

Face recognition is used to identify lemurs in conservation attempt

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Tracking individual lemurs, such as the endangered red-bellied lemur pictured here, is no easy task. But researchers hope that facial recognition software can help in the fight for the survival of the bushy-tailed primates. Photo: Wikimedia

It sounds like something out of a crime show: police poring over data from surveillance cameras, using facial recognition software to nab the alleged offender. But now, researchers have adapted this software for use in the forests of Madagascar, identifying and tracking the whereabouts of endangered lemurs.

The software, called LemurFaceID, allows scientists to more effectively track and protect the primates. The software can distinguish individual lemurs from digital photographs with greater than 97-percent accuracy. Researchers hope the tool will improve conservation of the species while providing a more humane, noninvasive way to identify individual lemurs. The team recently published their work in the journal *BioMed Central Zoology*.

Traditional Tracking Methods Are Challenging

To track lemurs, scientists traditionally trapped and tagged individual animals. They cataloged their physical characteristics, such as body size, markings, notable scars or injuries. But tracking these lemurs is both time-consuming and challenging because their appearance changes over time. This has made long-term studies of lemurs quite difficult.

“[We] weren’t particularly satisfied with the common approaches used in lemur research,” Rachel Jacobs, a co-author on the paper, told reporters. She is a biological anthropologist at George Washington University. “[S]o we aimed to do something different with red-bellied lemurs, and we sought the expertise of our computer science collaborators,” she said.

To develop the software, Jacobs turned to Anil Jain, a biometrics expert and distinguished professor at Michigan State University. Biometricians study specific characteristics of an animal's body, looking out for patterns.

Like Humans, Lemurs Have Unique Facial Characteristics

Jain and his students in the computer science department created a set of data that included 462 images of 80 red-bellied lemurs primarily taken in Ranomafana National Park in Madagascar. The researchers also included an additional 190 images of other lemur species to help expand the software’s capacity. To identify an individual, LemurFaceID first identifies its eyes. It then analyzes the characteristics of each surrounding pixel in the image.

“Like humans, lemurs have unique facial characteristics that can be recognized by this system,” Jain tells MSU Today.

The new software will give lemur researchers and conservationists a new tool for tracking lemurs over time. The tool will give scientists data that will help them measure things like population growth and decline, along with rates of infant and juvenile mortality.

Helpful Tool In The Fight Against Poachers

The software could also aid in the fight against poachers who try to capture the big-eyed primates. It is illegal to own a pet lemur in Madagascar.

With only a clear digital image, locals and tourists can report sightings to law enforcement and researchers to quickly identify lemurs that have been illegally taken from the wild.

The researchers believe LemurFaceID could be adapted to protect other mammals with variable facial and skin patterns as well. Jain tells MSU Today that he believes the software could work for bears, red pandas, raccoons and sloths.