



## **AI FOR ANIMAL WELFARE: A STRATEGIC PARTNERSHIP TO ADVANCE ZOO ANIMAL WELFARE UTILISING ARTIFICIAL INTELLIGENCE TECHNOLOGY**

By

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### **ABSTRACT**

While sustainability governs many of the actions we take in the zoo and aquarium industry, animal welfare is becoming increasingly more important for zoos worldwide. Previous studies showed evidence that it is not only impactful for the animals themselves, but positive animal welfare is a significant driver of visitor satisfaction, and as such, indirectly contributes to improved conservation and sustainability outcomes. Observations of animal behaviour are an integral part of understanding and assessing animal welfare. While technology allows us to record animal behaviour 24 hours a day, reviewing and interpreting this video footage requires significant human resources, limiting the ability of zoos to gain optimal insight on animal behaviour for many species. Perth Zoo partnered with Microsoft to demonstrate how different industries can work together to improve animal welfare and life on land (UNSDG 15) in a collaborative initiative (UNSDG 17). By customising existing technology, based on Microsoft's Azure platform, we utilise artificial intelligence for animal behaviour and welfare applications within zoo environments. A proof-of-concept project has been developed, analysing video footage from Perth Zoo's meerkat exhibit, using species identification, object tracking, and spatial analysis to determine the usefulness of these technologies in informing our understanding of how animals use their exhibit space. Artificial intelligence is largely unexplored in animal welfare science, particularly in zoo environments. Microsoft and Perth Zoo aim to inspire further action within the zoo community by using this cutting-edge technology. This presentation shares our findings, with commentary on how these technologies can be utilised for animal monitoring to advance animal welfare, and to create efficiencies in video footage review.

### **BIOGRAPHY**

#### **Dr Matyas Liptovszky**

Dr Liptovszky is Director Life Sciences at Perth Zoo. Prior to this position he worked in a number of European and UK zoos both as a zoo and wildlife veterinarian and in different leadership roles. He worked in a wide range of field conservation and research projects in Europe, the UK, Asia, Africa, Central America and Australasia. He graduated as a veterinary surgeon in 2005, while also earned a diploma in wildlife management during his studies. He holds a master in exotic animal medicine and an MSc in science communication. He is an honorary Assistant Professor of Zoo Animal Medicine at the University of Nottingham, School of Veterinary Medicine and Science (UK) and Veterinary Advisor of the Western lowland gorilla EEP.

#### **Brian Carter**

Brian Carter is a Cloud Specialist with Microsoft Australia. Having spent most of his career working with technology, Brian uses this background to satisfy his personal passion for driving greater awareness of and solving sustainability and conservations challenges, using innovative technology solutions. Based in Western Australia, Brian spends his time helping customers in the government and education sectors to achieve more.