Detection of hunting pits using airborne laser scanning and deep learning.

This dataset contains training and testing data for the detection of hunting pits in airborne laser data, as well as the trained model.

Code

code.zip

All code used to create this dataset and train the machine learning models can be found here: https://github.com/williamlidberg/Detection-of-hunting-pits-using-airborne-laser-scanning-and-deep-learning The code is also included in the file "code.zip"

Data

Lunar data were used to pre-train a machine learning model before training on the real data of hunting pits from earth. Data from a demonstration were then used to visually evaluate the result of the final model.

The data is thus split into three folders: lunar_data, training_data, and demonstration_area.

lunar_data

Data for transfer learning with radar imagery and impact craters on the moon.

> lunar_data\testing.zip – lunar test subset

> lunar_data\training.zip – lunar training subset

Each folder contains the sub-folders:

> bounding_boxes – txt files with location of features

> lables – tiff files with boolean representation of features

> hillshade – tiff files with Multidirectionl hillshade, from Whitebox Tools.

training_data

Data for training and testing of the machine learning model. These data are created from the same geographical area but have split into small chips of 250x250 pixels. There are two files, both with the same structure:

> 05m.zip – 0.5m resolution data

> 1m.zip - 1m resolution data

Each folder contains:

> testing – feature subset for testing the model

> training – feature subset for training the model

test_chips.csv – list of files for the test subset

The features and training folders contain the the sub-folders

bounding_boxes – txt files with location of features

lables – tiff files with boolean representation of features

and folders with tiff files for indices generated by [Whitebox Tools](#):

depthinsink - [Depth In Sink](#)

elevation_above_pit - [Elevation above pit](#)

hillshade – [Multidirectionl hillshade](#)

maxelevationdeviation -[Max elevation Deviation](#)

maximal_curvature - [Max curvature](#)

minimal_curvature - [Min curvature](#)

multiscale_stdon - [Multiscale standard deviation of normals](#)

multiscaleelevationpercentile - [Multiscale Elevation Percentile](#)

profile_curvature - [Profile curvature](#)

stdon - [Spherical Standard deviation of normals](#)

demonstration_area

Data from a separate demonstration area used to evaluate the model. There are two files, both with the same structure:

topographical_indicies_05m.zip – 0.5m resolution data

topographical_indicies_1m.zip - 1m resolution data

The folder layout is otherwise the same as for **training_data**