Saving the Tassie Devils with Machine Learning Case Study

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The Tasmanian Devil Unzoo, run by the Tasmanian Nature Company (TNC) is a global leader in shaping the way zoos evolve in the 21st century. The Unzoo invites visitors into natural habitats in which cages and barriers are removed or concealed so that animals (wild and resident) are encouraged to interact naturally with the environment.

Altis is a proud Founding Partner of Data4Good. Data4Good's mission is to inspire and enable people so that we can use our skills and passion to benefit humanity.

Background

The Tasman Peninsula in South East Tasmania is the last place where there are no wild Tasmanian Devils with the deadly Devil Facial Tumour Disease (DFTD). This is due a canal that only leaves a narrow strip of land that connects the area to the rest of Tasmania. The DFTD emerged in 1996 and still has no cure. The devils transmit the illness to each other when fighting and playing as part of their normal behaviour. The TNC is playing a critical role in preserving Tassie Devils in the Tasman Peninsula – the last safe refuge for wild devils.

The Problem

The TNC have been capturing photos and videos from their camera traps since 2015 as part of their 'Devil Tracker' program, but they have not had the time to make use of the valuable data they have collected.

Currently, someone must manually sort through every photo, select the ones with Tassie Devils in them, and analyse it for injuries or signs of DFTD. This is extremely time consuming and prone to human error. If a Devil is found to have the disease it is imperative that the TNC knows about it as soon as possible so they can prevent further spread.

The Solution

After reviewing the requirements brought about by a large and daily updated image dataset, we recommended the use of Amazon Rekognition. Amazon Rekognition offers pre-trained and customisable computer vision (CV) capabilities to extract information and insights from images and videos.

We first enhanced the dataset using open-source machine learning tools built for similar datasets then Amazon Rekognition was able to accurately classify each photo as "Tassie Devil" or "Not Tassie Devil".

Tangible Outcomes

With the Amazon Rekognition model in use the TNC will save hours each day and be able to use that time to do the work that matters. TNC is continuing to work with Data4Good to try to make use of this valuable data and find more ways in which they can help.

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