ARTIN

hunterra

ZVĚŘIDENCE

CASE STUDY

AI WILDLIFE IDENTIFICATION | ACADEMIC RESEARCH & AGRITECH

Masaryk University and the Czech Ministry of Agriculture are developing tools for modern wildlife population management.

We built an AI system that identifies individual roe deer by the unique patterns on their muzzles with over 90% accuracy – replacing outdated physical tagging with ear tags.

CHALLENGE

The existing system of marking roe deer with physical tags was invasive, unreliable and led to incomplete records – tags got lost or damaged. Masaryk University was looking for a non-invasive way to reliably identify individual animals that would work directly in the field and build on existing infrastructure. A key requirement was processing photos taken by hunters in changing light conditions and of varying quality.

SOLUTION

- Two-stage AI system: a fast screening model (~40% accuracy) + a precise verification model (>90% accuracy)
- Visual pattern embeddings using Meta Dino I
- Precise matching using LoFTR (Local Feature Transformer)
- Vector database for scalable storage and search
- Deployment in a Docker container directly on the client's infrastructure – no dependency on external clouds
- Connected via REST API to the Hunterra.cz mobile app that hunters use in the field

TEAM SIZE

6 people: project manager + 5 developers

TECHNOLOGIES

Python · Meta Dino I · LoFTR · Vector database · REST API · Docker

PROJECT DURATION

40 man-days

What the client valued:

"An expert AI approach that turned a research hypothesis into a working system with over 90% accuracy – along with publishable results that strengthened the project's scientific contribution."

TECHNOLOGY THAT TRANSFERS TO THE COMMERCIAL WORLD

The same principle of visual biometric identification applies directly to fraud detection in insurance – for example, automatically recognizing whether a photo from an insurance claim has been used before.

WORKING WITH IMAGE DATA AND WANT TO GET MORE OUT OF IT?

We'll show you what we can do with it.