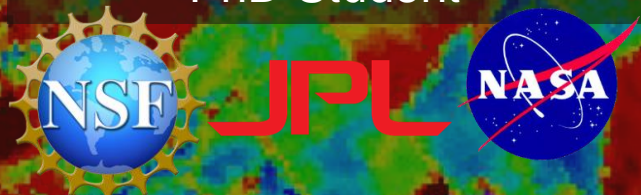


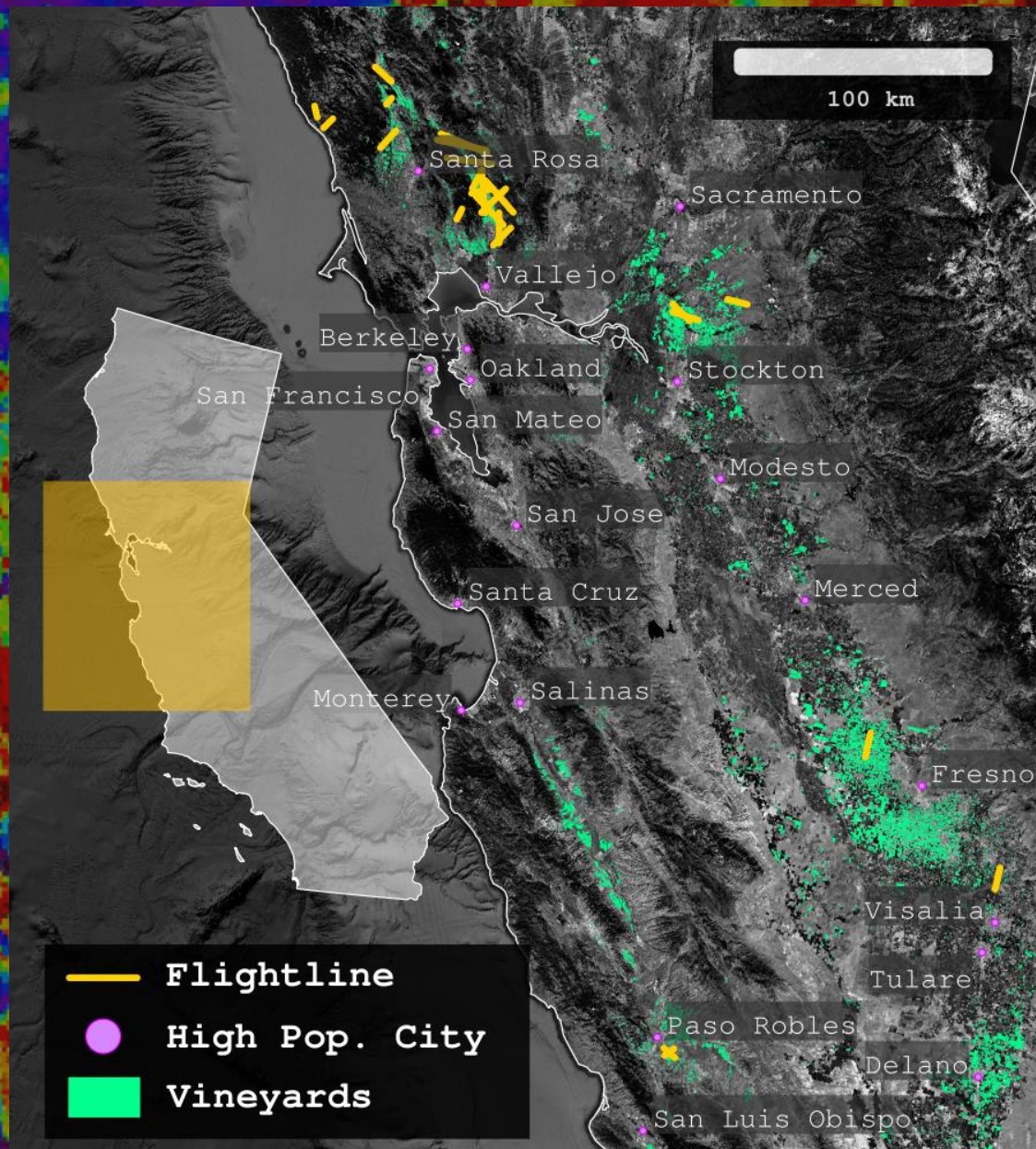


Fernando Romero Galvan
PhD Student

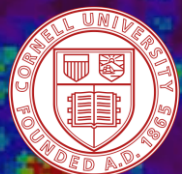


Detecting plant disease at scale with NASA imaging spectroscopy

NASA JPL SURP; FINESST Award #80NSSC21K1605

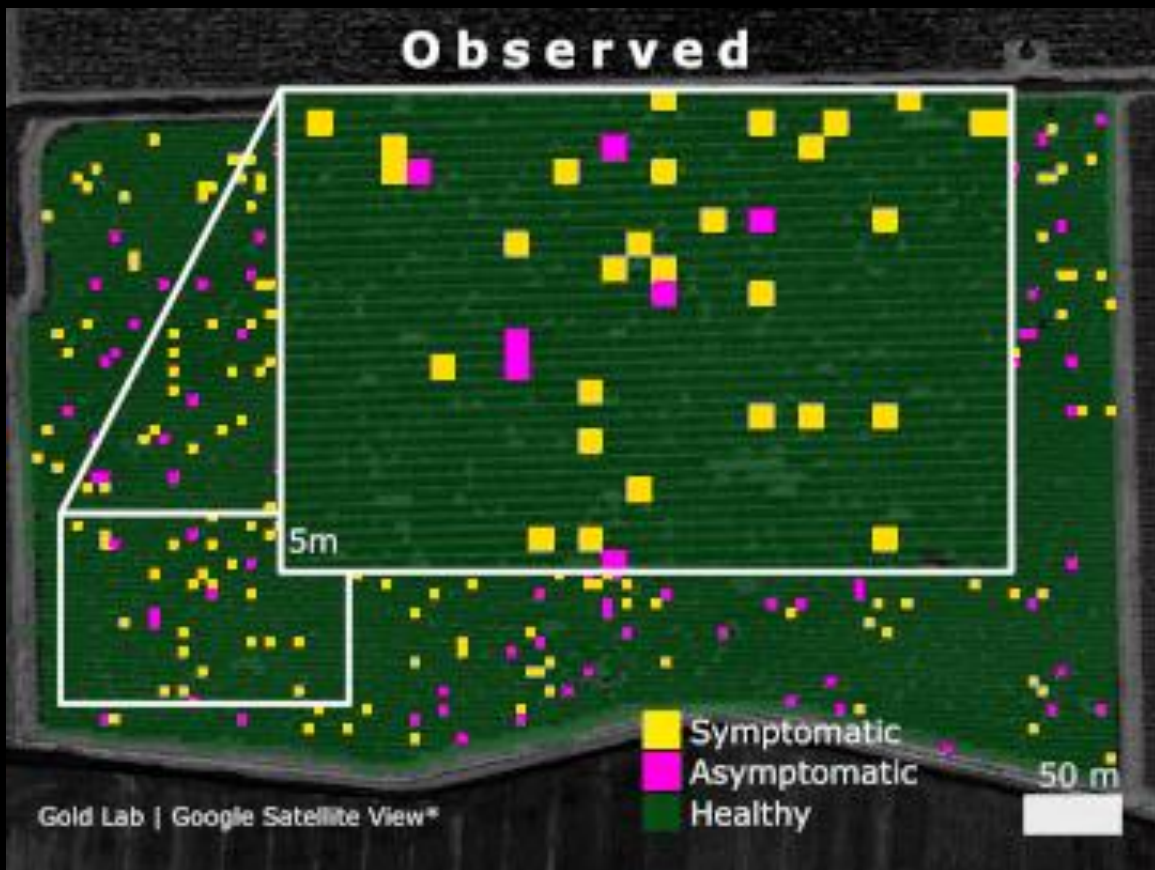


- Flightline
- High Pop. City
- Vineyards



H vs aSy vs Sy

Observed



Overpredicts symptomatic & confusing symptomatic/asymptomatic

| Resolution | Classification | Random Forest + SMOTE + Smoothing + Unmixing | |
|------------|-----------------|--|------------|
| | | Test Accuracy | Test Kappa |
| 1m | H vs Sy | 78% | 0.56 |
| | H vs (Sy + aSy) | 86% | 0.73 |
| 3m | H vs Sy | 77% | 0.55 |
| | H vs (Sy + aSy) | 76% | 0.51 |
| 5m | H vs Sy | 76% | 0.51 |
| | H vs (Sy + aSy) | 80% | 0.60 |

Kappa is accuracy accounting for random chance- anything above 0.6 is considered excellent.

Next steps:

- Pre-filtering out drought stressed vines
- Evaluating ratio prediction at coarser resolutions
 - Variety discrimination
 - Write the paper....!