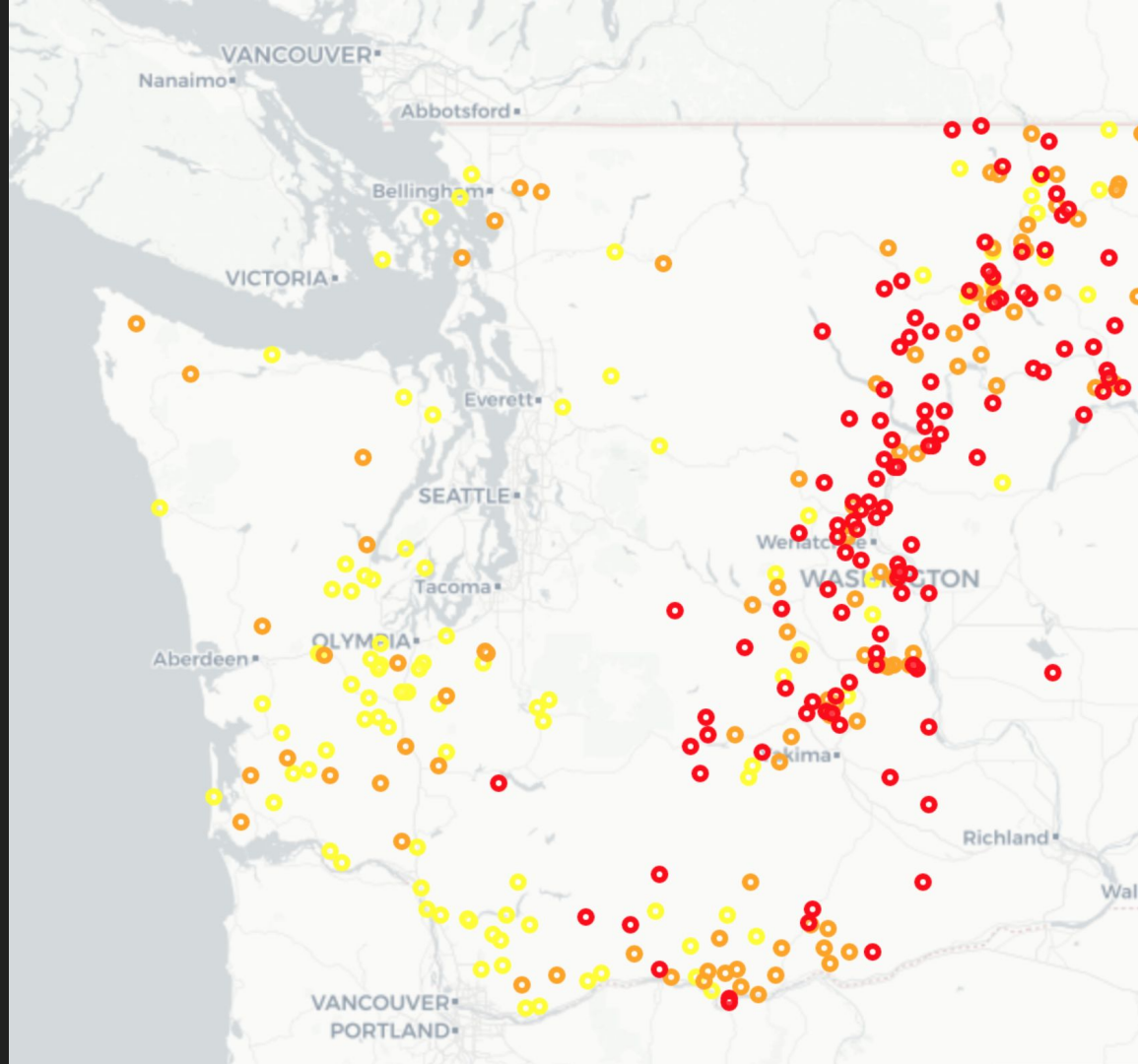
Wildfire Prevention

with Artificial Neural Networks

The Problem

- Over 12,000 wildfires in Washington over the past 12 years
- Climate change and poor forest management magnifying the problem
- Arson and accidents on the rise
- Thousands of acres burned every year



The Data

Wildfire Areas (12,000 Images)

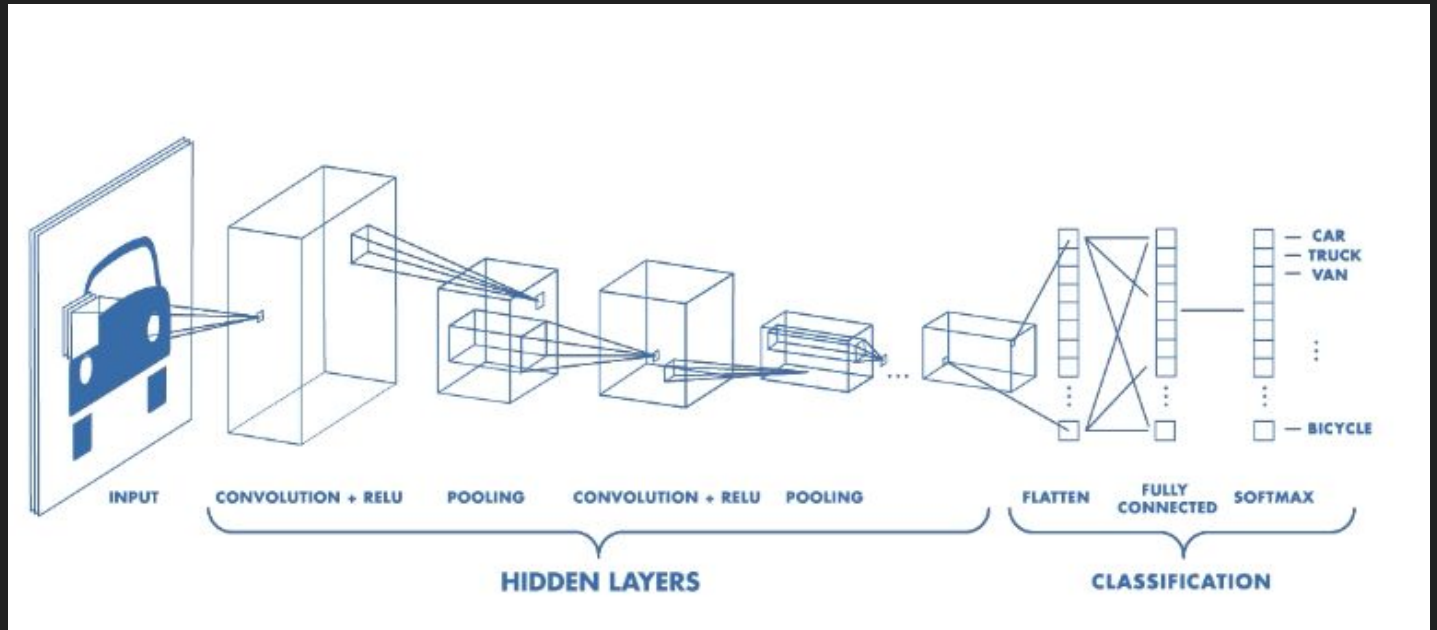
Non-Wildfire Areas (10,000 Images)

The Solution

- Satellite imagery analysis using a convolutional neural network
- Identify areas that could lead to spread of wildfires
- Alert state authorities to areas at risk of wildfires
- Make sure brush is cleared and other precautions are taken

The Model

- Convolutional neural network
- Wildfire Area vs. Non-Wildfire Area



The Results

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0 = Wildfire
1 = No Wildfire

Wildfire Precision - Testing: 63.319%
Wildfire Recall - Testing: 77.957%
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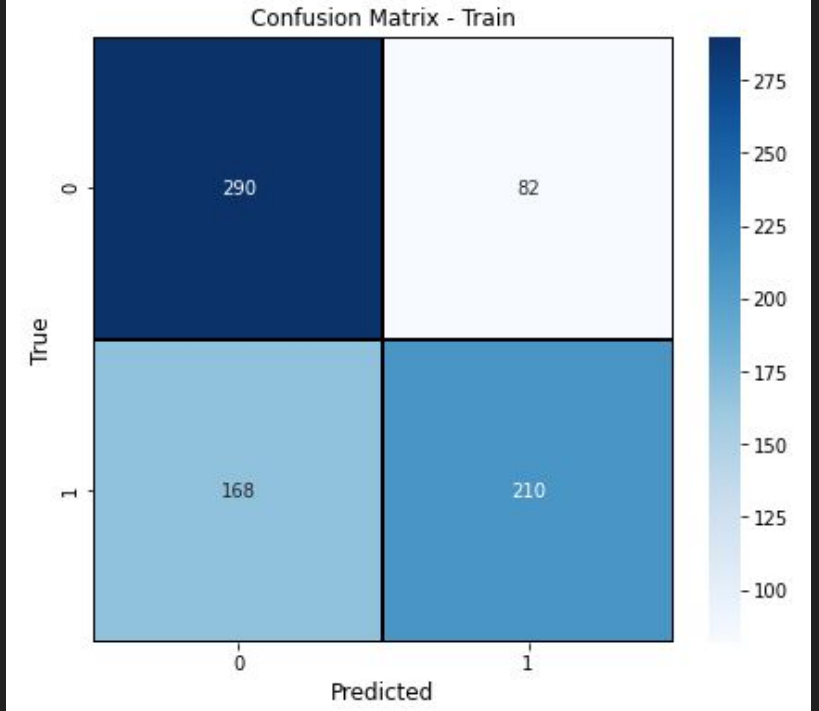


```
Please enter a latitude: 37.882
Please enter a longitude: -119.643
Found 1 images belonging to 1 classes.
Wildfire Risk Percentage:  87.47%
```

Further Work

- Time based data to see areas days before fires
- Images from different sources (Earth Engine, NASA, etc. . .)
- Full scale deployment linked to NASA satellite feeds
- Speaking to state governments and fire departments to better understand their needs

Thanks for Listening!

Special thanks to Flatiron School and my amazing cohort

Please direct questions and comments to thomaskbrown18@gmail.com