



Earthmine Integration

Feature extraction from street view imagery



Earthmine vehicle for street view imagery collection



Using Ooze to extract trees and perform quality assurance



Automatically geo-rectified feature result overlaid on aerial imagery

Motivating Scenario

- Asset collection: City of Geelong, Australia used Earthmine imagery for street tree survey.
- Survey of 10s of thousands of trees was needed.
- Metadata was also required for each tree, including height, width, species, etc.
- Street view imagery allowed assessment to occur efficiently in office rather than out in the field.

Applying Ooze

- Initially developed for aerial imagery, Ooze was recently integrated with the Earthmine API.
- In this initial test case, tree data was extracted from street view imagery in San Diego, CA.
- Ooze automatically divided job into worker subtasks showing static street side views.
- 252 tiles; intranet deployment.
- 3 Ooze workers; 2-3 QA subtask per tile.

Results

- Time: .71 min / person / tile, including QA effort.
- In addition to Ooze internal QA, quality assessed in 3rd party GIS tool with random sampling.
- Extracted all trees visible in panoramas in approximately 94% of tiles (+/-10, 90% confidence), assessed in test sample relative to independent aerial imagery.
- Upcoming features include: metadata extraction, automatic removal of redundant features, and improved geo-location and panorama overlap.