

# DRONES, AI, AND RESTORATION

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# PROJECT INTRODUCTION

## Black Mountain Open Space Park

- 2,350 Acre expanse
- Invasive Species
- Susceptible to fires

## The Friends of Los Peñasquitos Canyon Preserve

- Time consuming
- Suboptimal efficiency
- Limited by human ability



2014 Black Mountain Brushfire

**How can we use technology  
to fight invasives and  
reduce wildfire risk at  
state/national parks?**



# PROJECT SUMMARY



## Ultimate Goal

- Combine drone technology with AI
- Provide advanced insight
- Help rangers with restoration



## Applying Drones

- Base Kit + Custom Parts
- Mounted camera for aerial imagery



## Utilizing AI

- YOLO v5 AI model
- Trained to detect seedlings, dry plants, invasive species and fire prone spots
- Processing in the web

# PROJECT PROCESS



Design and  
Engineering



Drone Imagery



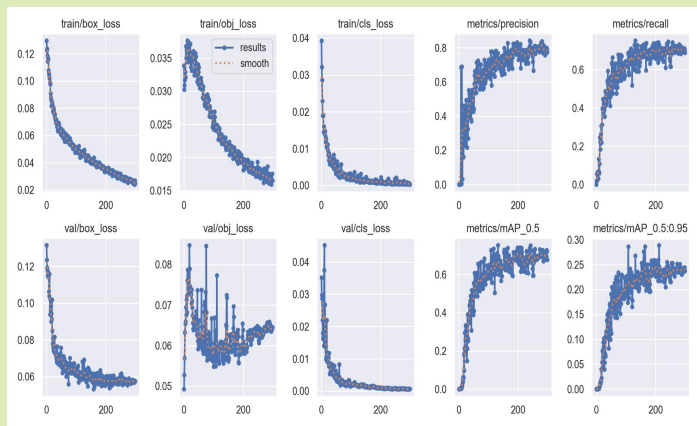
Image Analysis  
with AI



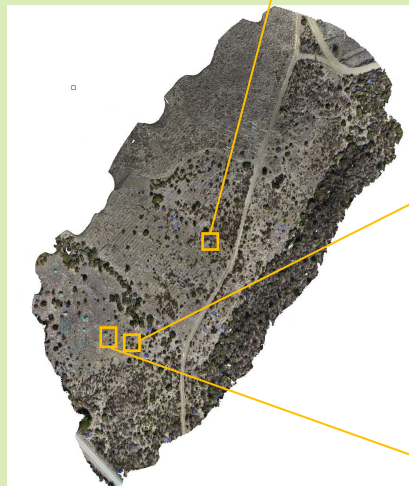
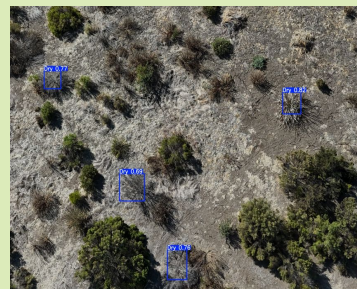
Terrain Mapping







# RESULTS



3D Terrain Maps



2D Terrain Maps

# SUMMARY

By integrating drone imagery and AI, this system enables more efficient and effective park management, enhancing the speed and accuracy of identifying critical areas such as dry spots and fire-prone zones.






# Thanks!

## Questions?

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