

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']
```

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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

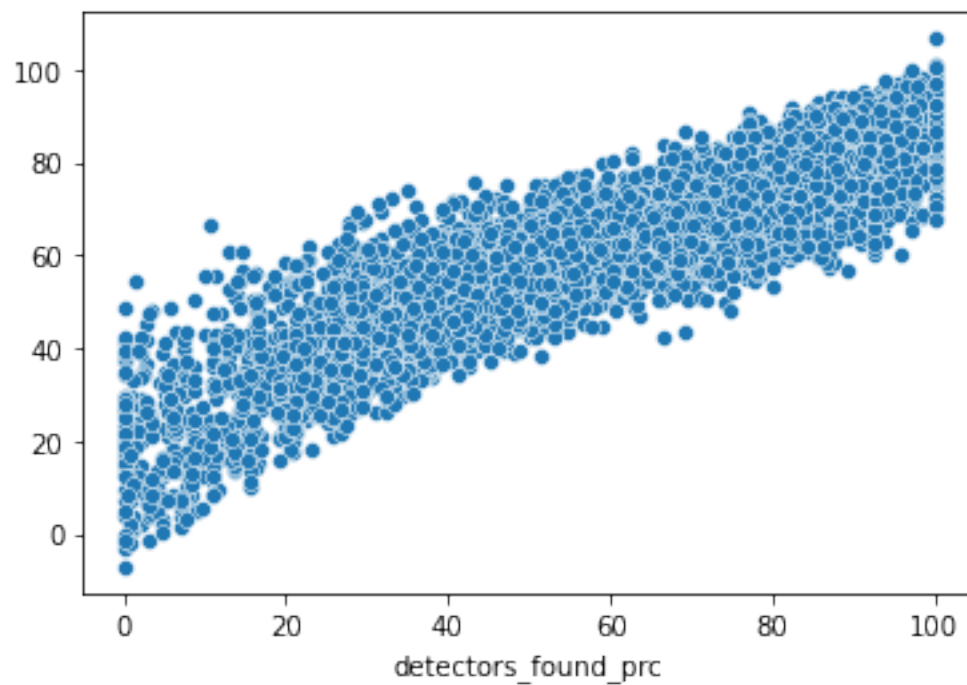
1. Median (0.355454)
2. Max (0.195376)
3. pct_alt_heat (0.077562)
4. race_pct_black_or_amind (0.077486)
5. house_pct_live_alone (0.076930)
6. did_not_work_past_12_mo (0.074547)
7. house_yr_pct_before_1960 (0.072959)
8. inc_pct_poverty (0.069686)

2 Smoke Alarm Models

Training State smoke alarm stats model
 Training County smoke alarm stats model
 Training Tract smoke alarm stats model
 Training Block_Group smoke alarm stats model
 Training MultiLevel smoke alarm stats model
 Training DL model

Training Performance

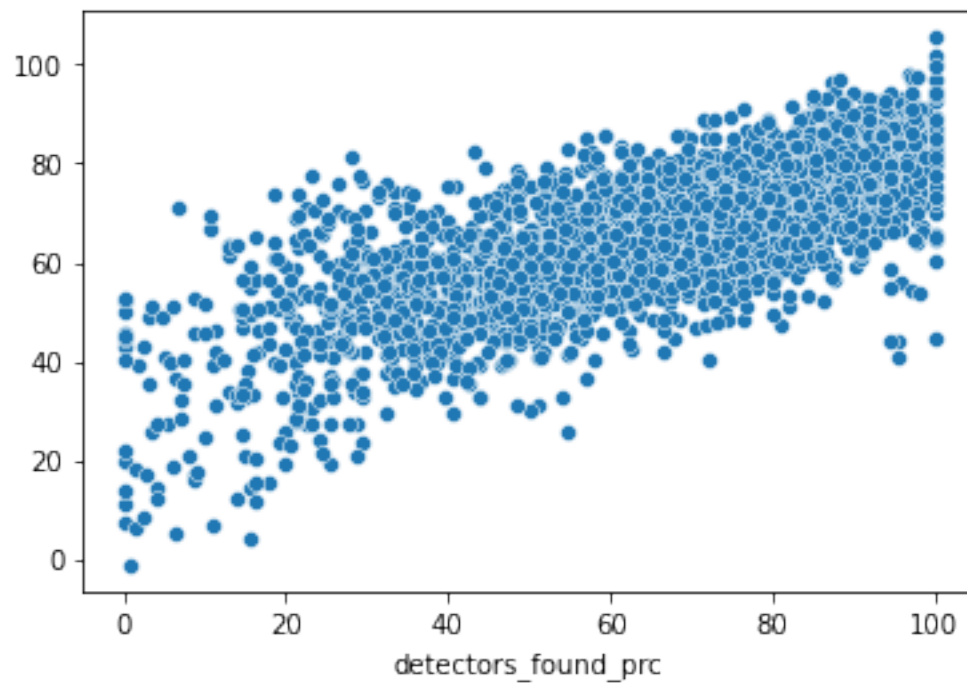
105.79741754085418
 Test RMSE: 10.28578716194605
 Test MAE: 7.729334610078945



Testing Performance

Test RMSE: 14.931982928962187

Test MAE: 11.36208258614248



Test Correlation: (0.7416691505778157, 0.0)

Test R-squared: 0.536587472781177

Feature Ranking

1. RPL_THEME1 (0.214602)
2. RPL_THEME2 (0.116916)
3. RPL_THEME4 (0.112707)
4. RPL_THEME3 (0.109658)
5. Population Density (per square mile), 2010 (0.107959)
6. race_pct_black_or_amind (0.086700)
7. pct_alt_heat (0.069408)
8. house_yr_pct_before_1960 (0.063759)
9. inc_pct_poverty_x (0.048886)
10. did_not_work_past_12_mo (0.036041)
11. house_pct_live_alone (0.033364)
12. inc_pct_poverty_y (0.000000)

3 Saving File

Combined Risk Score Summary:

```
count      216824.000000
mean         0.404494
std          0.211338
min          0.001657
25%          0.241339
50%          0.386180
75%          0.543973
max          0.993570
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',
 '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']
```