



SAFETY FIRST: *Reducing Traffic Fatalities in Washington*

Kelly Jones | May 2018

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“Washington State has adopted **Target Zero** – a goal to reduce traffic fatalities and serious injuries on Washington's roadways to **zero** by the year **2030**.

“Our goal is zero deaths and serious injuries, because **every life counts.**”



Data



Person



Vehicle



Accident

Model: Decision Trees

Boosted with “CatBoost”

INPUTS:

67 features

48K observations

TRAIN:
38K

TEST:
10K

OUTPUTS:

Feature Importance

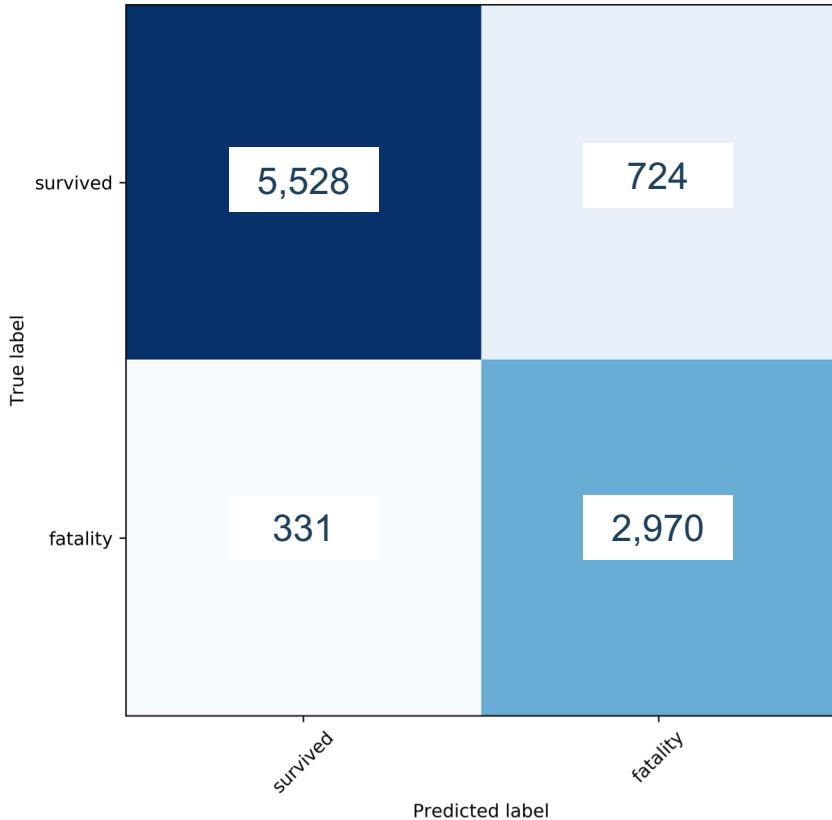
Most Harmful Event

Person’s Age

Vehicle Damage

Restraint Use

MORE OUTPUTS: Confusion Matrix



89%

Accuracy

How often we were right

80%

Precision

Avoiding false positives

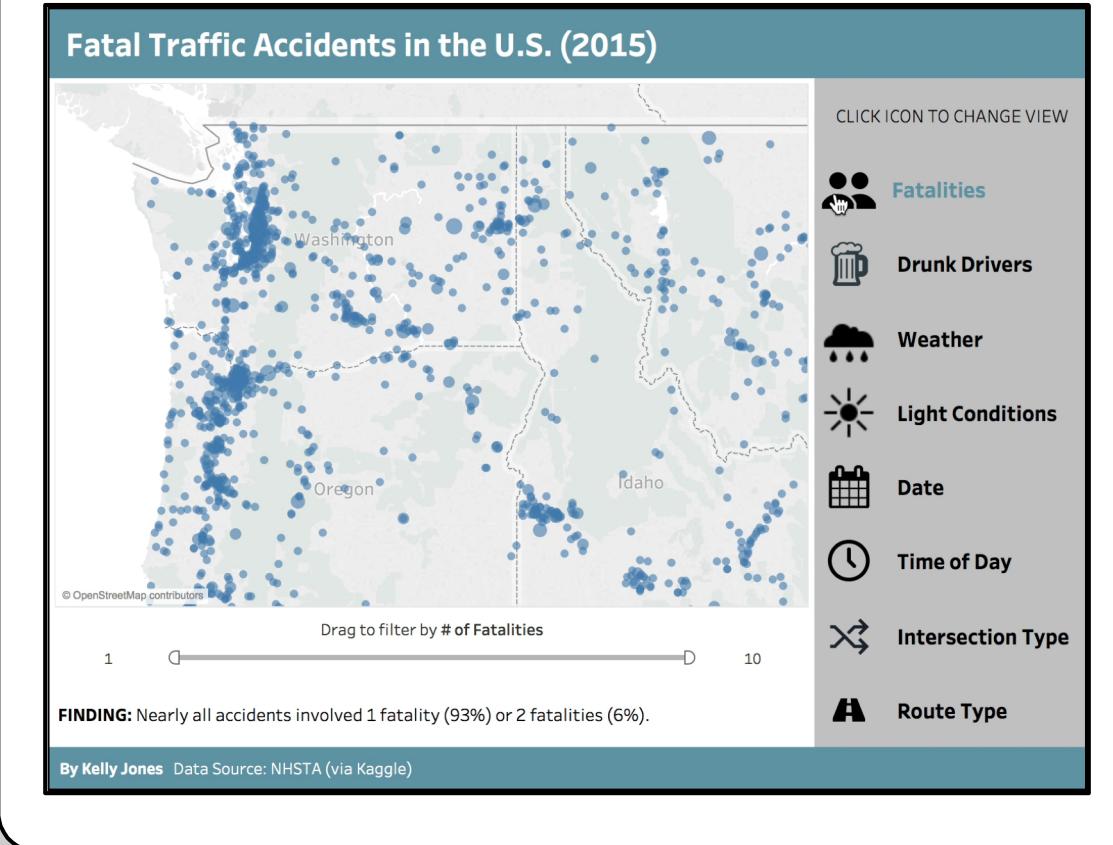
90%

Recall

Detecting true positives

2. Tableau Dashboards

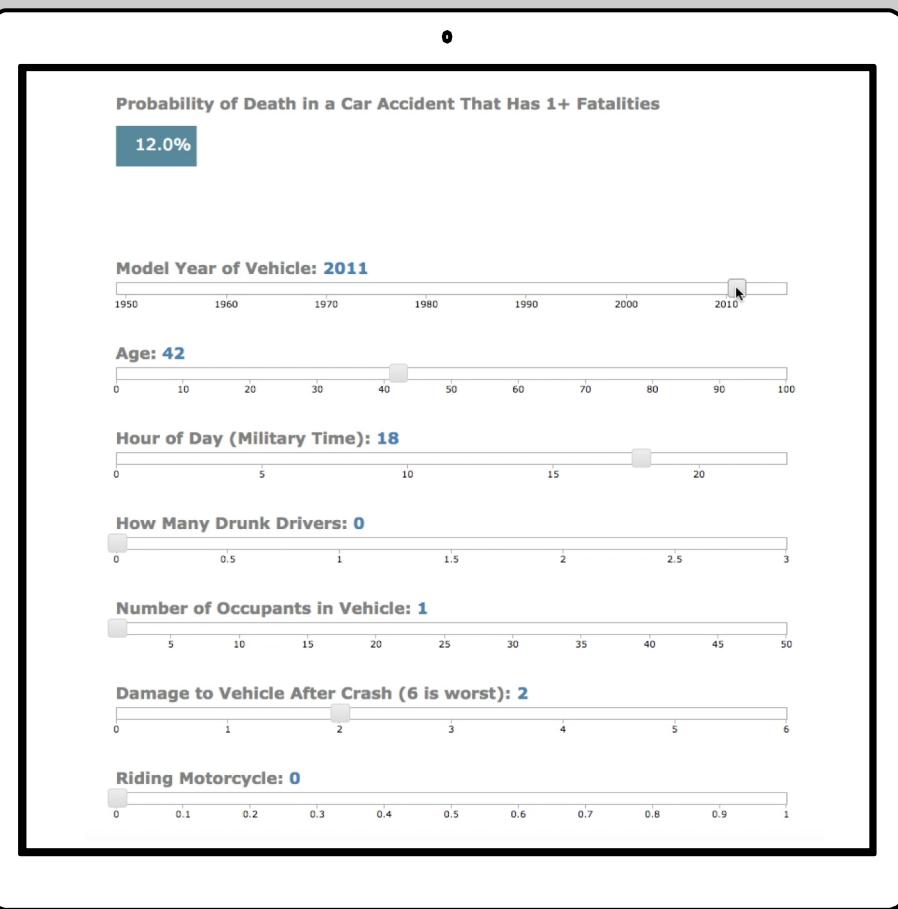
Explore accident data nationwide across a range of categories



3. Flask App

Move sliders to get probability estimate of fatality

Model:
Logistic Regression





Next Steps

◆ Improve Recall ◆

Adjust model (e.g., thresholds) to reduce false negatives

◆ Decode Sequence of Events ◆

Update dashboards with details of how accident unfolded

◆ Analysis by State ◆

Normalized to population (for comparability)



THANK
YOU!