

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



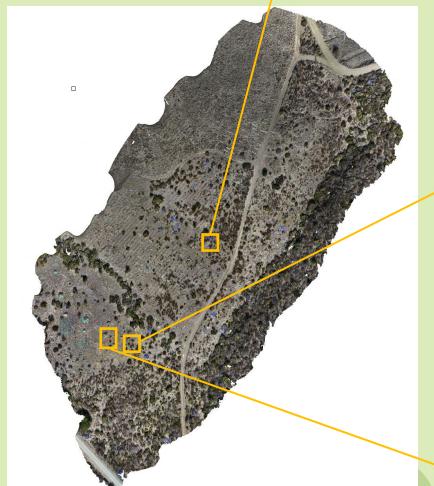
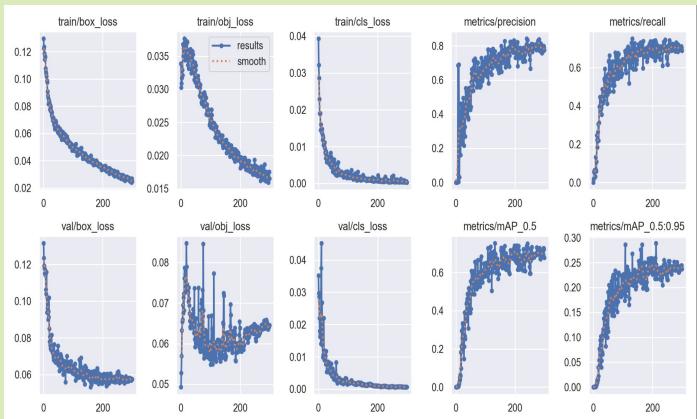
Image Analysis
with AI



Terrain Mapping



RESULTS



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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