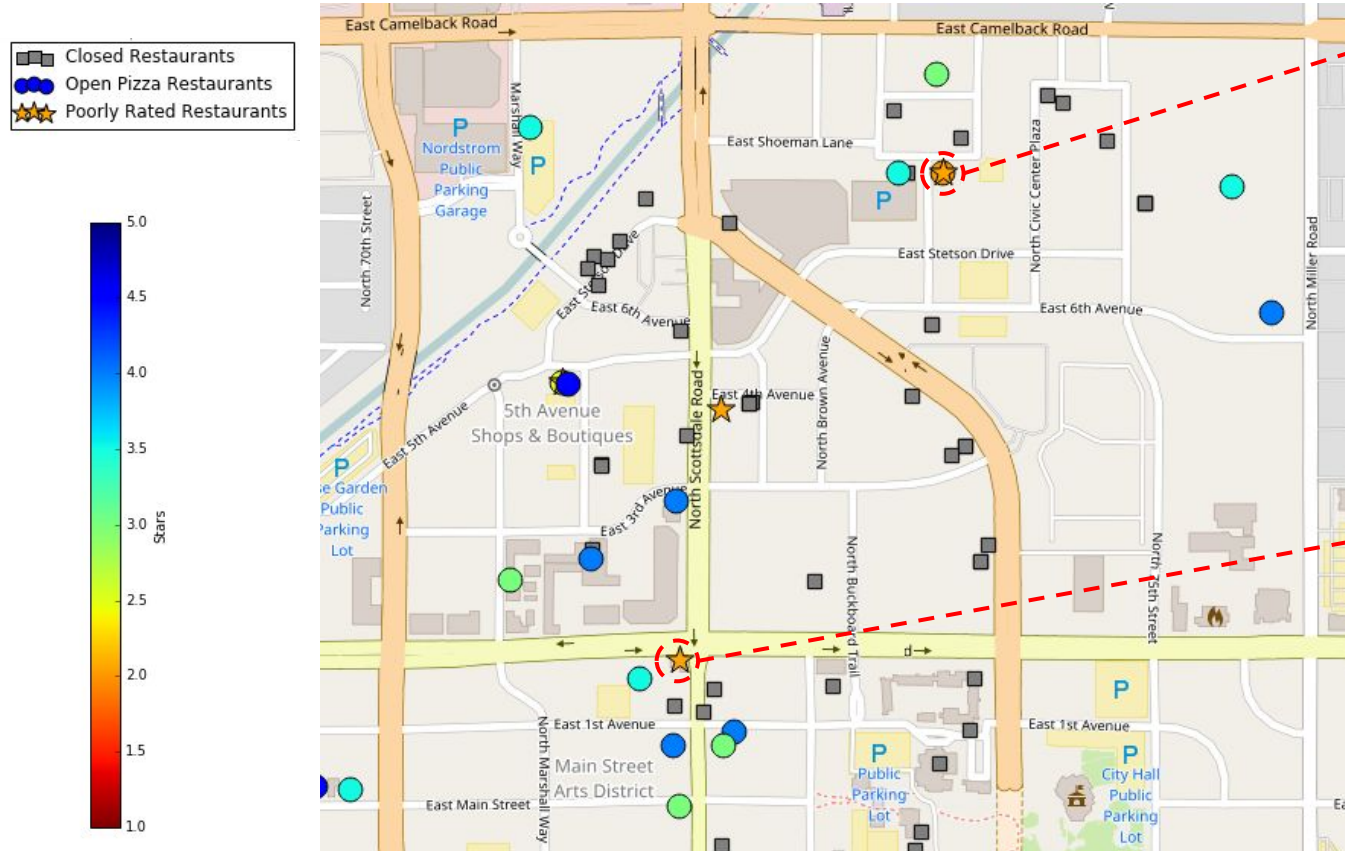
Primary target location:

- Area of multiple low rated restaurants and no highly rated restaurants

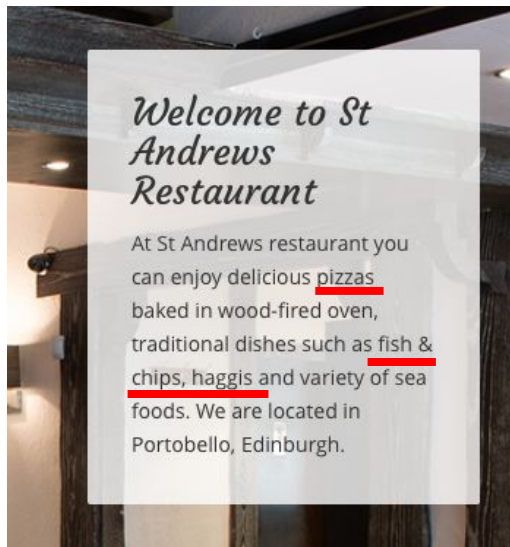- Existing pizza restaurant may present cost savings

Secondary target location:

- Some restaurants in immediate vicinity have high ratings
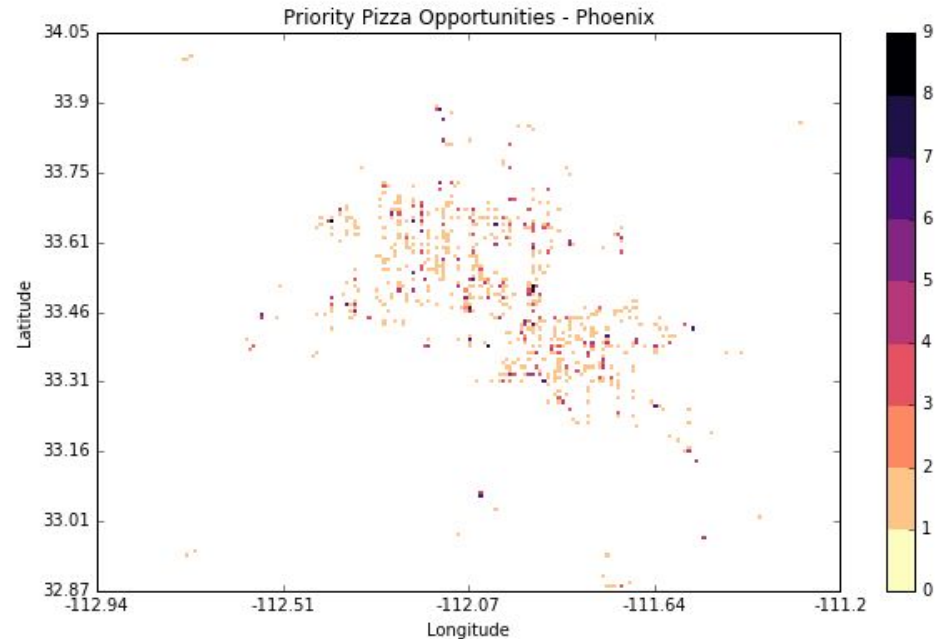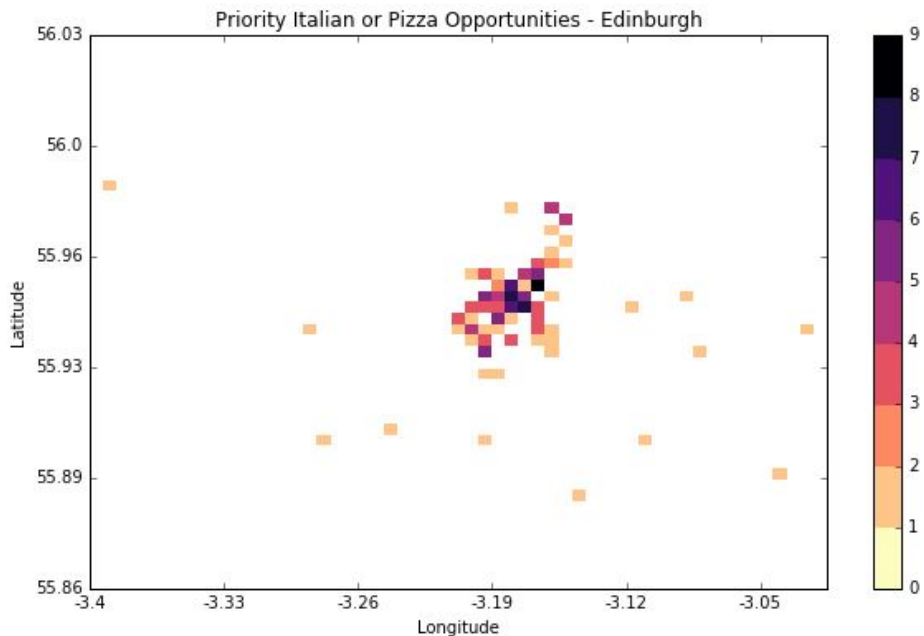
19

Applying to a different country...Edinburgh

Used a different cell size as the city is smaller

Added 'Italian' to comparison category, as not many places categorized as 'Pizza'...but that doesn't mean they don't have pizza...
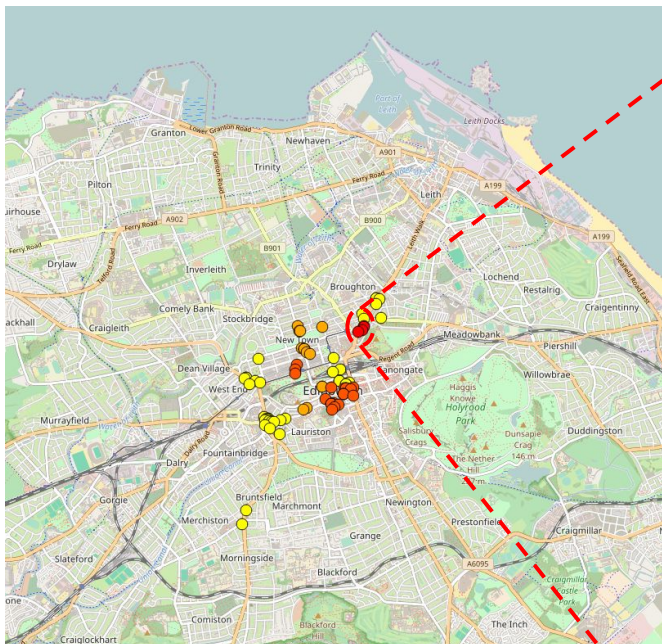

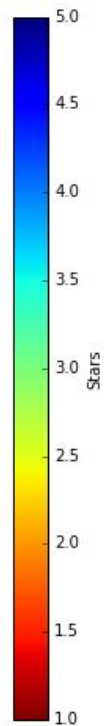**This is 'Italian' but not 'Pizza' in Edinburgh...**

...can get similar prioritization...

Priority Italian or Pizza Opportunities - Edinburgh

Priority Pizza Opportunities - Phoenix

...and map.

This is a demonstration of the idea

- We illustrated the approach with pizza, but can of course extend to other categories
  - Part of the appeal of the approach is that the 'right' category set to use can be tailored to the nuances of the local market (as in the Edinburgh example), or the business owner's target concept (e.g. high end restaurants only; weigh 'elite' reviewers differently)
- We also consciously kept the approach simple
  - Would be possible to explore more sophistication in the techniques e.g. statistically clustering the supply, rather than using a simple raster visualization approach
  - But need to carefully weigh the benefit of any increased complexity in the approach with the value of something that is intuitively clear to an entrepreneur

Yelp could monetize this in a number of ways

- For individual business owners
    - Want this one time, one location
    - Freestanding service charge or packaged with advertising/profile sale
    - Simple website to use

- For larger multi-site companies
    - Want for efficient screening of multiple cities, sites
    - Bespoke pricing and enterprise relationship opportunity
    - Easy to integrate data with either simple mapping or GIS

Many areas we could do further work, of course

Fast pilot test

Work with entrepreneurs to apply to some real world searches and evaluate how the areas surfaced do turn out to be attractive after additional feasibility work has been done.

More advanced filtering

Could tune how to match a potential entrepreneur's desired business. Lists of comparables could be derived not only from the simple category, but also from deeper business data such as price point, ambience, or natural language processing of reviews.

Defining Business Trading Area

Willingness to travel varies per business type, and so the proximity criteria would change. As distance increases, adding a component for a drive time analysis might be useful.

Target Location Improvement

Being able to cross-reference other datasets such as commercial real estate listings or property databases would add value to the conversion opportunities (also potential advertising sales opportunity to commercial real estate lessors/sellers).

Lookalikes

Extend approach for 'new to market' categories by looking for locations that didn't have an existing outlet of a certain category, but that 'looked alike' to locations which did have an existing outlet of that kind, using an appropriate technique.

Yelp connects people with great local businesses…
…and could help **<u>create</u>** great local businesses
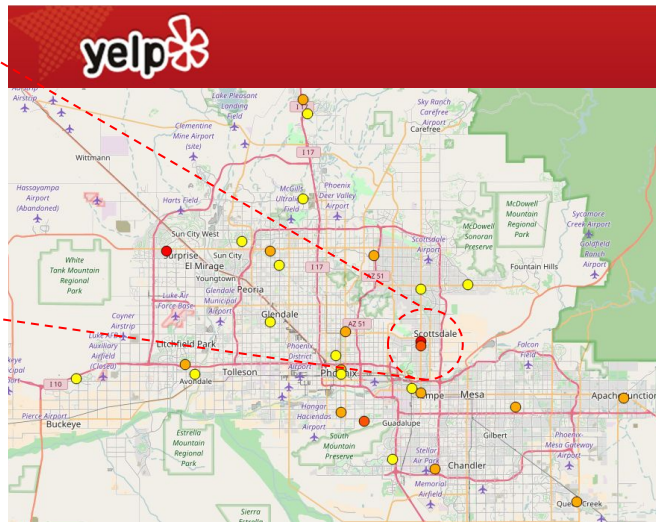
Easy to understand

Fast

Cheap

Transparent

…all while building a new revenue stream

For further information

Mike Amodeo

amodeo@berkeley.edu

Tom Seddon

seddon@berkeley.edu

UC Berkeley, School of Information

Master of Information & Data Science students