Unlock HIDDEN real estate value through the lens of short term renters

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Presentation by Ed Chin

New York City Real Estate Overview
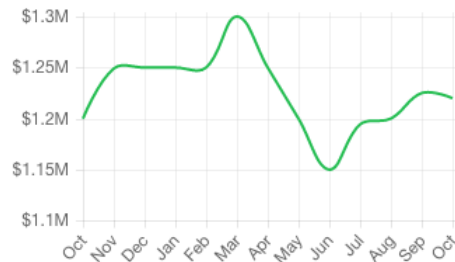
Manhattan's price per square foot has never been higher

BY **EMILY NONKO** | JUL 1, 2016, 9:15A

Brooklyn and Queens have never been this expensive

BY **EMILY NONKO** | OCT 13, 2016, 9:08A

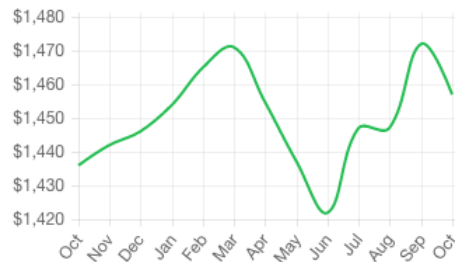### Median Sales Price

The median sales price for homes in New York for Jul 20 to Oct 19 was $1,232,082 based on 719 home sales.

Price Per Square Ft.

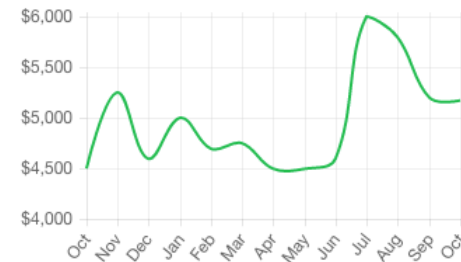Average price per square foot for New York was $1,465, an increase of 2% compared to the same period last year.

Median Rent Per Month

The median rent per month for apartments in New York for Sep 20 to Oct 20 was $5,172.

Demographics

60%	17%	37	$75,721	73%
SINGLE RESIDENTS	HOME OWNERS	MEDIAN AGE	MEDIAN HOUSEHOLD INCOME	COLLEGE EDUCATED

Is NYC Real Estate Too Expensive?

- Where can a buyer find value?

THE AIRBNB EFFECT

- Founded in 2008, Airbnb is a peer-to-peer online marketplace that connects homeowners to short-term renters

- The short-term rental platform is providing an alternative revenue stream to homeowners that was not previously accessible

- While there are tight restrictions on the type of properties that can be rented out on a short-term basis (the laws are under dispute), there are also notable exemptions for investors that make continuous short-term rentals a viable strategy
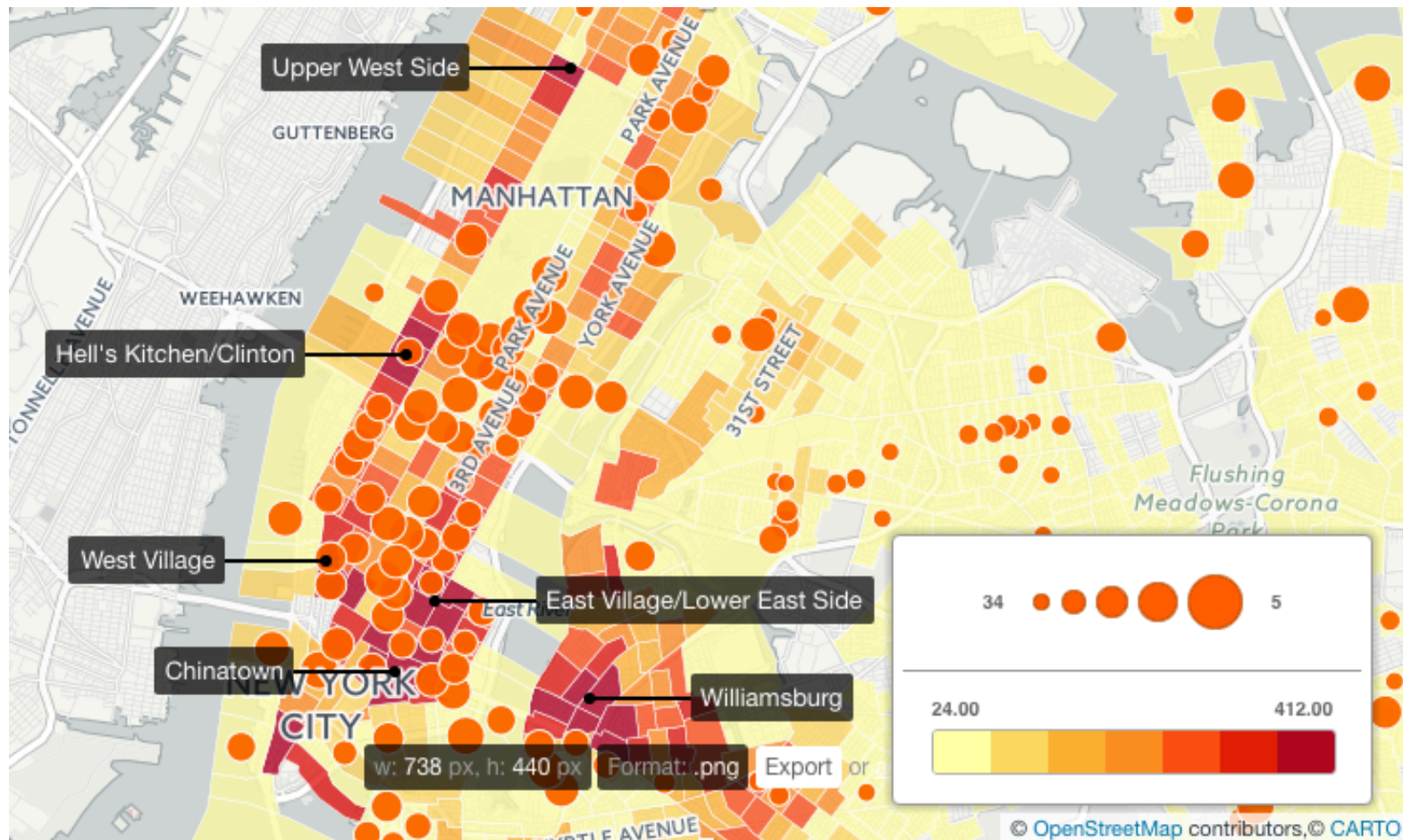
LISTINGS ON AIRBNB

- Airbnb listings are clustered around certain neighborhoods
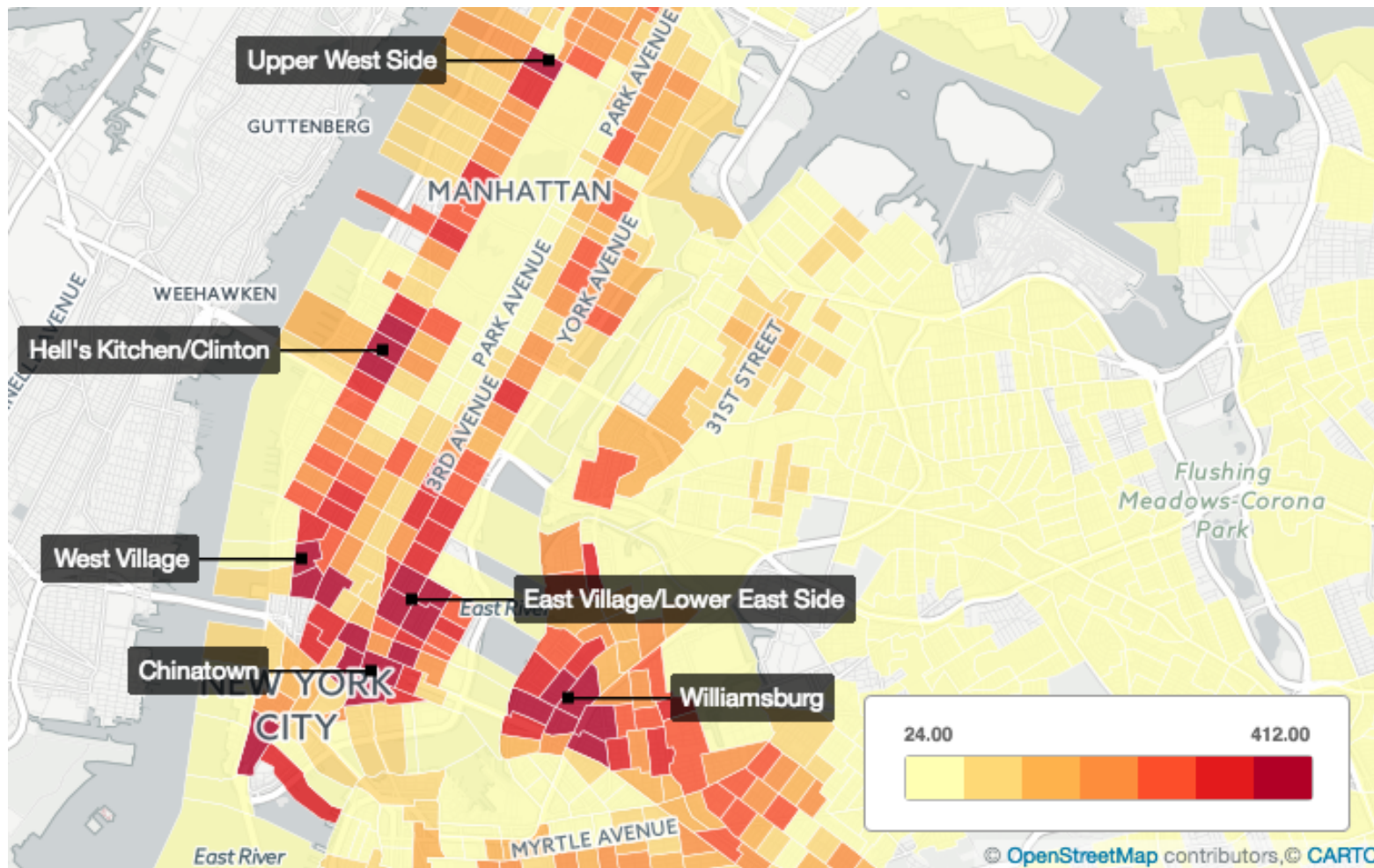
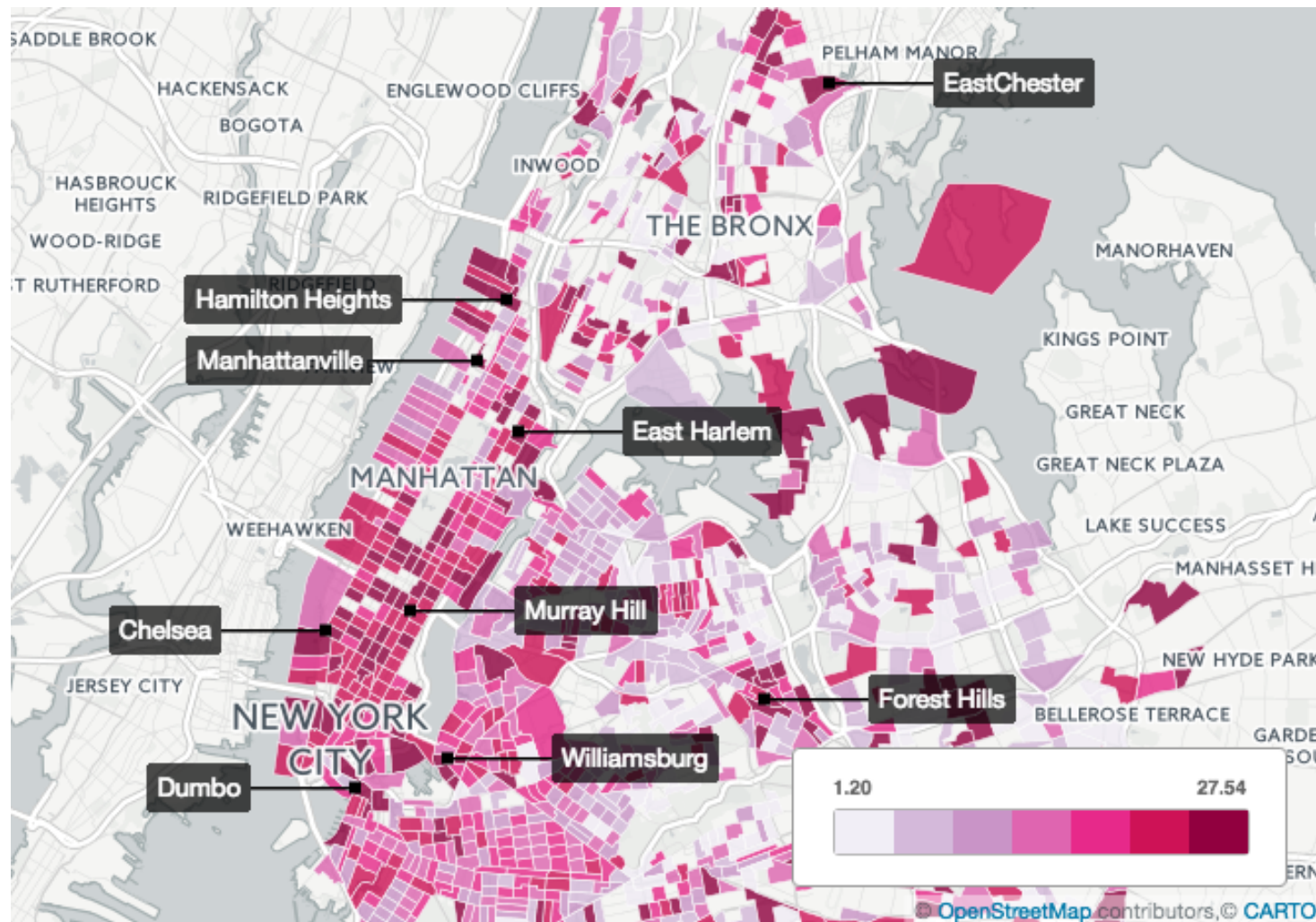# AIRBNB OFFERS EXCESS RETURNS OVER TRADITIONAL LONG TERM RENTALS

- In very desirable areas of Brooklyn/Manhattan, one would need to rent an apartment for only 5 days to make equivalent monthly rent!

EQUIVALENT AIRBNB RATES VS. MEDIAN 12 MONTH RENTAL RATES

- There are significant return variations across geographical regions

REAL ESTATE 101
LOCATION, LOCATION, LOCATION

- The desirability of a neighborhood
- The proximity to schools, businesses and services
- Ease of commute and access to public transportation
- Low crime rates
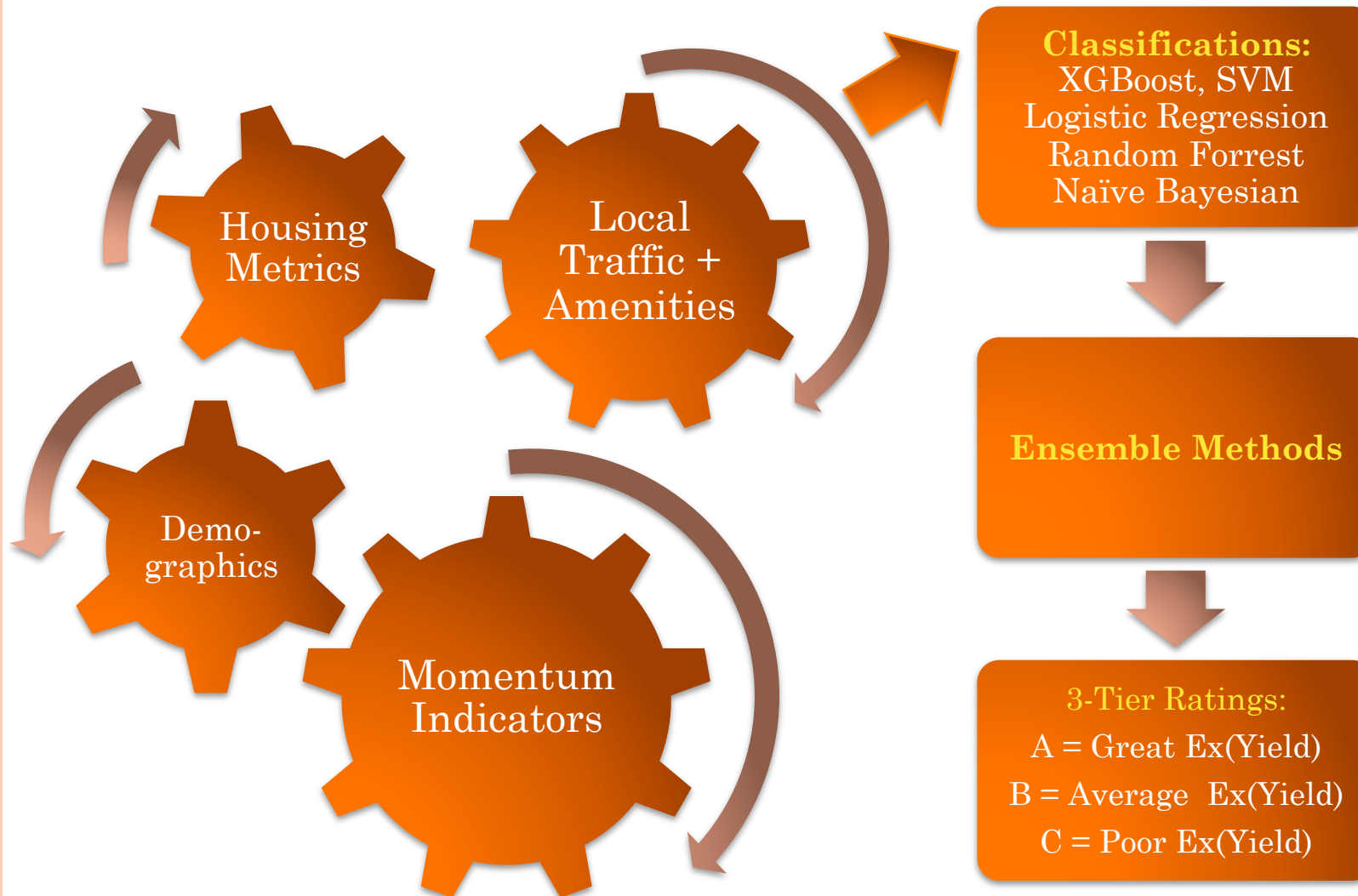- The value of nearby properties

CAN WE PARAMETERIZE THESE LOCATION FEATURES FROM THE PERSPECTIVE OF A SHORT TERM RENTER?

- The desirability of a neighborhood
  - Demographics, % of educated, poverty %, income
  - Housing affordability
  - Negative externalities, i.e. # of noise complaints
- The proximity to schools, businesses and services
  - The **Hip** factor: # of nearby bars, coffee shops from Yelp
- Ease of commute and access to public transportation
  - Taxi and Uber pick-up and drop-off frequency
  - Average travel time to work
- Low crime rates
- The value of nearby properties
  - Median home values for single family
  - % of vacant and owner-occupied homes
  - Momentum indicators: recent sales/rental trends, turnover ratios from Zillow, changes in demographics

# CAN WE PREDICT WHICH NEIGHBORHOODS OFFER THE BEST RETURN POTENTIAL?

Housing Metrics

Local Traffic + Amenities

Demo-graphics

Momentum Indicators

Classifications:
XGBoost, SVM
Logistic Regression
Random Forrest
Naïve Bayesian

Ensemble Methods

3-Tier Ratings:

A = Great Ex(Yield)

B = Average Ex(Yield)

C = Poor Ex(Yield)

AIRBNB RATING: METHODOLOGY

- Hold out 30% of data for testing
- MAR = Mean Equivalent Monthly AirBnB Rent
- HC = adjustment factor for vacancy
- MHV = Median Housing Value

- AirBnB Rating = (MAR * 12) * (1 – HC) / MHV
  - Rating 'A' = > 10% expected yield
  - Rating 'B' = 6-10% expected yield
  - Rating 'C' = < 6% expected yield

INSIGHTS INTO MODEL PREDICTIONS

- The current model of AirBnB Ratings is 70% accurate
- Rating 'A' has a precision > 70%, and the false positives fall mostly in rating 'B'
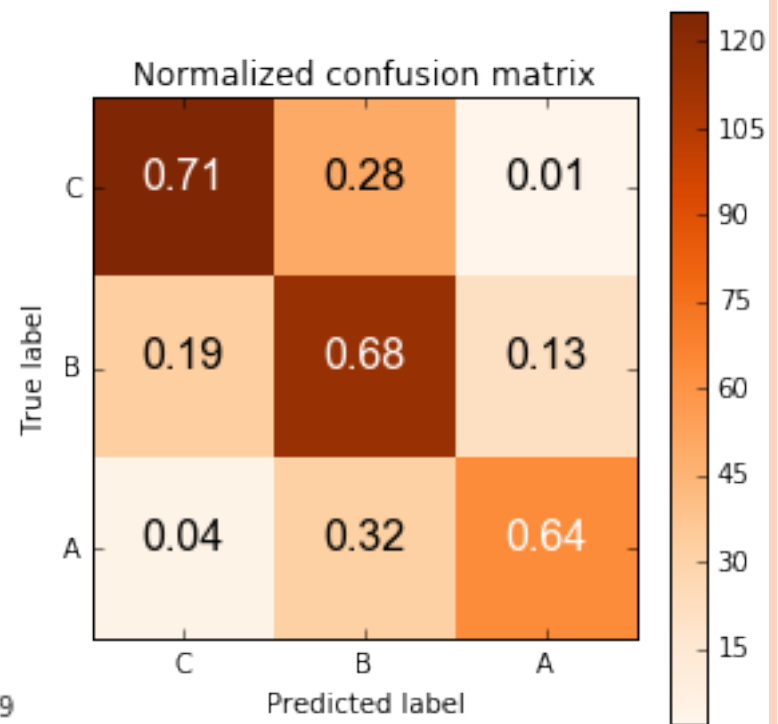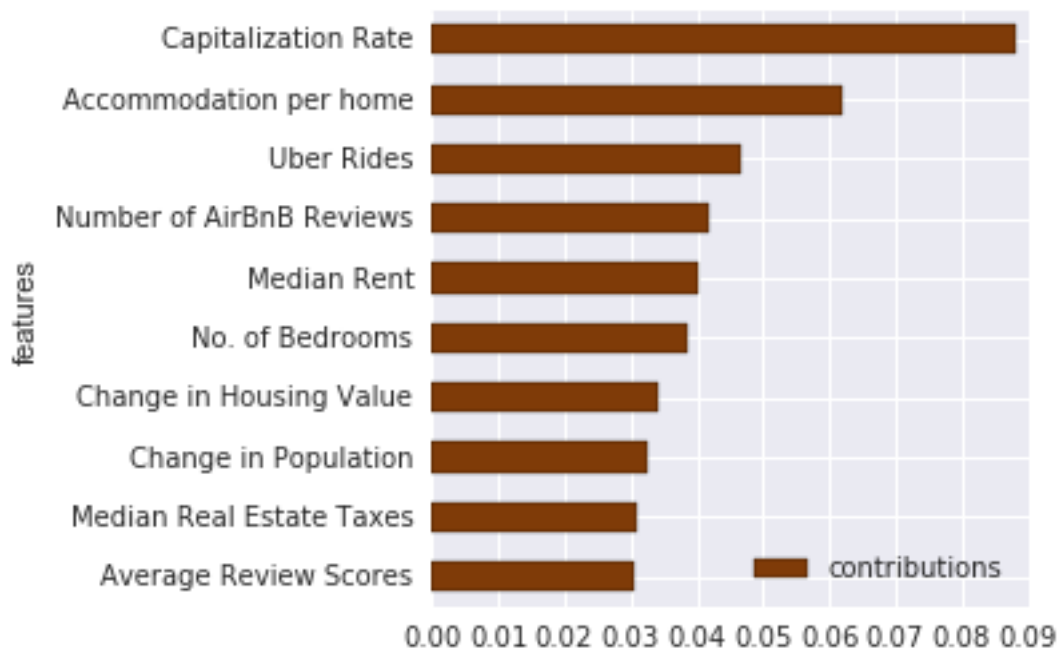
WHAT ARE THE PRIMARY DRIVERS FOR THE THE PARADIGM SHIFT?

- Airbnb rental income is correlated with an increase of Uber traffic and apartments that can accommodate excess tenants over the number of bedrooms advertised

- Prospective investors need to balance excess returns offered by Airbnb with the difficulty of renting the entirety of a month

- **Washington Heights, East Harlem, Forrest Hills, Williamsburg and Murray Hills** offer compelling values for landlords that intend to leverage the Airbnb platform

MODEL PREDICTIONS AT A GLANCE
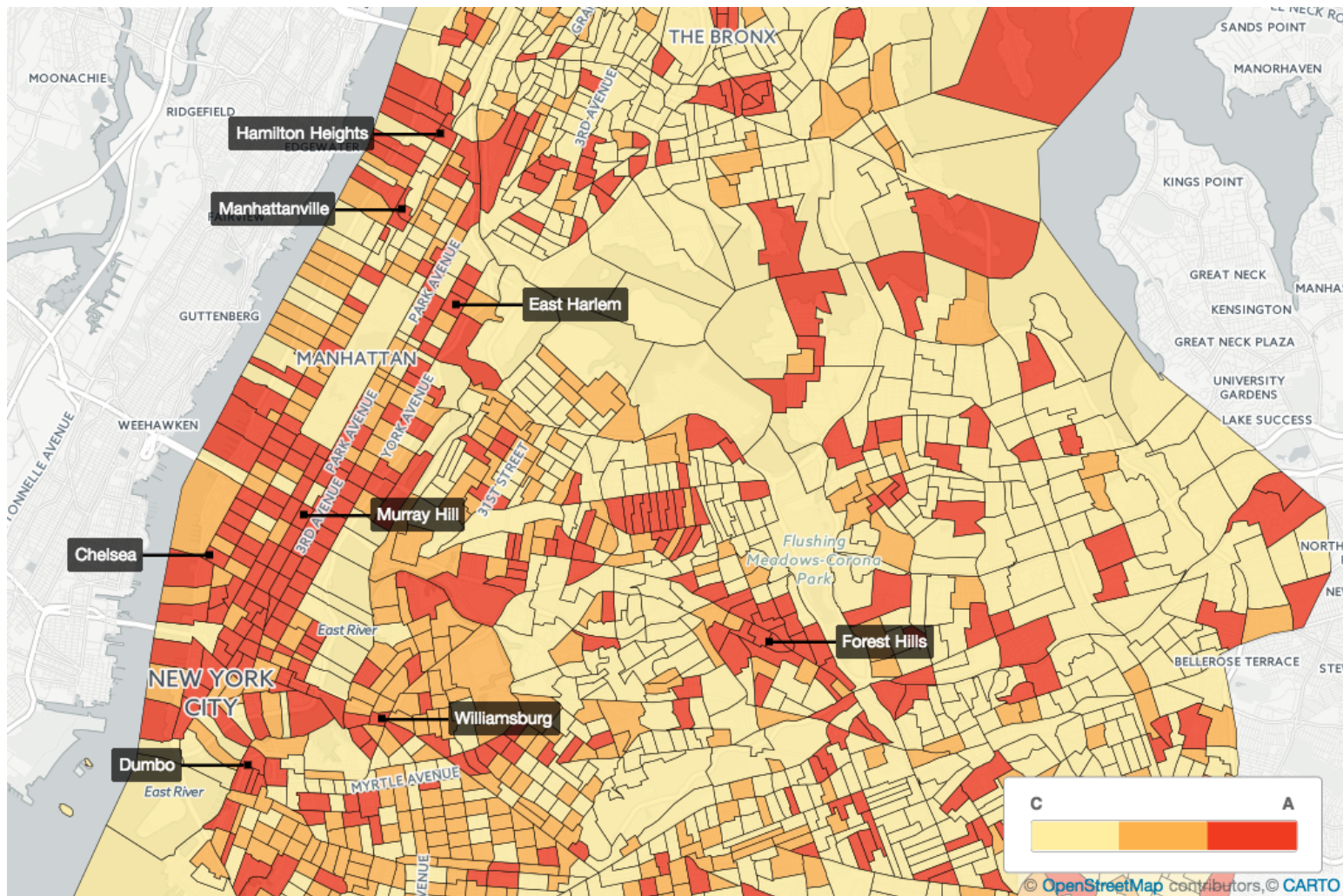
INTERESTED IN TAKING A DEEPER DIVE?

- Here is a tool, hosted on my AWS server, that you can try out right now:
  - Interactive NYC Map
  - http://52.55.95.182:8888/

- It is intended for prospective homebuyers, real estate investors and property managers
- The map contains 8 layers and can be overlaid on top of each other
- Demographics and pertinent real estate information are displayed on *mouse-over*
- It should work for both *desktop* and *mobile* browser. Full functionality is reserved for desktop version only

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