

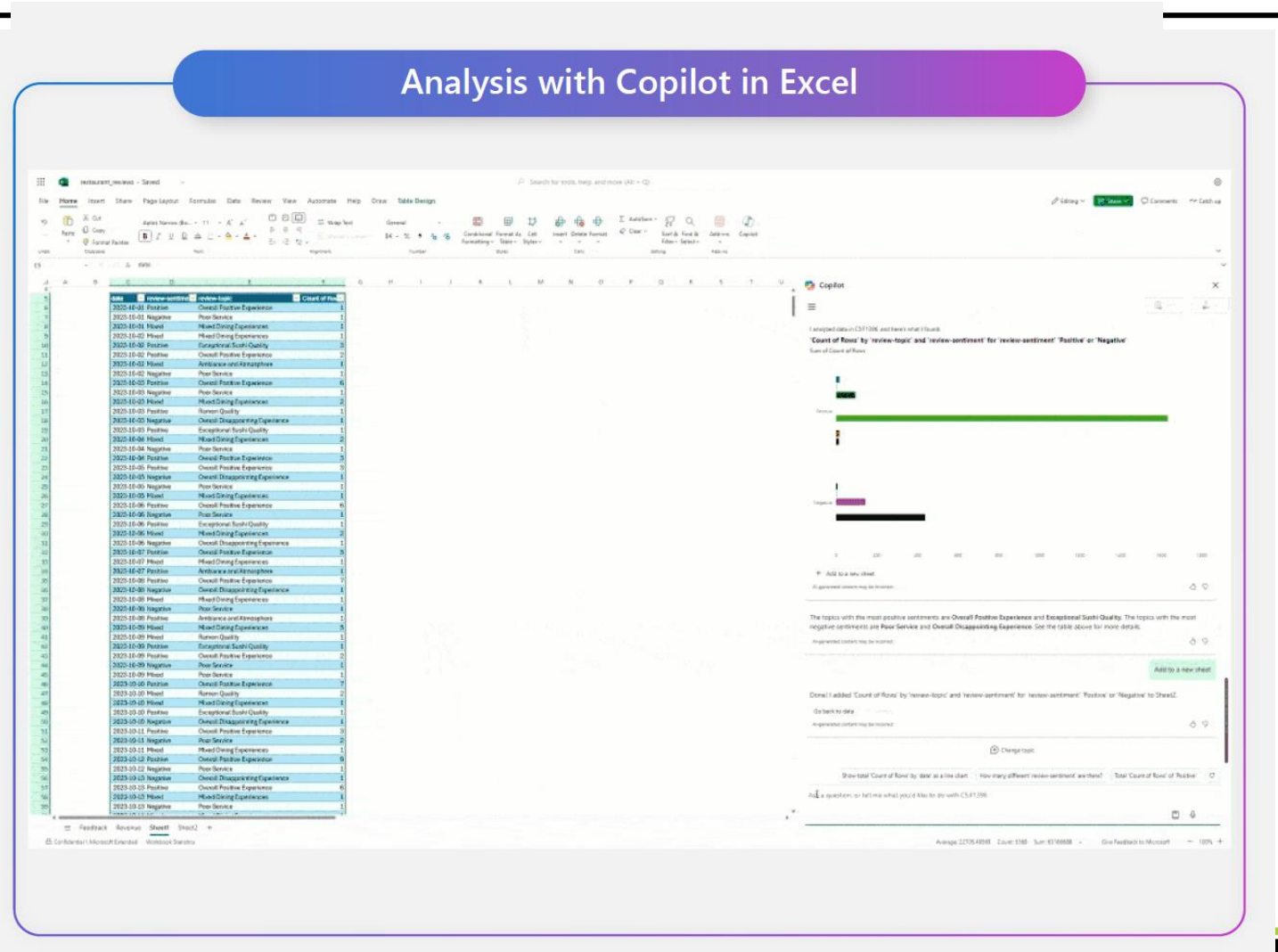


AI at Work:
Innovation, Impact, &
Intelligence



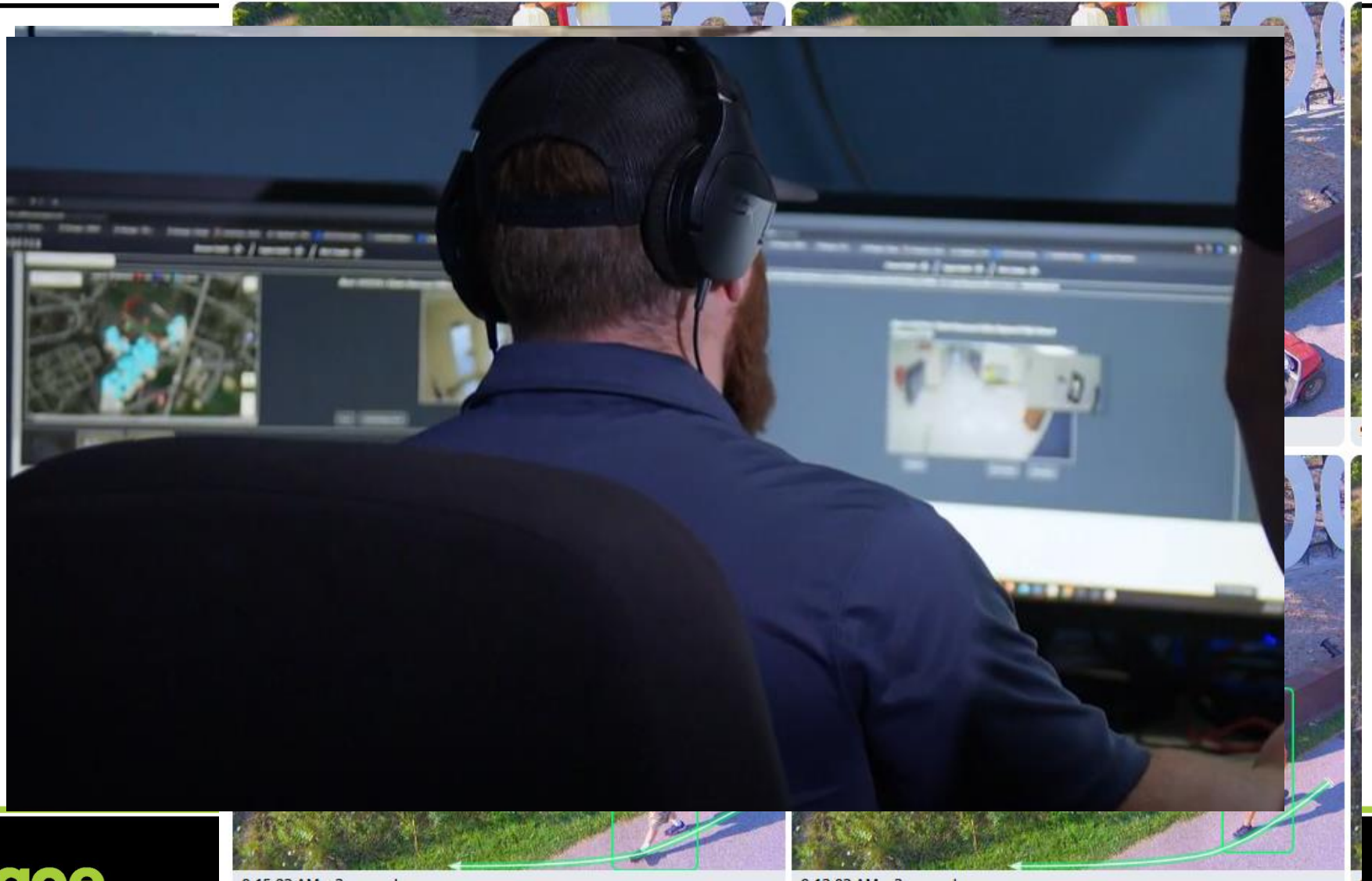
AI at Cleveland Metroparks

- Business Functions
 - Microsoft Copilot
 - ChatGPT
- Chatbots
- Brainstorming
- Routine Tasks
- Comparison/Ranking



Camera Detection & ZeroEyes

- Cameras:
 - Smart Search
 - Motion Detection
- ZeroEyes
 - Firearm Detection

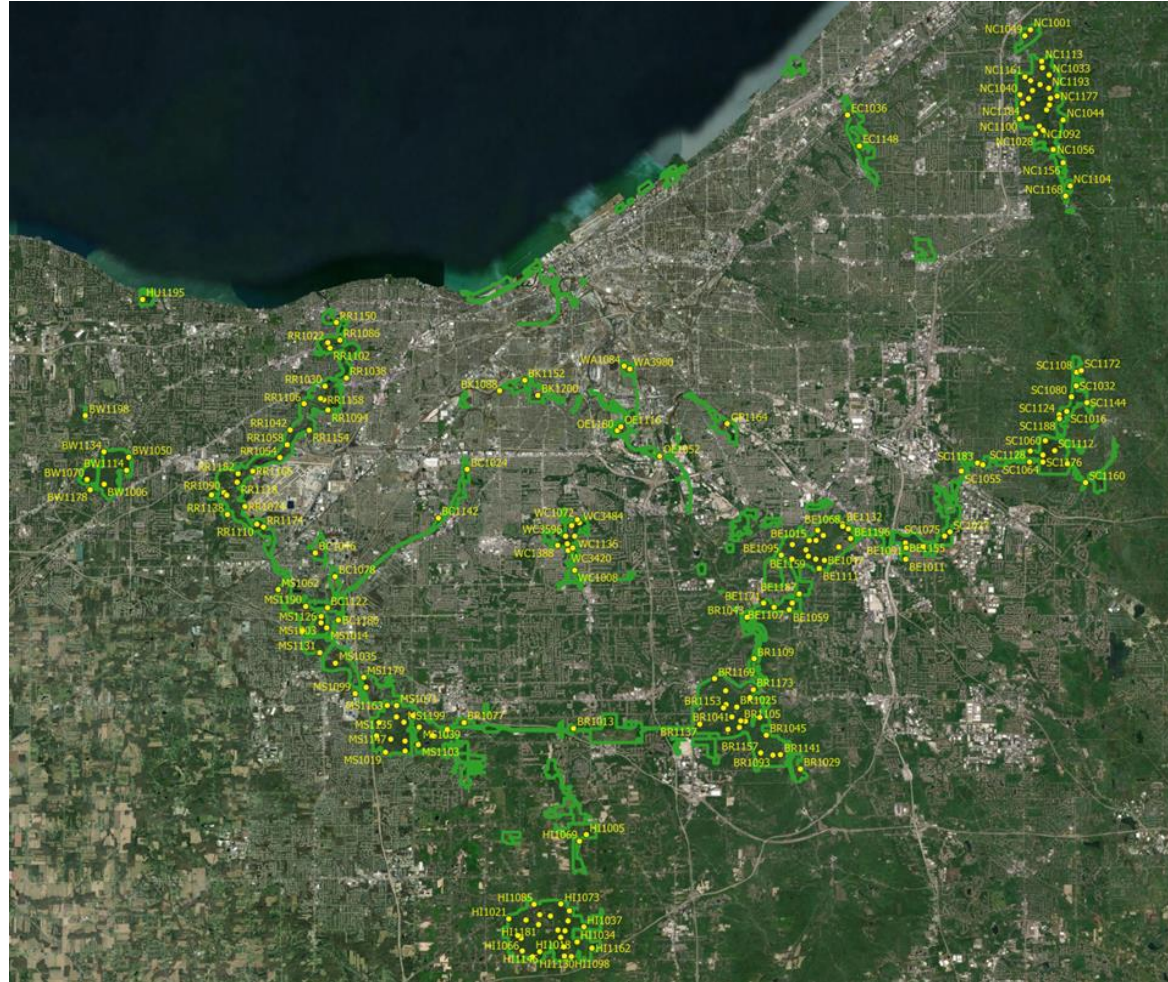


Other Uses

- Animation
 - Veo (Gemini)
- Digital Workers
 - Call Centers



Natural Resources wildlife monitoring



Wildlife camera monitoring

Inventory wildlife



Understand wildlife interactions & relationships



Understand relationships with park users & pets




Publications and partnerships

ECOGRAPHY

Research

At what spatial scale(s) do mammals respond to urbanization?

Remington J. Moll, Jonathon D. Cepek, Patrick D. Lorch, Patricia M. Dennis, Terry Robison and Robert A. Montgomery



Humans and urban development mediate the sympatry of competing carnivores

Remington J. Moll¹ • Jonathon D. Cepek² • Patrick D. Lorch³ • Patricia M. Dennis^{4,5} • Terry Robison³ • Joshua J. Millsaugh⁶ • Robert A. Montgomery¹

ScienceAdvances Current Issue First release papers Archive About ▾

HOME > SCIENCE ADVANCES > VOL. 11, NO. 9 > WHEN THE WILD THINGS ARE: DEFINING MAMMALIAN DIEL ACTIVITY AND PLASTICITY

RESEARCH ARTICLE | ECOLOGY

f X t in

When the wild things are: Defining mammalian diel activity and plasticity



MegaDetector = image categorization

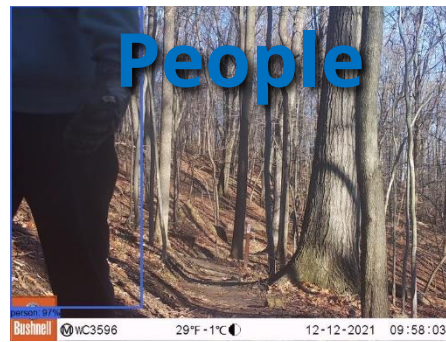
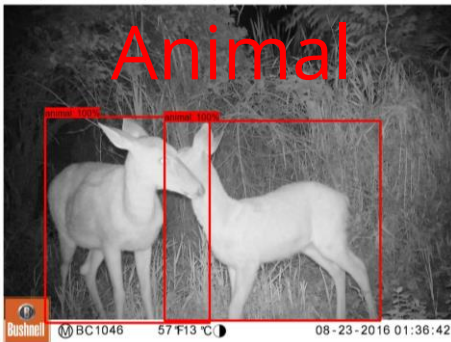


MegaDetector

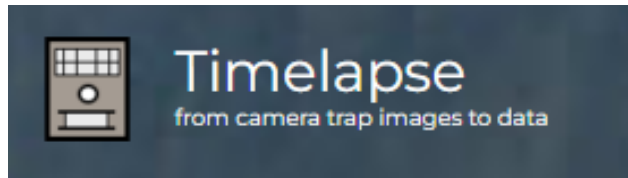
...helping conservation biologists spend less time doing boring things with camera trap images.

- AI model that identifies:
 - animals
 - vehicles
 - people
- Increases image processing speed by identifying "empty" images.

50-70% Empty



Timelapse (program) = species identification



<https://timelapse.ucalgary.ca/>

Timelapse: Helping You Analyze Images and Videos (CMTimelapseTemplate10.25.23.ddb)

File Edit Options View Select Sort Recognitions Window Help

Image data (All files selected)

File: 03300373.JPG RelativePath: MS1190\100EK1 Camera name: DateTime: 30-Mar-2024 11:30:46 Analyst: Shea Problem: Empty ☐ Animal ☒ Person ☐ Vehicle ☐

Deer ☐ Money Shot ☐ Baiting? ☐ with prey? ☐ Park staff? ☐ Camera check? ☐ Species 1: DEER #Species1: 1 Species 2: #Species2: 0 Young present? ☐

On leash? ☐ Off leash? ☐ Bike? ☐ Running? ☐ Follow up flag ☐ Notes:

Copy previous values

Instructions View images Folder data Data table

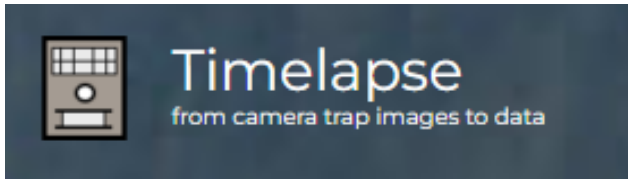
Displays the contents of the database, including changes as they occur. The highlight row indicates the currently viewed file

Species1	CountSpecies1	Species2	CountSpecies2	Young_present	OnLeash	OffLeash	Bike	Running	FollowUp	Note
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
MMV	0		0	false	false	false	false	false	false	
MMV	0		0	false	false	false	false	false	false	
MMV	0		0	false	false	false	false	false	false	
DEER	1		0	false	false	false	false	false	false	
DEER	1		0	false	false	false	false	false	false	
DEER	1		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	
DEER	1		0	false	false	false	false	false	false	
DEER	1		0	false	false	false	false	false	false	
DEER	1		0	false	false	false	false	false	false	
	0		0	false	false	false	false	false	false	

File: 306567 of 506824 Select: All files Sorted by: RelativePath1 then by Date/Time

Timelapse (program) = species identification

Species 1 = Deer



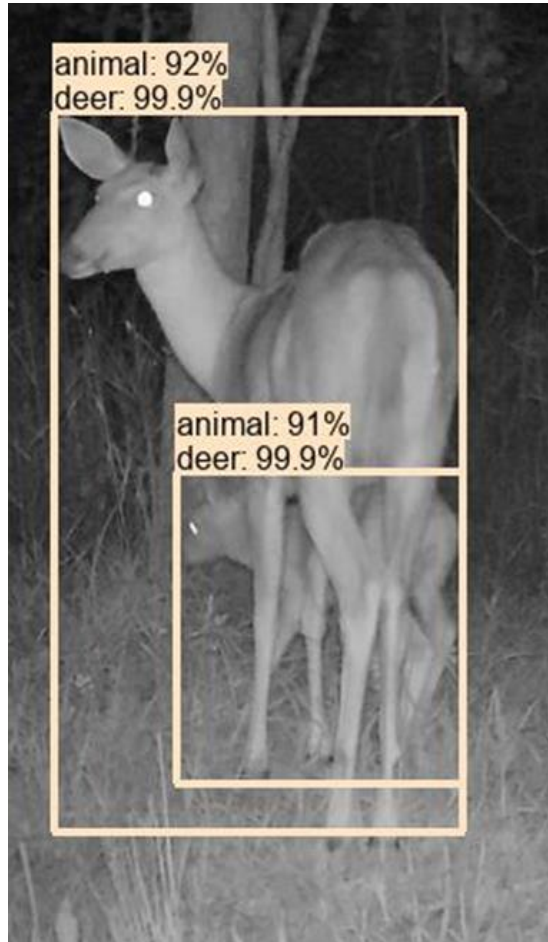
<https://timelapse.ucalgary.ca/>

The screenshot displays the CMTimelapse software interface. At the top, a menu bar includes File, Edit, Options, View, Select, Sort, Recognitions, Window, and Help. Below the menu, a toolbar shows various icons for file operations and viewing. The main window is divided into several sections:

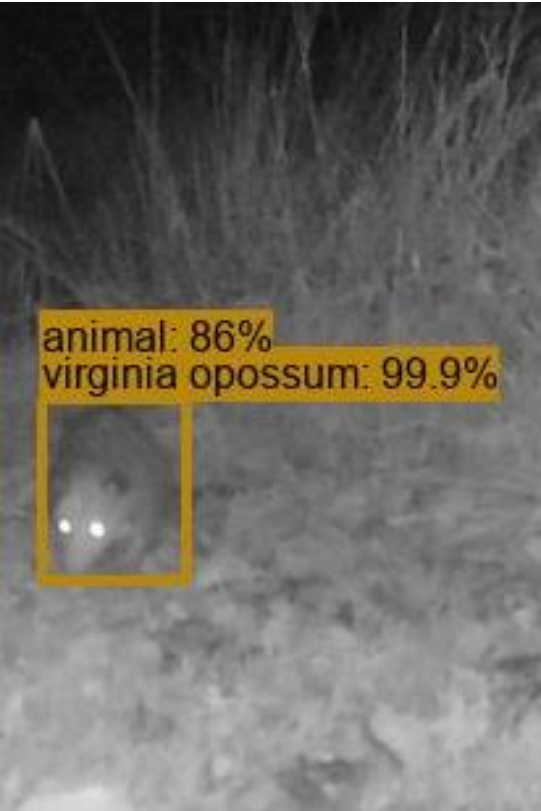
- File Information:** Shows the current file as 03300373.JPG, its relative path as MS1190\100EK1, and the camera name as MS1190. The date and time are 30-Mar-2024 11:30:45.
- Species Selection:** A dropdown menu is open, showing a list of species including DEER, DOGDOM, FLYSQL, FOXSQL, GRFOX, GRYSQL, HORSE, HUMAN, MINK, MLGSQL, MMV, MUSKRAT, NOTHING, OPOSSM, OTTER, RABBIT, RAT, RCOON, RDOFOX, REDSQL, SKUNK, SQL, TURKEY, and UNKNOWN. The 'DEER' species is selected.
- Image View:** A photograph of a deer is displayed, with a red bounding box around it. The text 'deer 1(97)' is visible in the top left corner of the image.
- Data Table:** A table showing the contents of the database, including changes as they occur. The table has columns for Species1, CountSpecies1, Species2, CountSpecies2, Young_present, OnLeash, OffLeash, Bike, Running, FollowUp, and Note. The table is filtered to show only 'DEER' entries.

The status bar at the bottom shows the file path 'File: 306567 of 506824', the selection 'Select: All files', the sorting criteria 'Sorted by: RelativePath1 then by Date/Time1', and the current date and time '03-30-2024 11:30:45'.

Megadetector & Superclassifier



Megadetector & ~~Superclassifier~~SpeciesNet



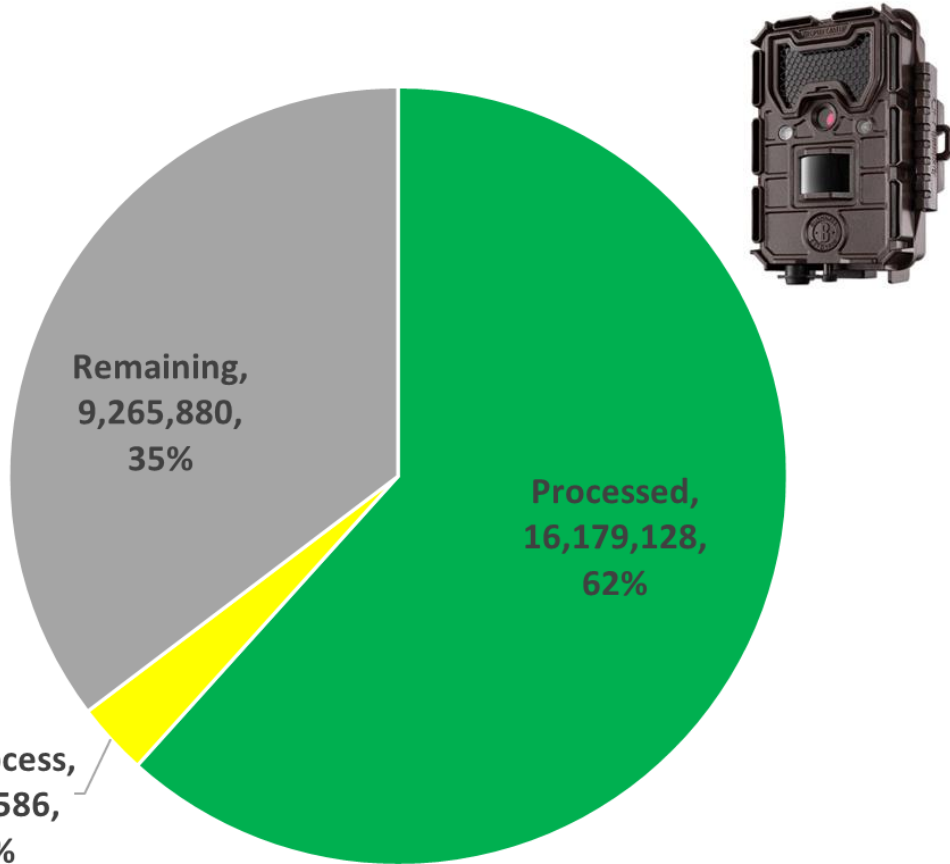
CLASS_SIKA DEER

Result type: detections_animal, image: 77thCameraCheckFebruaryMarch2025/BE1143/100_BTCF/IMG_0030.JPG, max conf: 0.879, pre-



Speeding up image processing

26,234,594 million images



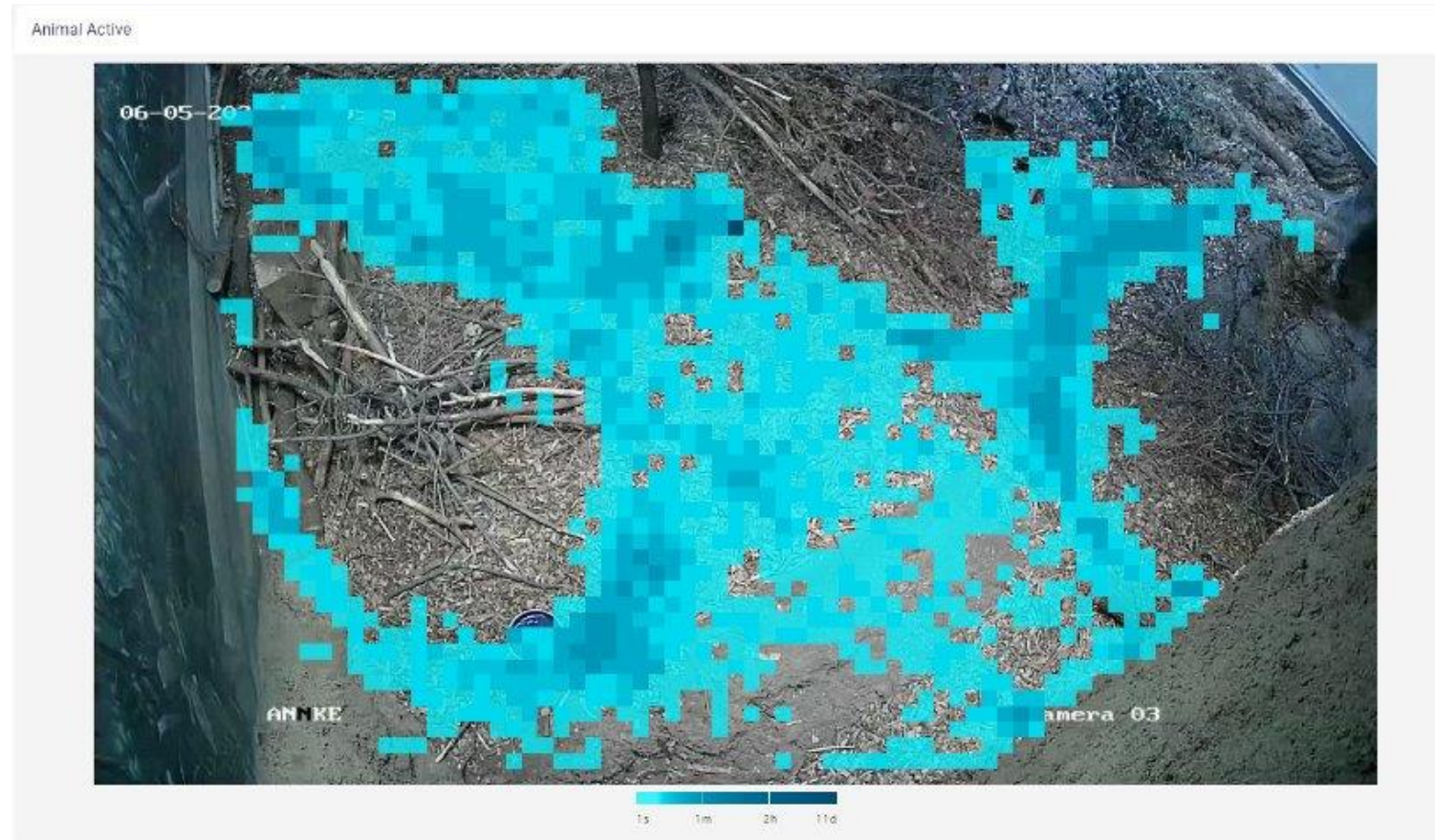
Zoo – Animal Behavior

- Behavior research → Improved animal wellbeing



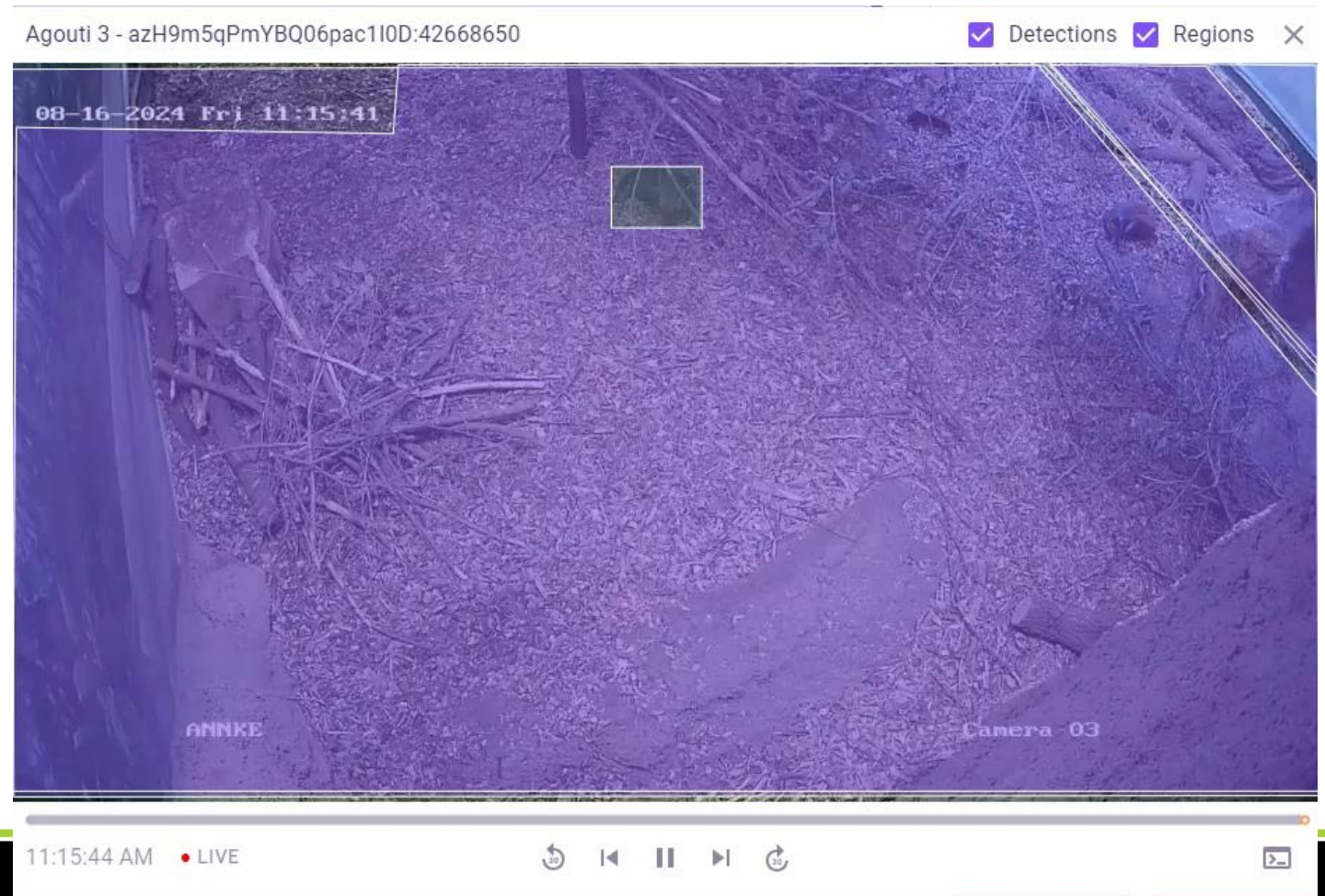
AI-based Learning Programs → Automatic Behavior Data Collection?

- Initial test of AI program using red-rumped agouti
 - Location
 - Activity level
 - Proximity/interactions



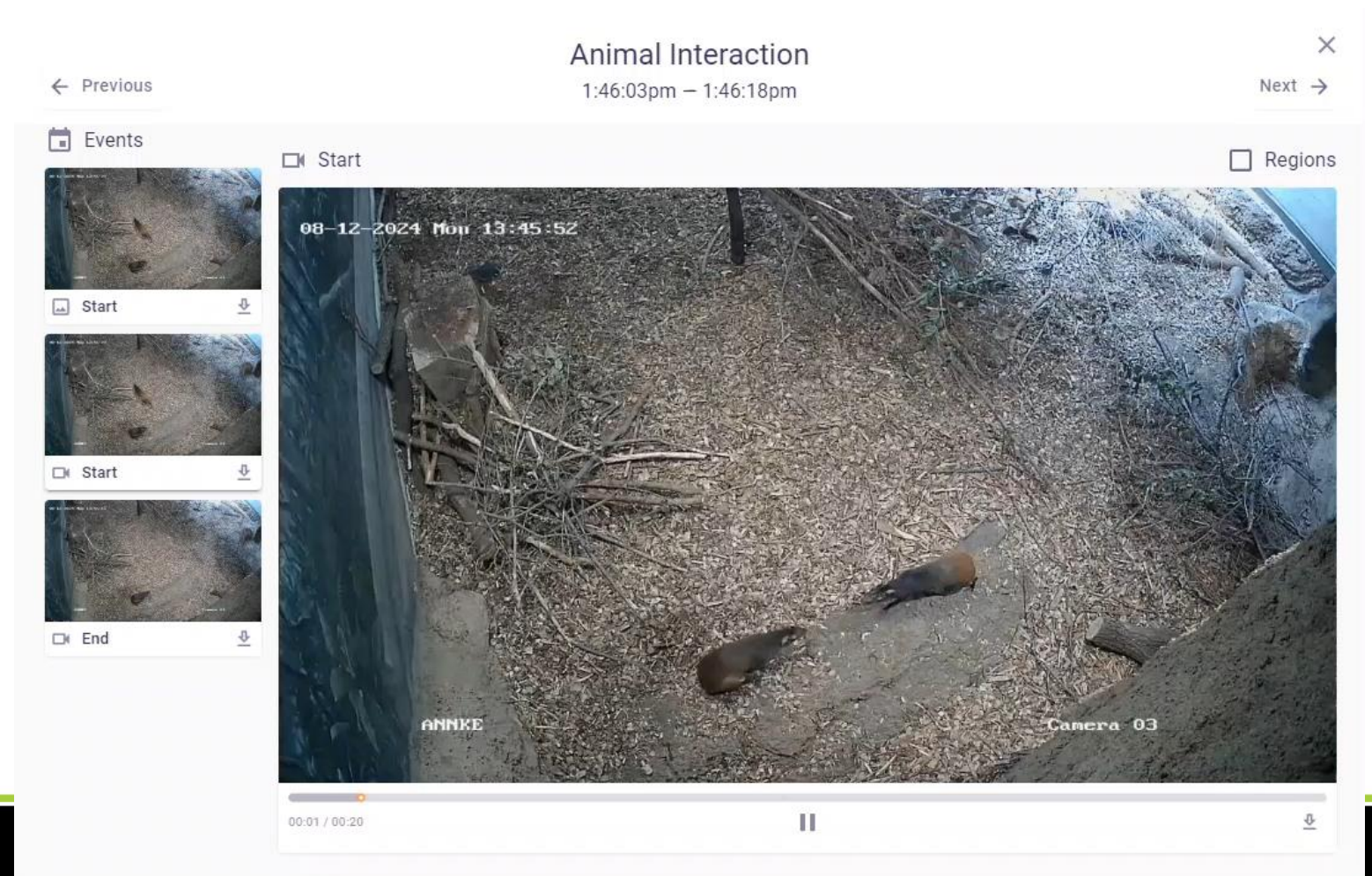
AI-based Learning Programs → Automatic Behavior Data Collection?

- Initial test of AI program using red-rumped agouti
 - Location
 - Activity level
 - Proximity/interactions



AI-based Learning Programs → Automatic Behavior Data Collection?

- Initial test of AI program using red-rumped agouti
 - Location
 - Activity level
 - Proximity/interactions



Continued Exploration

- Application to replace high person time investment for ongoing monitoring programs
 - Expand data collection beyond Zoo open hours
- Detection and quantification of specific behaviors to answer questions and improve management
 - Compared to traditional, human-based data collection methods
- Detect distinct events
 - Births, falls, altercations, etc.
 - Trigger alerts that contact Animal Care for immediate responses





Questions?

