

CRATER DETECTION ML PIPELINE

Run Instructions, Output Format & FFPLAY Setup (December 2025)

1. ML MODEL OUTPUT FORMAT

No Crater Detected:

NO_CRATER

Single Crater Detected:

CRATER x1=<int> y1=<int> x2=<int> y2=<int> conf=<float>

Example:

CRATER x1=112 y1=201 x2=248 y2=337 conf=0.913

Multiple Craters Detected:

CRATER x1=112 y1=201 x2=248 y2=337 conf=0.913

CRATER x1=402 y1=118 x2=533 y2=269 conf=0.884

2. CAMERA RESOLUTION DETAILS

Default Width: 640

Default Height: 480

Resolution can be changed to 640x640 if required.

3. RUNNING THE CRATER MODEL ON RASPBERRY PI

cd HAILO

./run_crater.sh

4. VIEWING THE STREAM ON LAPTOP

ffplay -fflags nobuffer -flags low_delay tcp://100.97.24.51:9999

Wait ~10 seconds after starting the model before running ffplay.

5. IP ADDRESS CHECK

If IP changes, use:

```
ffplay -fflags nobuffer -flags low_delay tcp://<PI-LAN-IP>:9999
```

6. INSTALLING FFPLAY

Windows 10 / 11 (December 2025):

Download ffmpeg-release-essentials.zip from <https://www.gyan.dev/ffmpeg/builds/>

Extract to C:\ffmpeg\ and add C:\ffmpeg\bin to PATH.

Verify:

```
ffplay -version
```

Ubuntu 20.04 / 22.04 / 24.04:

```
sudo apt update
```

```
sudo apt install ffmpeg
```

Verify:

```
ffplay -version
```

IMPORTANT NOTES

Windows requires PATH setup.

FFPLAY is optimized for low-latency MJPEG and ML pipelines.