



Scientific Animal Image Analysis

SANIMAL

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UofA Jaguar and Ocelot Monitoring Project:

- Address challenges in managing data for citizen science projects that have camera traps
- Not many applications available for coordinating users, file permissions, sharing etc. especially to hide sensitive data (GPS location of Jaguar etc.)
- Provides ways to easily clean, tag and bulk upload image data from SD cards
- Metadata is important for training the deep learning models (Faster R-CNN etc.)
- Goal is to make it easier to locate and curate rare images and observations, identifying them using deep learning techniques integrated into the upload pipeline
- Make it easier to build better models



How it works

- User gets a CyVerse Account
- Project manager gives permission to authorized users to specified directories in CyVerse Data Store (iRODS)
- User downloads SANIMAL java app (uses Jargon)
- User collects SD card from traps and uploads data (after curating, and QA/QC)
- iRODS rules take uploaded metadata and apply AVU to files
- Sensitive data get restrictive permissions and is not visible to others.



Sanimal Goal 1

- Reduce the time it takes to sort or “tag” photos taken by camera traps utilizing JavaFX

Scientific Animal Image Analysis (SANIMAL)

Home Import Collections Analyze/Query Map Settings

Badger
Taxidea taxus
Keybind

Bats
many ssp.
Keybind

Bear
Ursus americanus
Keybind

Bighorn
Ovis Canadensis nelsoni
Keybind

Birds
many ssp.
Keybind

Bobcat
Lynx rufus
Keybind

Coati
Nasua narica
Keybind

Cow
Bos taurus
Keybind

Search Species

New Species Edit Delete

Coyote 1

Test Location

Covert 07.24.2015 03:53:37

Test Location
46.01
51.0
54.0
1334m

Date Taken: July 24, 2014 at 3:53

Brightness: [Slider]
Contrast: [Slider]
Hue: [Slider]
Saturation: [Slider]

Reset Image

SanimalMetaTest

- 2015 07 01 22 25 39.JPG
- 2015 07 09 10 05 18.JPG
- 2015 07 24 03 53 37.JPG

Import Images Delete

Sanimal Goal 2

- Ensure the software is cloud driven using CyVerse to ease collaboration

The screenshot displays the Scientific Animal Image Analysis (SANIMAL) web interface. The interface is organized into three main vertical panels: 'My Collections', 'Items to Upload', and 'Items to Download'. The top navigation bar includes 'Home', 'Import', 'Collections', 'Analyze/Query', 'Map', and 'Settings'. The 'My Collections' panel on the left lists collections such as 'sue', 'smalusa', 'test', 'try again', and 'David's New Test Collection'. The 'Items to Upload' panel in the center shows a folder named 'SanimalMetaTest' containing three image files with their respective upload dates and times. The 'Items to Download' panel on the right lists items from user 'dslovikosky', including two items with their upload dates and species tagging information. A 'No tasks running' message is visible at the bottom center of the interface. The bottom of the interface features buttons for 'New Collection', 'Delete Collection', and 'Refresh Uploads', along with a search bar for uploads.

Sanimal Goal 3

- Supply output in a standard format (CSV) to be processed and visualized easily

The screenshot displays the Scientific Animal Image Analyzer (SANIMAL) web interface. The top navigation bar includes Home, Import, Collections, Analyze/Query, Map, and Settings. The main area is titled "Create a Query" and features a sidebar with filter options: Species Filter, Location Filter, Year Filter, Month Filter, Hour Filter, Day of Week Filter, Start Date Filter, End Date Filter, and Collection Filter. The "Day of Week Filter" is currently selected, showing a list of days from MONDAY to SUNDAY, with SUNDAY checked. Below the filters are "Select All" and "Select None" buttons. A "Perform Query" button is located at the bottom left of the filter section. The "CSV Output" section at the bottom is divided into three columns: "Raw CSV", "Location CSV", and "Species CSV". The "Raw CSV" column contains two lines of data: "2015 06 28 12 00 01.JPG, June 28, 2015 12:00, Antelope jackrabbit; Lepus alleni" and "2015 06 28 12 00 02.JPG, June 28, 2015 12:00, Antelope jackrabbit; Lepus alleni". The "Location CSV" column contains the text "Second Location, Loc02, 41.27, -134.84, 7838.0m". The "Species CSV" column contains the text "Antelope jackrabbit; Lepus alleni". Each column has a "Copy" button at the bottom.

Scientific Animal Image Analyzer (SANIMAL)

Home Import Collections Analyze/Query Map Settings

Create a Query

Select filters and add them to the query

Species Filter
Location Filter
Year Filter
Month Filter
Hour Filter
Day of Week Filter
Start Date Filter
End Date Filter
Collection Filter

Hour Filter

Day of Week Filter

Perform Query

CSV Output

Raw CSV

Location CSV

Species CSV

```
2015 06 28 12 00 01.JPG, June 28, 2015 12:00, Antelope jackrabbit; Lepus alleni
2015 06 28 12 00 02.JPG, June 28, 2015 12:00, Antelope jackrabbit; Lepus alleni
```

Second Location, Loc02, 41.27, -134.84, 7838.0m

Antelope jackrabbit; Lepus alleni

Copy Raw CSV Copy Location CSV Copy Species CSV

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