Permit 2018-017:

Name:
  Ruth Anand

Department or Organization:
  Homeschool

Email Address:
  ruth@anandfamily.org

Are you requesting renewal of a previously approved permit applicaton?
  No

Type of activities at The University of Akron Field Station and Bath Nature Preserve
  Research

Title of project or class name and course number:
  Snap That! Using Wildlife Camera traps with Artificial Intelligence and Machine Learning to Identify, Sort, and Analyze Wildlife Data

Date/Dates requested:
  September 10, 2018 - May 15, 2019

Number of people in group:
  5

I am requesting permission to use a Research Area.
  Yes

I am requesting permission to use a Sensitive Area.
  No

I am requesting permission to use areas outside of the designated Research or Sensitive Areas.
  No

I would like to use the Martin Center for Field Studies and Environmental Education for this prop...
  No

Will the activity involve destructive sampling/collecting?
  No

Which Research Areas?
  Grandview Alley
  South Woods

Provide a brief description of (1) your proposed activities, (2) goals, and (3) impacts of your u...
  Background:

Using camera traps in national and state parks to take pictures of animals allows wildlife biologists to study and observe wildlife in a way they could not before. This monitoring is essential for keeping track of animal movement patterns, habitat utilization, population demographics and see how environmental changes in urban and suburban areas affects wild life populations. With new digital camera technologies, we can easily set up many cameras to take several hundred pictures in a week, but this becomes difficult and time consuming for scientists to view, sort and identify species and animal movements.

Engineering Objective:

To develop a software system that uses artificial intelligence (AI) and machine learning (ML) to identify species of animals from the photos taken with camera traps. This will eliminate the time it takes for humans to look through every picture, and reduce human error. This should allow more time for scientists to analyze the information, and draw meaningful conclusions from the data.

Methods and Procedures:

1. Identify the locations where there are animal tracks or commonly sighted animal habitats
2. Set up the tracking cameras in those areas
3. Check the cameras on a biweekly basis, and download the pictures from the flash drives.
4. Upload pictures to a cloub based service.
5. Research and identify AI and ML tools that can be used for identification of animals, and figure out the best software that is available for non-commercial/research purposes
6. Use the scientists' expertise to verify and train the AI/ML system to correctly identify the animals and program the software accordingly
7. See what other information can be combined to the date and time of the pictures, such as weather information to see if we can draw any meaningful conclusions from such data.

Conclusion:

I hope this program will help wildlife biologists by reducing the time they have to spend on sorting pictures and getting the data from them, so they have more time to focus on solving the problems at hand using the data from the pictures.

References:

https://www.npca.org/resources/3236-the-art-and-science-of-camera-trapping

By checking this box, I agree to the above terms and state that all of the above information is c...

I agree