**NOVEMBER 2025 |**
Shazam-for-Drones

**CTRL+ ALT+ DEFEND**

# CERBERUS ›

Enabling real-time detection of incoming aerial threats

Accelerating the sensor to shooter kill-chain

CTRL+
ALT+
DEFEND

# OVERVIEW

**WHO WE ARE**

A Canadian defence innovator delivering precision drone detection networks designed to protect critical infrastructure, borders, and urban airspace.

**COMPETITIVE ADVANTAGES**

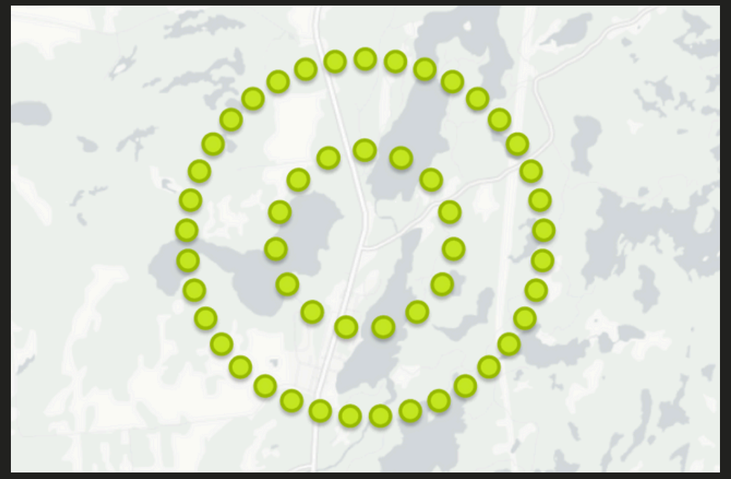
Lightweight edge-based detection networks that run on low-cost, rapidly deployable hardware with minimal power draw and RF footprint.

**TECHNOLOGY**

CERBERUS leverages advanced algorithms and optimized neural networks to provide highly accurate drone detection at the edge.

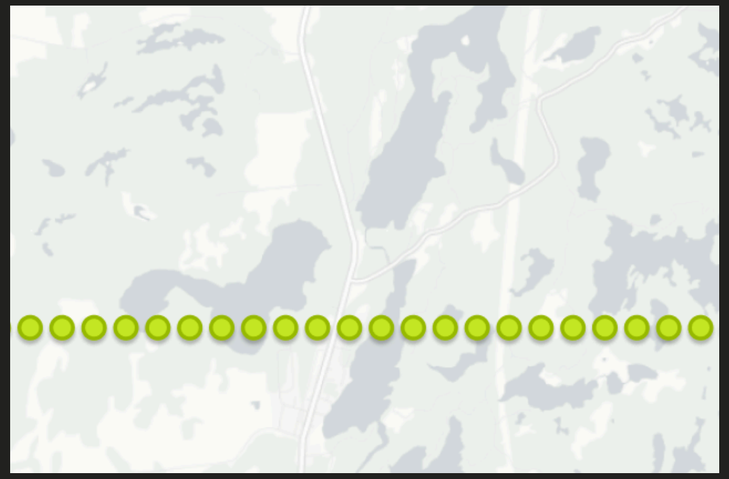
CTRL+
ALT+
DEFEND

# USE CASES



## PERIMETER

A mesh sensor network delivering continuous 360° coverage of high-value infrastructure.



## BORDER

Scalable linear coverage for securing long borders, pipelines, and strategic transit routes.

## URBAN

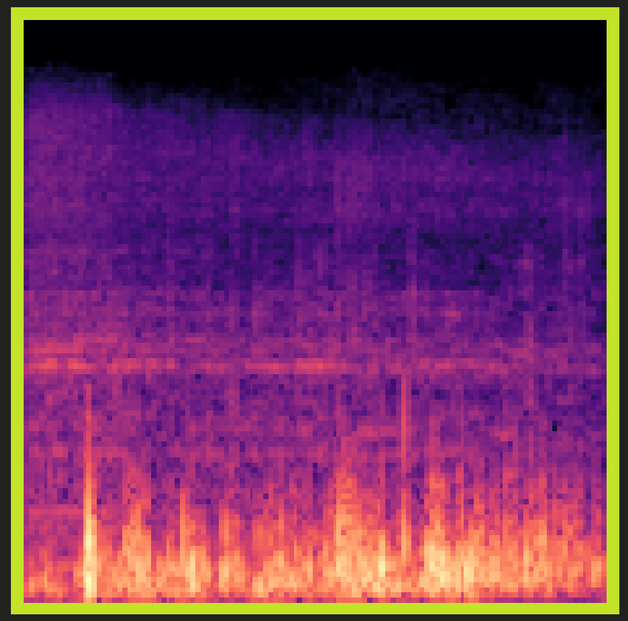
Large scale urban coverage protecting government buildings, critical infrastructure, and civilian spaces.

# ML MODEL

CTRL+
ALT+
DEFEND

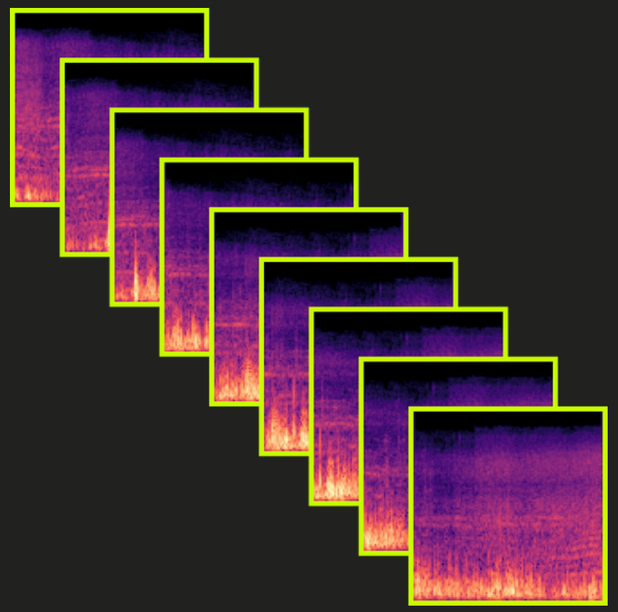
## FEATURE EXTRACTION

Log-Mel Spectrogram
STFT➔Mel Filter Bank➔Log-dB
112 bins



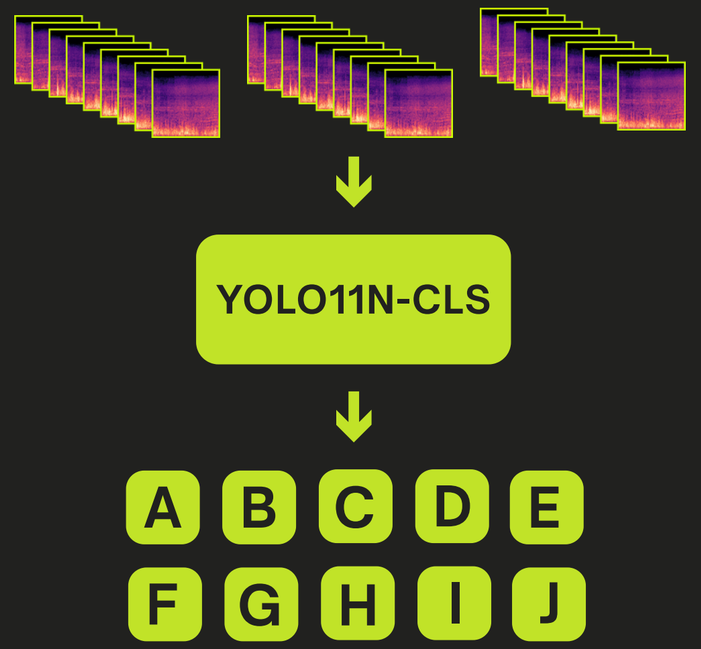
## SPECTROGRAM IMAGE RENDERING

Normalize
Apply fixed colormap (magma)
Save to Train / Val (224x224)



## MODEL TRAINING VALIDATION

YOLO11n-cls
100 epochs

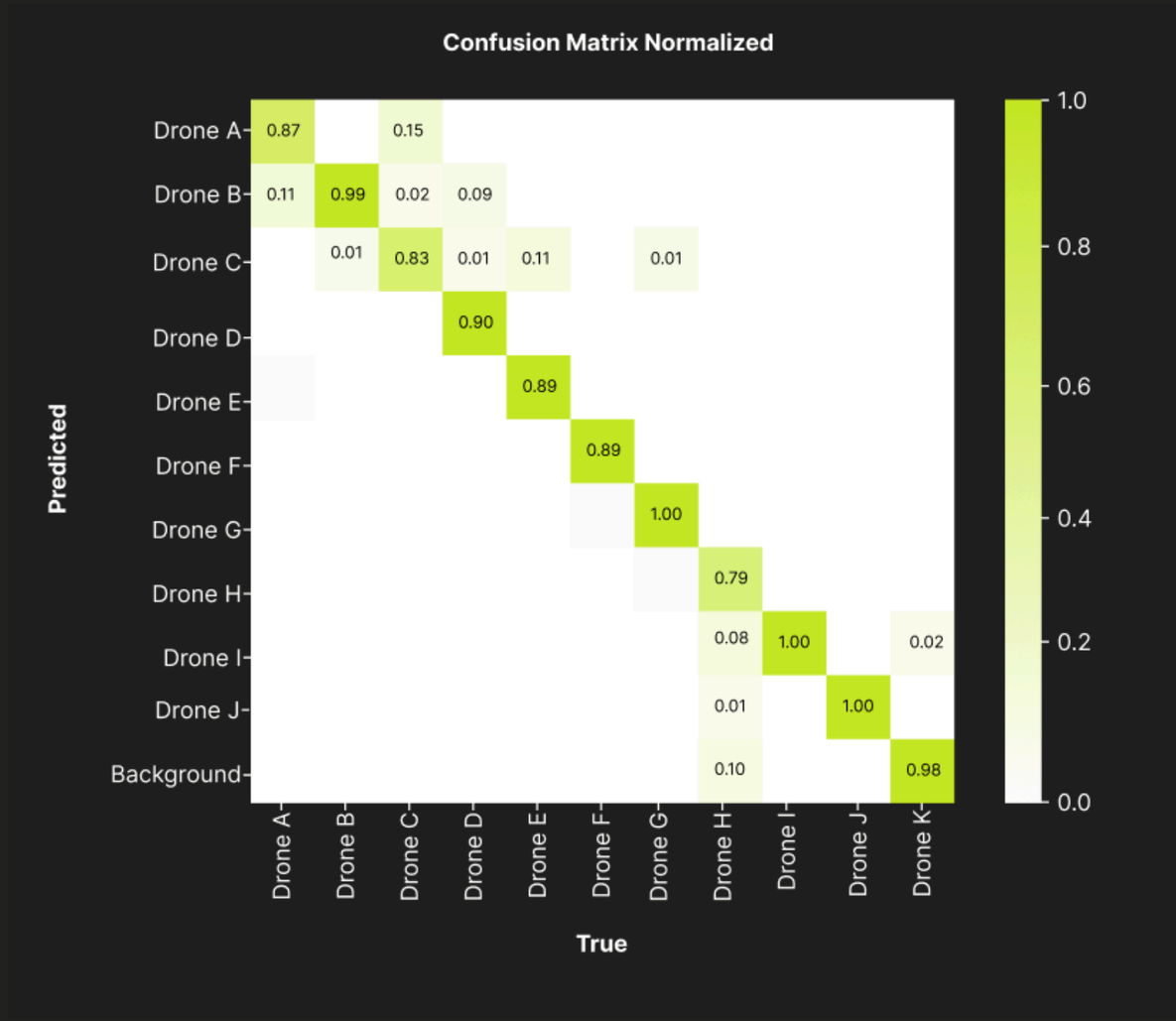


CTRL+
ALT+
DEFEND

# RESULTS

Our methodology performed worst on identifying drone A, C and H

**“INSTANTANEUOUS” ACCURACY: 0.95**
**“CONTINUOUS” ACCURACY: 0.98+**



CTRL+
ALT+
DEFEND

# QUESTIONS