



Utilizing Deep Learning to Process Camera Trap Images

Natalia Hrynko¹ and Jed Long²

¹Department of Geography and Environment, Western University, nhrynko@uwo.ca

²Department of Geography and Environment, Western University, jed.long@uwo.ca

Camera traps are remotely triggered cameras used within ecology to study the distribution, behavior, and abundance of wildlife. Over the past two decades, camera trap technology has greatly improved allowing for the capture and storage of large quantities of high-quality images, resulting in widespread use. With the increase in available photo data, the ability to classify photos efficiently becomes a bottleneck for information extraction. Historically photo classification has been processed manually, requiring significant time and labour, with the potential for human error. Artificial Intelligence (AI) models have been created to reduce reliance on manual classification; however, the effective classification of AI can depend on the geographic environment under which the model was trained. My research will use a Microsoft object-detection model (MegaDetector) to test the accuracy in classification of false positives (images that do not contain an animal). The dataset tested will include photos collected for 2 to 4 months at Long Point National Wilderness Area (LPNWA) located in Southern Ontario, Canada, under protocols created to favour the detection of the eastern coyote (*Canis latrans*) and white-tailed deer (*Odocoileus virginianus*). In total photo data from 10 camera locations, will be tested, totaling approximately 50000 photos. This project aims to inform best practices for classifying large amounts of camera trap data.