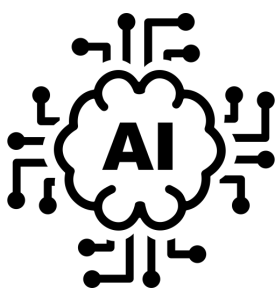


HONOURS PROJECT

Training the 'Catling Gun': an AI object classification and tracking system for invasive species management

Supervisor: Dr Brenton von Takach

Project background: Invasive vertebrate animals are a problem globally. In Australia, cats have been key drivers of the extinction of dozens of native animals. Developing new, smart technology can help us combat ferals while protecting our native fauna.



We are developing a device that uses artificial intelligence to rapidly detect, classify, and trigger a response to the presence of a nearby cat. The system comprises two key components - software that can identify and track cats in real time, and hardware that can effectively spray a target animal – initially with water, but further down the track, with harmless but smelly liquid deterrents (for cats in urban areas) or a viscous gel-based 1080 poison (for lethal control of cats in rural/remote areas).



The prototype device will use a customised neural network running on top of Google's TensorFlow Lite software library, with our software streaming a camera feed to the neural network. Artificial intelligence will be used to classify whether fauna passing within range of the device are feral cats. The classification process must be accurate to ensure that non-target animals are not sprayed, and rapid to ensure that cats do not escape without being sprayed.

Objectives: This project will assist with training the AI system to recognise individual species. It will involve two key components:

- 1) Fieldwork conducting camera trapping in both urban and natural environments.
- 2) Desktop work to classify camera trap images.

Significance: This system has the potential to equip members of the public and land management agencies with a valuable tool for tackling the challenges posed by invasive vertebrate species, enabling the protection of our native fauna.

Funding: The Population Biology and Genomics team will cover all operating costs (materials, travel expenses) for the project.



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