Software for a better world

Maynooth University
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MADSens (Multimodal Aerial/Drone Sensor Data Capture & Analysis for Real-World Environments)

AIRBUS

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1 OBJECTIVES:

- Optimise machine learning model for drone footage capture in optical and infrared ranges.
- Create site for viewing drone video clips that includes mapping.
- Enable in-frame monoscopic positioning and measurement of drone frame centre.
- Improve in-frame monoscopic positioning and measurement of user chosen location and of detected objects.

2 KEY TECHNOLOGIES:

Drone: Zenmuse H20

Sensors: Wide Cameras:
12 MP ½.3" CMOS
(24mm Focal Length, 82.9" DFOV)
Radiometric Thermal camera:
640x512, 30Hz (40.6" DFOV)

Machine learning model: YOLOv8

- Resolution and FOV requirements
- Thermal and optical combination
- Modelling considerations

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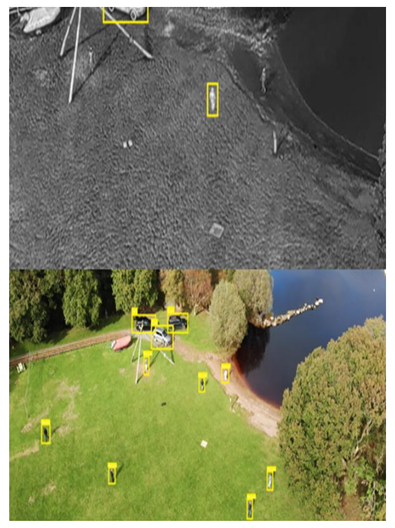
Site selection:
Desired features (trees, water etc.)
Digital elevation models
Site and airspace permission

Site Set up:
Drone requirements
Scene objects e.g. personnel, mannequins, cars, and boats

4 INITIAL RESULTS:

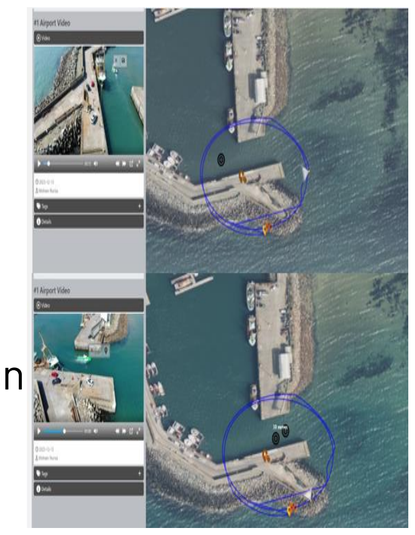
Machine Learning:

- Optical vs infrared
- Object classifications
- Model refinement



Positioning:

- Drone location mapping
- Positioning points
- Distance and area calculation



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