

testScript

August 2, 2022

```
Create report with: jupyter nbconvert --to pdf --output withMarkdownPDF
--TagRemovePreprocessor.enabled=True --TagRemovePreprocessor.remove_cell_tags=['remove_cell']
--no-input testScript.ipynb
```

1 Fire Models

The following columns are being kept

```
['did_not_work_past_12_mo', 'house_pct_live_alone', 'pct_alt_heat',
'house_yr_pct_before_1960', 'inc_pct_poverty', 'race_pct_black_or_amind']
```

1.1 Fire Propensity Model

Predicting 2017

Confusion Matrix

```
[[159423  46995]
 [  2319   9002]]
```

ROC AUC Score = 0.8671176533418194

Classification Report

	precision	recall	f1-score	support
False	0.99	0.77	0.87	206418
True	0.16	0.80	0.27	11321
accuracy			0.77	217739
macro avg	0.57	0.78	0.57	217739
weighted avg	0.94	0.77	0.83	217739

Feature Ranking

1. Max (0.427508)
2. Median (0.136157)
3. pct_alt_heat (0.082652)
4. house_pct_live_alone (0.077553)
5. inc_pct_poverty (0.072500)
6. race_pct_black_or_amind (0.069879)

7. house_yr_pct_before_1960 (0.068611)
8. did_not_work_past_12_mo (0.065140)

1.2 Fire Severity Model

Predicting 2017

Confusion Matrix

```
[[163538  50467]
 [  1023   2711]]
```

ROC AUC Score = 0.8247673226252403

Classification Report

	precision	recall	f1-score	support
False	0.99	0.76	0.86	214005
True	0.05	0.73	0.10	3734
accuracy			0.76	217739
macro avg	0.52	0.75	0.48	217739
weighted avg	0.98	0.76	0.85	217739

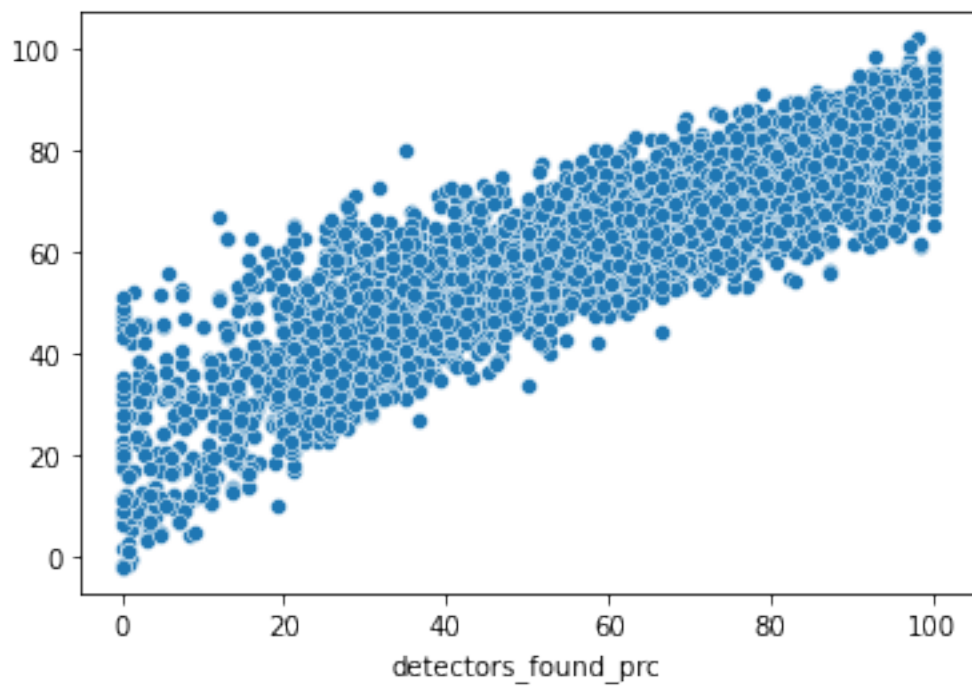
Feature Ranking

1. Median (0.355454)
2. Max (0.195376)
3. pct_alt_heat (0.077562)
4. race_pct_black_or_amind (0.077486)
5. house_pct_live_alone (0.076930)
6. did_not_work_past_12_mo (0.074547)
7. house_yr_pct_before_1960 (0.072959)
8. inc_pct_poverty (0.069686)

2 Smoke Alarm Models

Training Performance

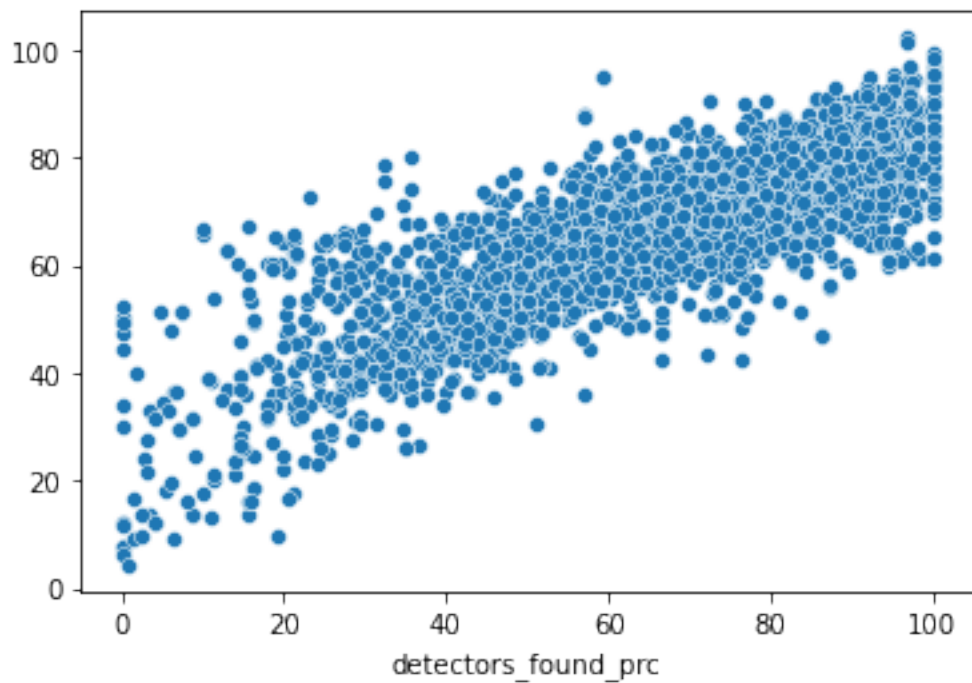
107.40192512526502
 Test RMSE: 10.363490007003675
 Test MAE: 7.7468945964400495



Training Performance

Test RMSE: 13.104843908072416

Test MAE: 9.787615469298801



Test Correlation: (0.8205256761162569, 0.0)

Test R-squared: 0.6430589432592726

Feature Ranking

1. RPL_THEME1 (0.277190)
2. RPL_THEME3 (0.188507)
3. RPL_THEME2 (0.176217)
4. RPL_THEME4 (0.173049)
5. Population Density (per square mile), 2010 (0.147094)
6. inc_pct_poverty (0.037943)

3 Saving File

Combined Risk Score Summary:

```
count      217739.000000
mean        0.328246
std         0.161929
min         0.000780
25%         0.202011
50%         0.324280
75%         0.445675
max         0.744222
Name: CombinedRiskScore, dtype: float64
```

Saving columns:

```
['state', 'NFIRS_start', 'NFIRS_end', 'years_fires_reported',
'total_fires_reported', 'max_fires_1k', 'median_fires_1k',
'total_fires_reported_sev', 'max_fires_1k_sev', 'median_fires_1k_sev',
'fire_propensity_risk_score', 'fire_severity_risk_score', 'fire_risk_score',
'recorded_home_visits', 'smoke_detector_risk_frac', 'smoke_detector_risk_score',
'geography', 'SVI_Theme_1', 'CombinedRiskScore', 'did_not_work_past_12_mo',
'house_pct_live_alone', 'pct_alt_heat', 'house_yr_pct_before_1960',
'inc_pct_poverty', 'race_pct_black_or_amind', 'tot_population',
'house_tot_occ_cnt', 'inc_pcincome', 'inc_hhmean', 'race_pct_white',
'race_pct_whitenh', 'race_pct_whiteh', 'race_pct_nwhitenh', 'race_pct_hisp',
'race_pct_black', 'race_pct_amind', 'race_pct_asian', 'race_pct_napi',
'race_pct_other', 'race_pct_two+', 'age_pct_under25', 'age_pct_over65',
'disability_pct', 'snap_past_12_mo', 'single_unit_home', 'multi_unit_home',
'mobile_home', 'boat_van_rv_home', 'spanish_speaking', 'state_id', 'state_rank',
'county_id', 'county_rank']
```