

EcoScan - Release Notes

Release Version 1.00.0 | Production Version 2.10.8

EcoScan is a student-made application that uses AI and satellite imagery to track environmental changes via land-use metrics.

Features

Land types tracked:

- Urban land
- Agricultural land
- Waterways
- Arboreal land
- Grassland **BETA**
- Barren land **BETA**

Data Processing Methods:

- Batch processing
- Image resizing
- Image splitting **BETA**
- Image masking

Performance Tracking Metrics:

- Dice loss
- Jaccard loss
- Binary cross entropy
- Accuracy
- Confusion matrices
- Prediction visualizations

Note: Some features are expected to see considerable changes throughout future updates. The **BETA** label is an indication of these items, which are provided as a sample of features currently in development. Should you encounter any issues regarding our **BETA** features, please email our lead developer at will40923@gmail.com. For other inquiries, see 'Contact Us' on our home page.

EcoScan is a not-for-profit application developed by William Watson with consultation from scientists Ilmi Yoon and Andreas Gros. Users are encouraged to verify information independently before making any decisions based on the application. EcoScan, William Watson, Ilmi Yoon, and Andreas Gros disclaim any liability for omissions or inaccuracies in the information provided.

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Release Version 1.10.0 | Production Version 2.30.2

This update contains a complete rewrite of our AI model as well as multiple bug fixes.

Updates

Model Rewrite:

The previous model showed signs of overfitting, focusing on fine, insignificant details rather than the larger patterns associated with land cover classification. To address this we've dramatically simplified the model, resulting in higher overall binary cross entropy scores.

Bug Fixes

- Fixed a memory leakage issue that caused crashes when loading images in large batches.
- Ensured that data loading and unloading functions were only being run when necessary.
- Fixed an issue where the image splitting **BETA** feature sometimes produced image splices without classifications relevant to the current run.
- Added new error messages when the application fails due to an overlap between the training, testing, and validation sets.

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