Emerging Methods for Early Detection of Forest Fires

PROBLEM STATEMENT

In the past, fires were detected by watching towers or using satellite images. Satellites collect images of fires and send them to a monitoring authority for review. If the images appear to show a fire, the authority will determine whether or not the fire is burning. But this approach was slow because the fire may have spread in the large areas and caused a lot of damage before the rescue team arrived. With the watchtower method, there was always a man on the tower who monitored the area and informed when there was a fire. This method was slow because it required a man to be present in the forest before the fire could spread, and it always takes time for this type of wildfire to develop. Since it's impossible to place a man in every part of a forest, it's important to have monitoring devices in certain areas so we can keep an eye on the forest. Both watching towers and satellite images failed to detect the presence of a fire early on, which resulted in more damage being done by the fire.

When using computer vision for fires, there are concerns about probability. AI machines trained on human-supplied data can only recognize predictable fires, their severity, and their trajectories, but nature is not so simple. In fact, it's not even close to what we expected, given that detectable fires account for only 10% of actual wildfires worldwide. Fortunately, fire behavior in urban environments, especially in wildlife environments, is still poorly predictable. Track recurring patterns to draw conclusions, even if you can't estimate the exact probability of wildfires occurring in a particular area. Predictive analytics based on these insights are becoming increasingly effective in detecting, mitigating and preventing fires.