# Classification of Blighted or Non-Blighted Buildings in Detroit

**Kwang Ho Hur**

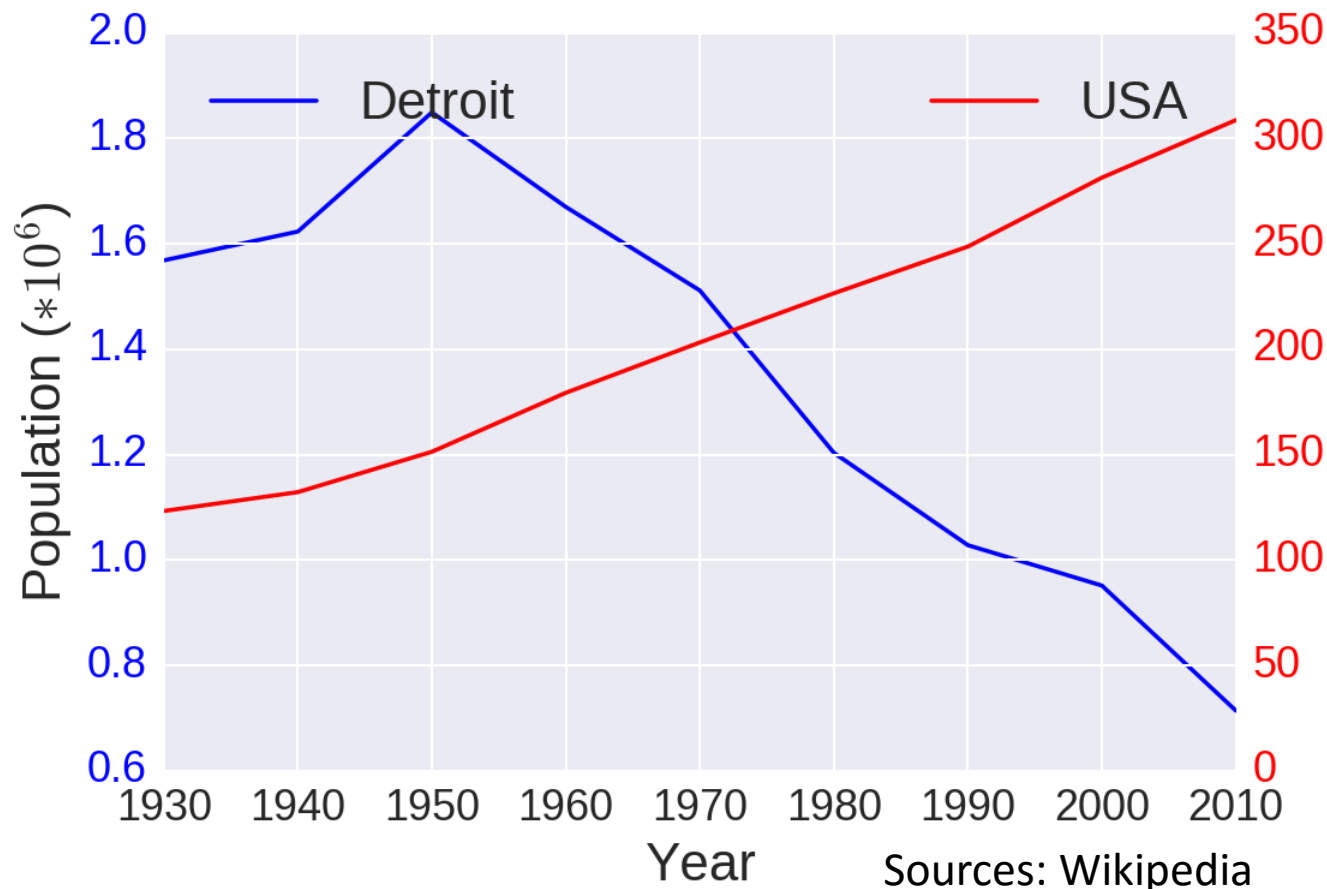**2016 summer the Data Incubator Capstone Project**

# Detroit

In the past, prosperous



**Currently in Bankruptcy from 2013**

# Decrease of Detroit's Population



The population in Detroit has dropped **from ~1.8 M in 1950 to ~0.7 M in 2010.**

**Houses or Buildings have been abandoned or blighted.**

# Blighted Houses/Buildings
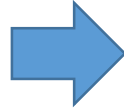


5064 Baldwin St (from Google Map)

- **Threat to public safety**
- **Deteriorate neighborhoods**
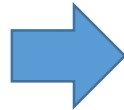
**Blight demolition project began in 2014.**

# Data

**Publically available**

a. **Demolition permits**
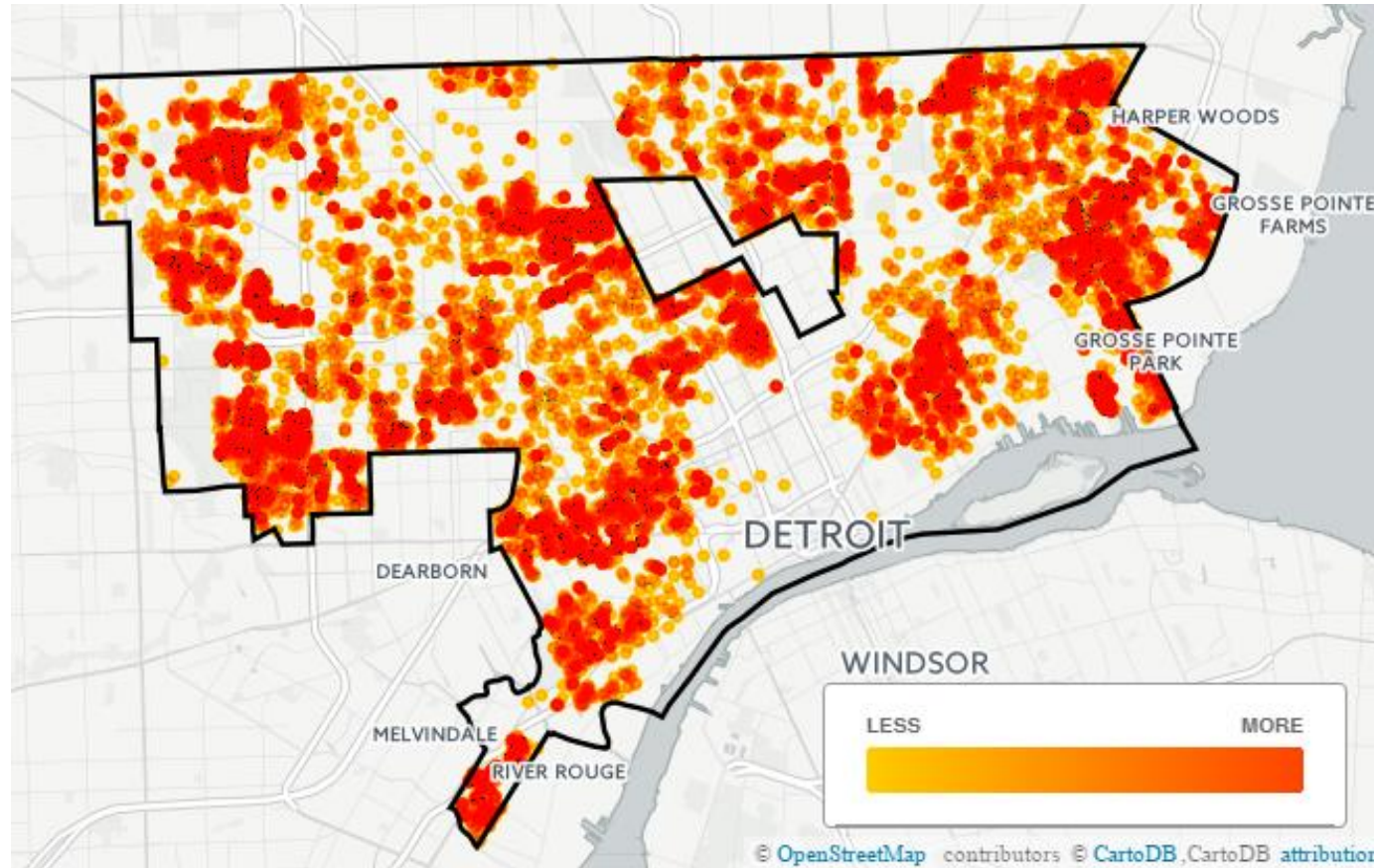b. **Blight violation tickets**

→ **Building IDs with Address and Geo-coordinates**
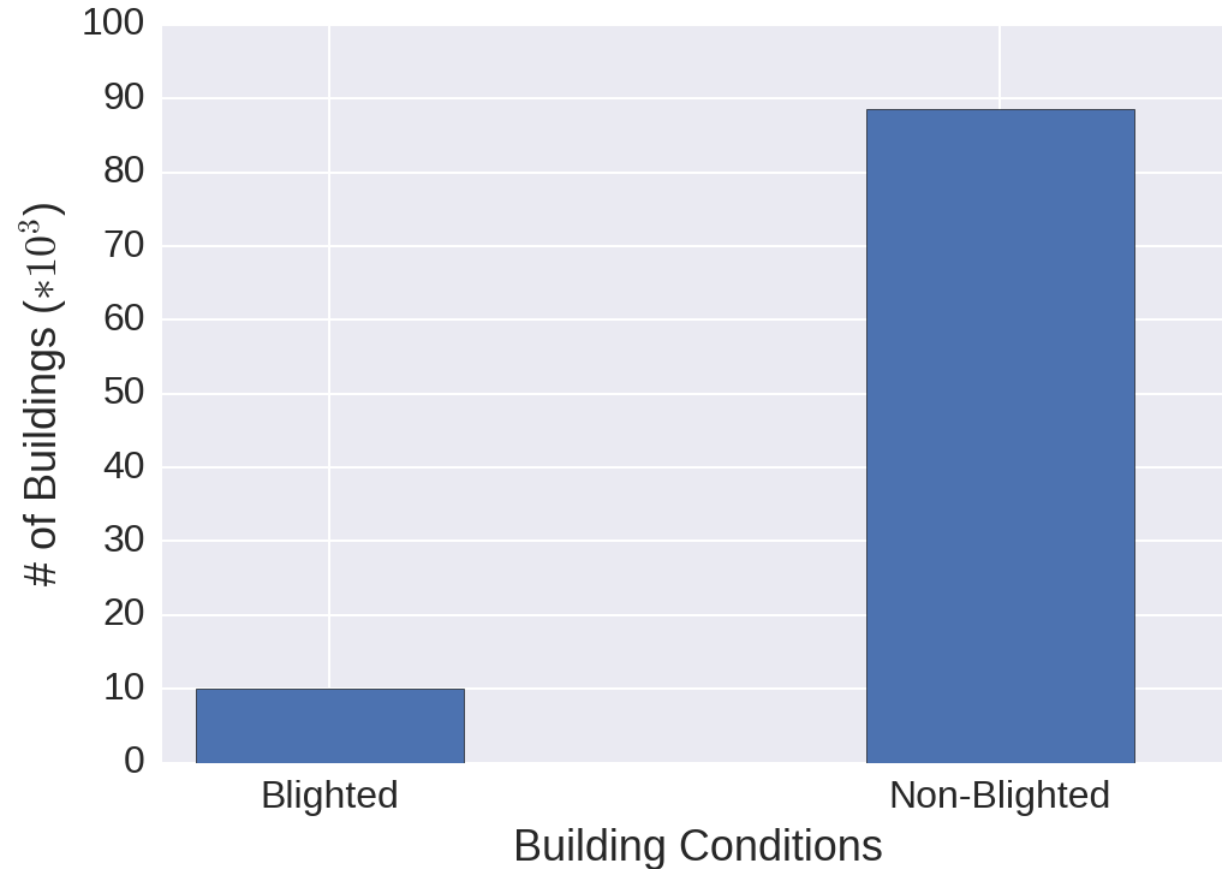
c. **Crime**
d. **311 call**

→ **Features for Building IDs**

# Intensity Map of Blighted buildings



**Blighted buildings are distributed in most area of the city but they are localized in certain regions.**
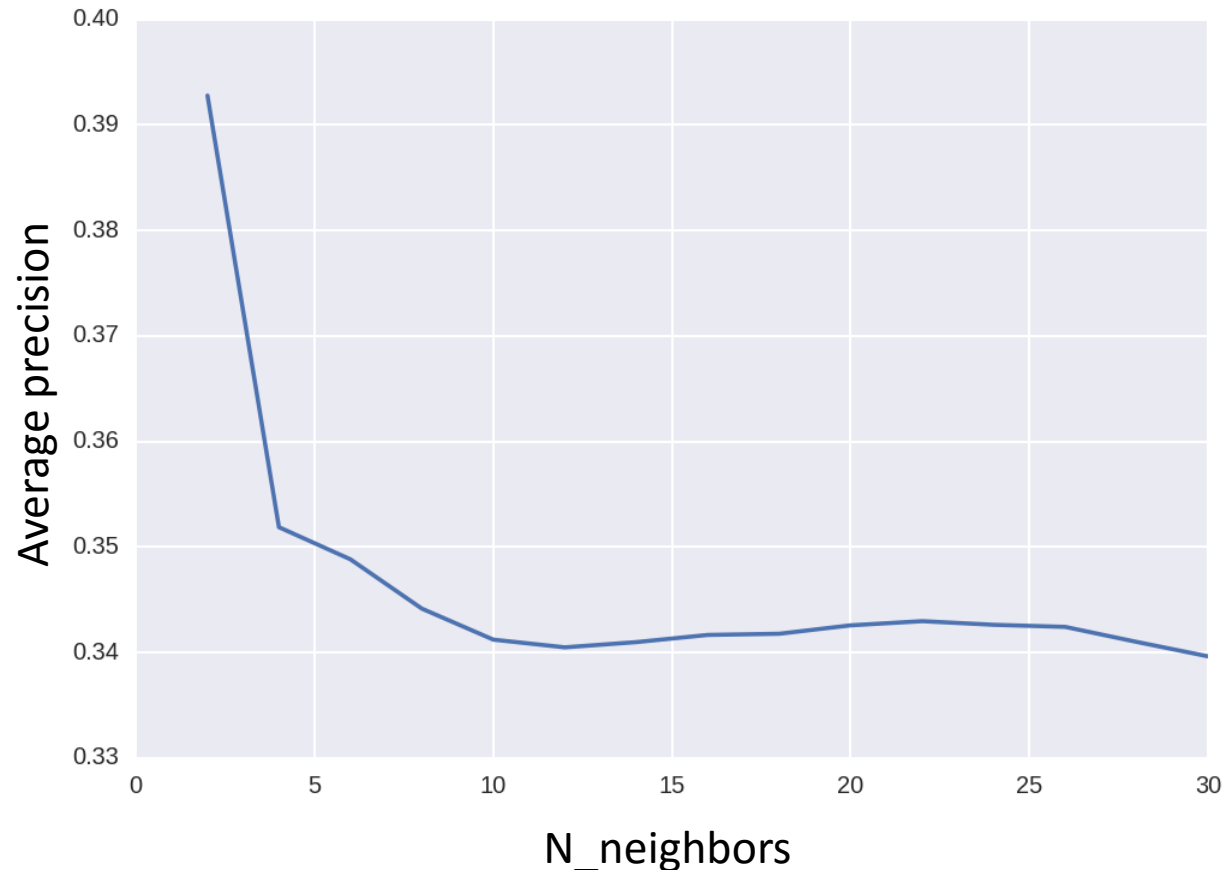
# Number of Blighted/Non-Blighted Buildings



Blighted from Demolition-permit

Non-Blighted partially from blight-violation

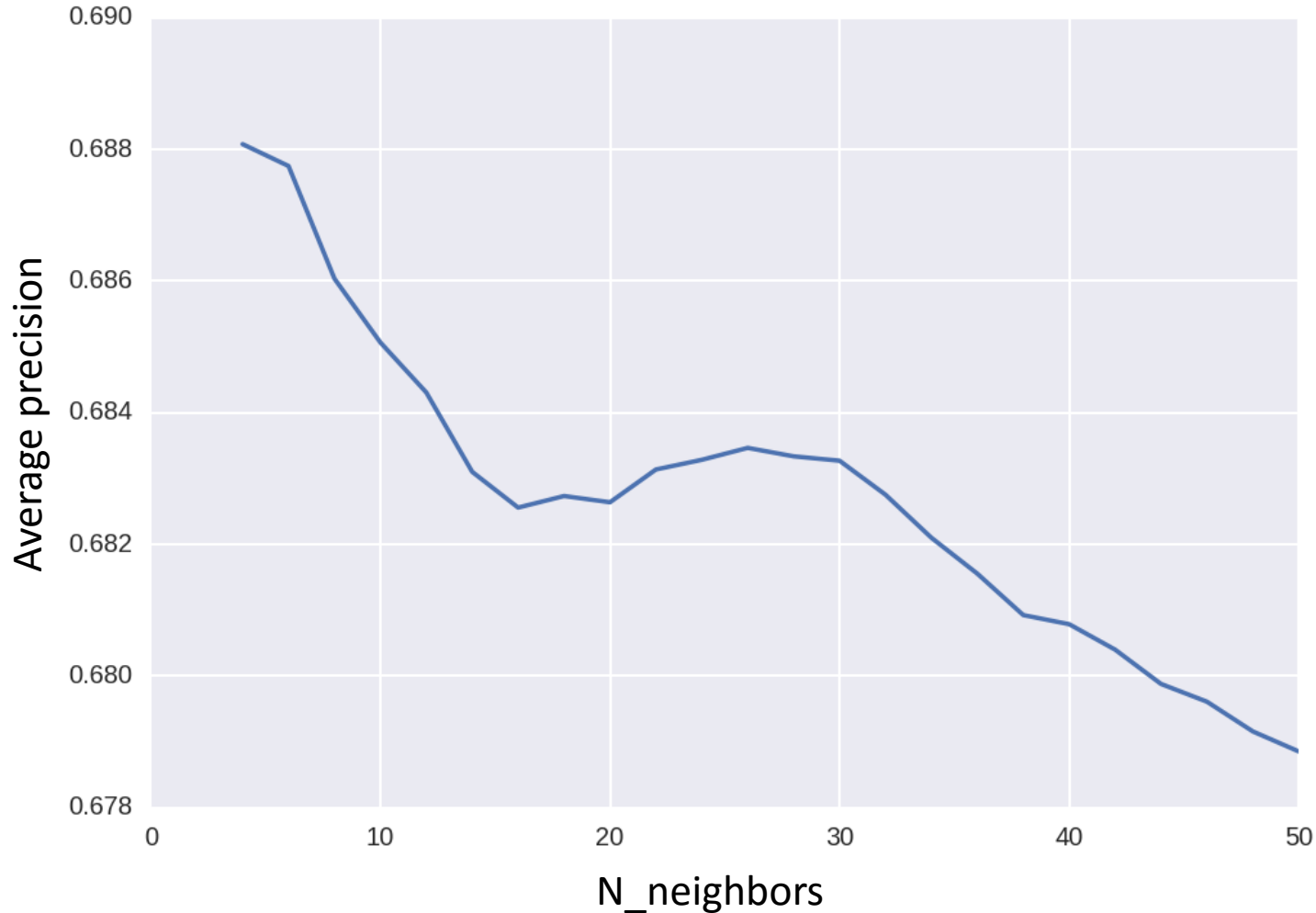**Classification model can be evaluated by precision.**

# K-Nearest Neighbors Classifier
## with Latitude and Longitude



Precision becomes worse than 0.5.

Blighted houses are mixed with Non-Blighted houses.

# K-Nearest Neighbors Classifier
# with Latitude, Longitude, Violation Tickets



**Precision can be 0.69.**

# Next plan

- **Add more features**

- **Test different algorithms such logistic regression with regularization**