

### Use of Multi-source Remote Sensing Data and Geospatial Modelling to Analyze Roadside Vegetation Risk on Utility Infrastructure

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#### **1. Enhanced Tree Trimming (ETT) Analysis**

• We are analyzing the effectiveness of the ETT on the reduction the power outage due to tree failure during various weather conditions.





#### 2. Vegetation Risk Analysis

- A. We are investigating the **Circuits** into various risk levels using different variables: environmental, topographic, disturbance etc. and determine the most important variables in the power outage.
- B. Similar analysis is going on in **Device Exposure Zone (DEZ)** level and we are comparing various machine learning algorithms like Random Forest, SVM and XGBoost for classification.



# ALLERGY CENTRES

#### 3. Unhealthy Tree Crown Detection

- We are detecting the unhealthy tree crowns of evergreen and deciduous trees from sub-meter resolution aerial imagery.
- Almost 6000 individual tree crowns are hand annotated and labelled as unhealthy/healthy Evergreen/Deciduous tree crowns.
- Orthoimages and National Agriculture Imagery Program (NAIP) images were used to annotate the evergreen and deciduous tree crowns, respectively. Analysis is going on using the NAIP imagery and LiDAR derived dataset as input images.





#### 4. Roadside Vegetation Monitoring Using Dashcam Videos

- This novel project aims to characterize stand health using videos in real time.
- Two season dataset are acquired in the interval of every 7 to 15 days.
- 16 miles of the area is covered in multiple weather condition using three different quality dashcams.

