EDGE INTELLIGENCE LAB – 5

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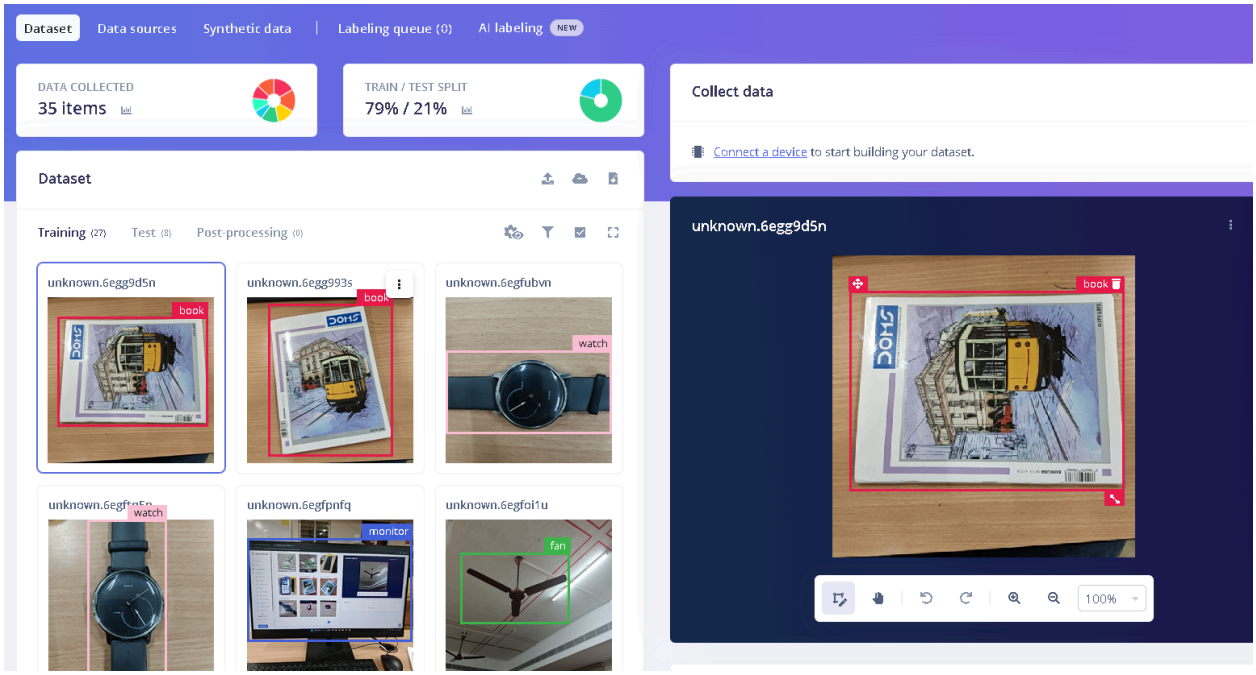
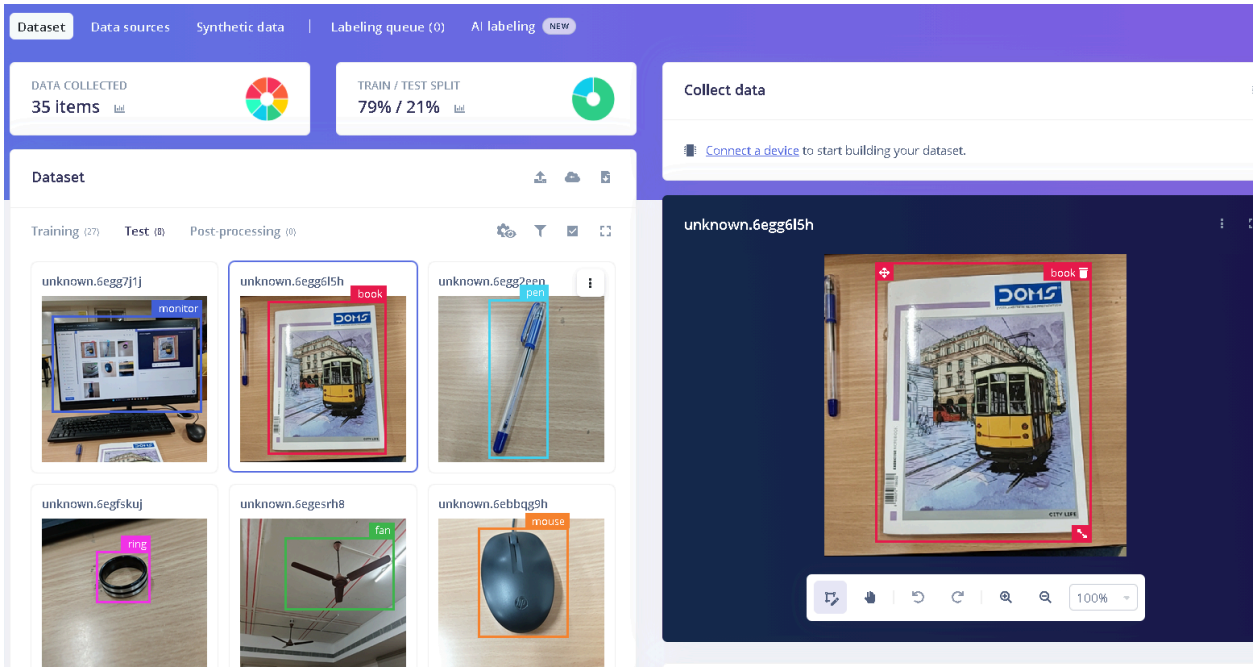
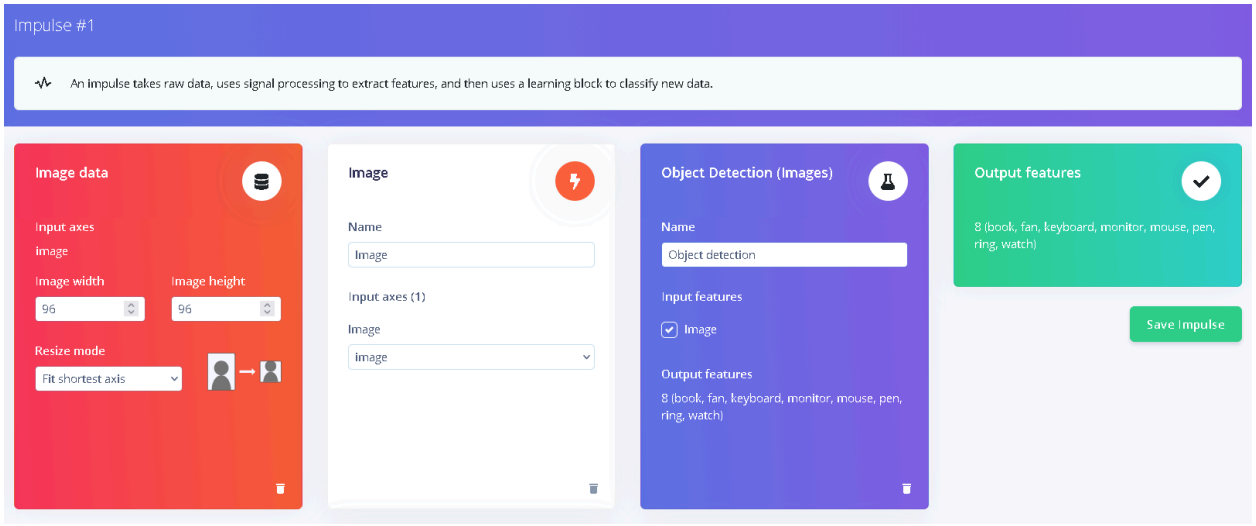
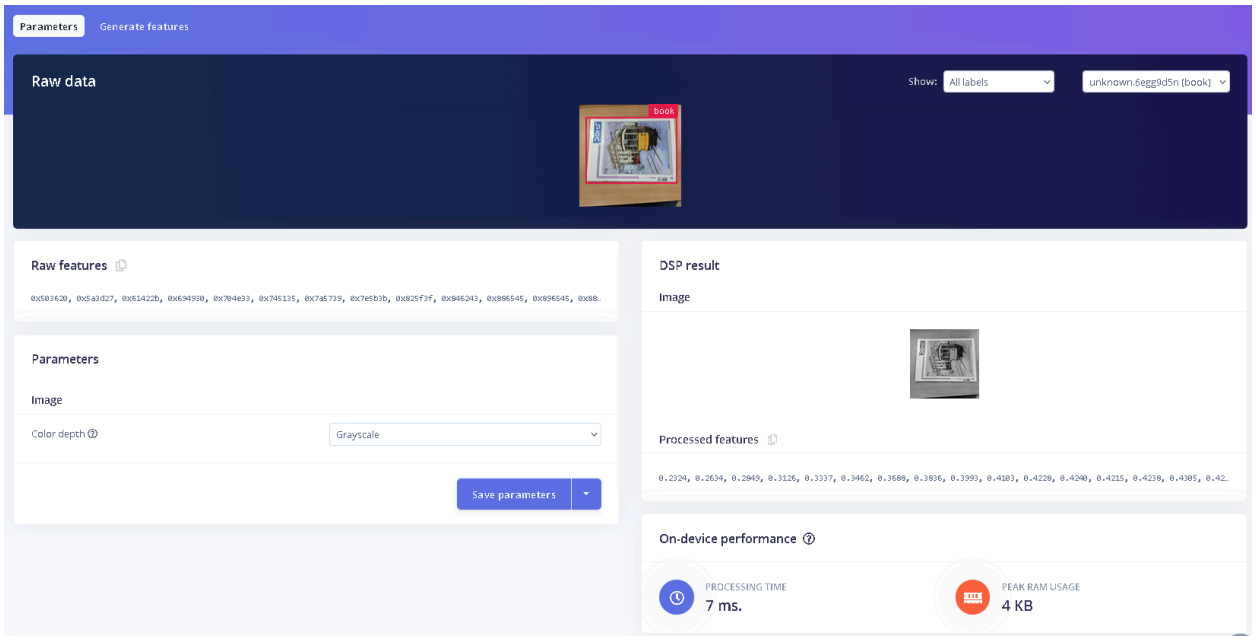
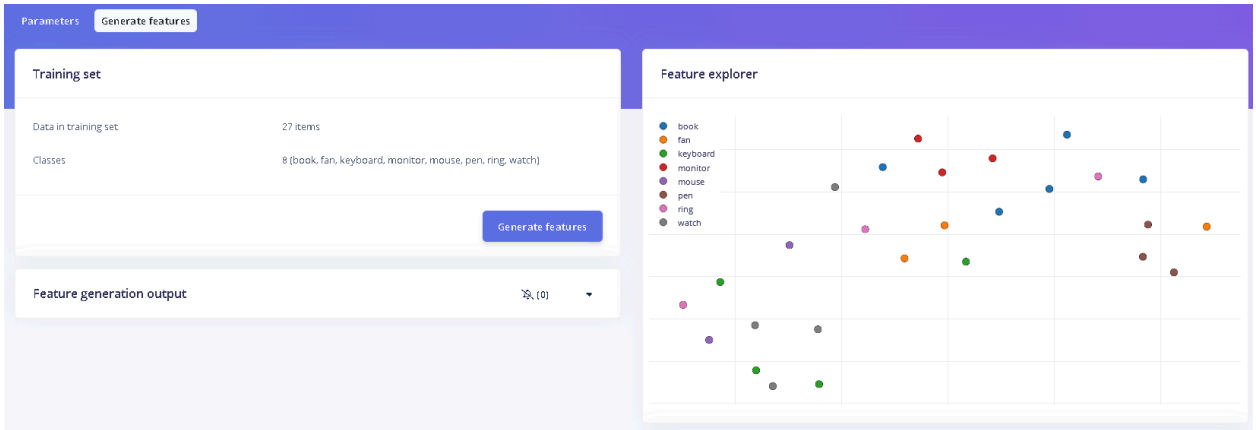
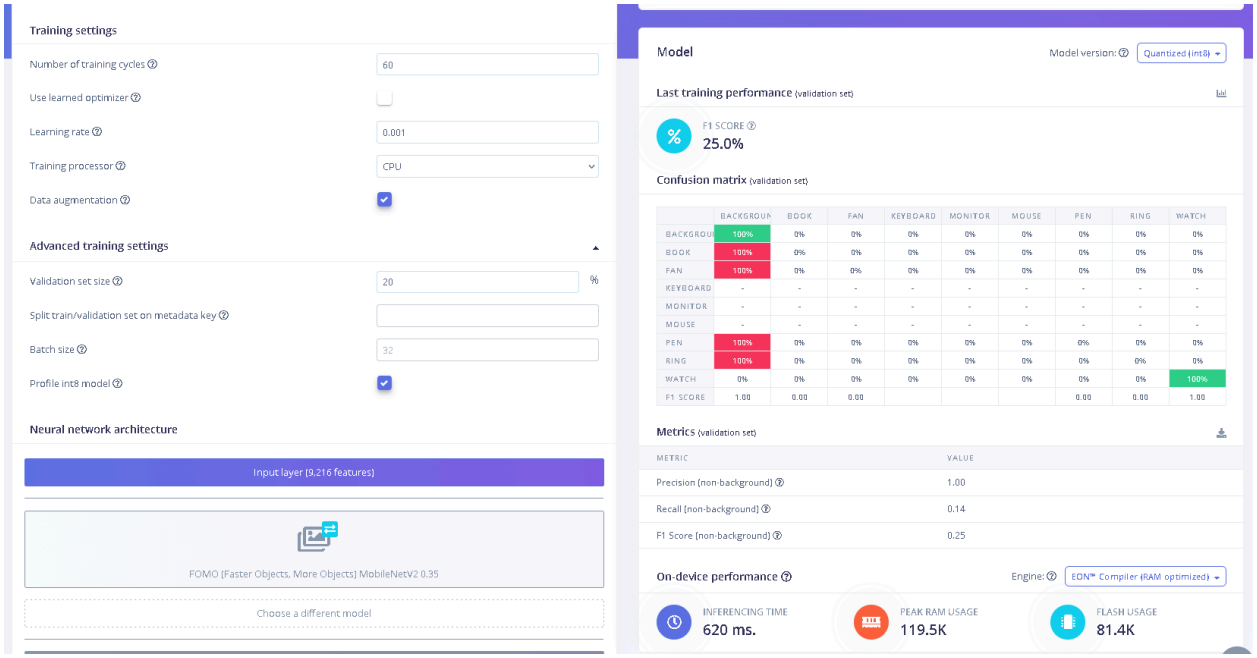


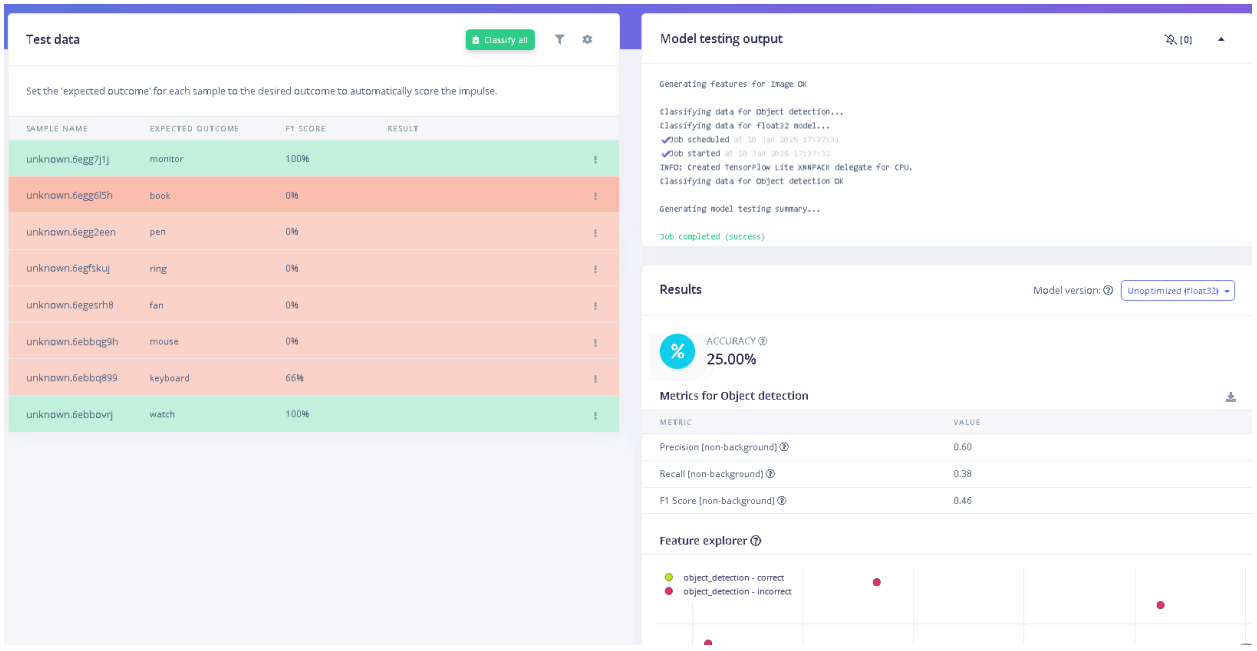


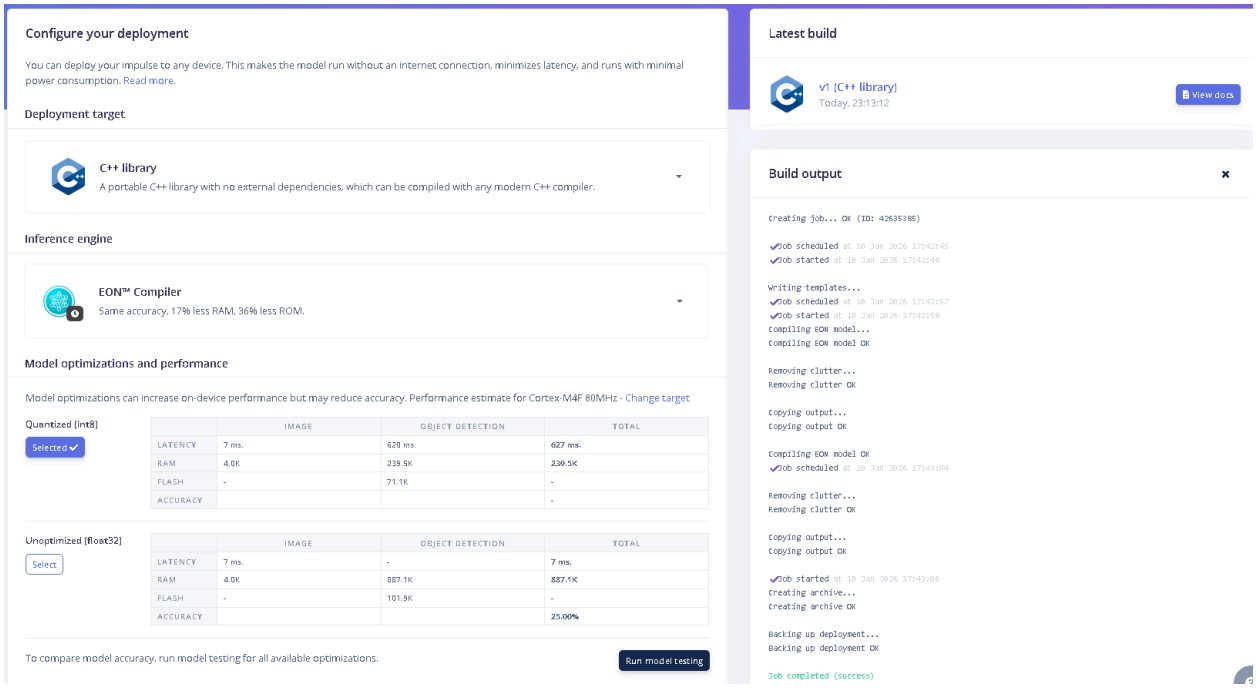

Impulse #1
An impulse takes raw data, uses signal processing to extract features, and then uses a learning block to classify new data.
Image data
Input axes
image
Image width
96
Image height
96
Resize mode
Fit shortest axis
Image
Name
Image
Input axes (1)
Image
image
Object Detection (Images)
Name
Object detection
Input features
Image
Output features
8 (book, fan, keyboard, monitor, mouse, pen, ring, watch)
Output features
8 (book, fan, keyboard, monitor, mouse, pen, ring, watch)
Save Impulse

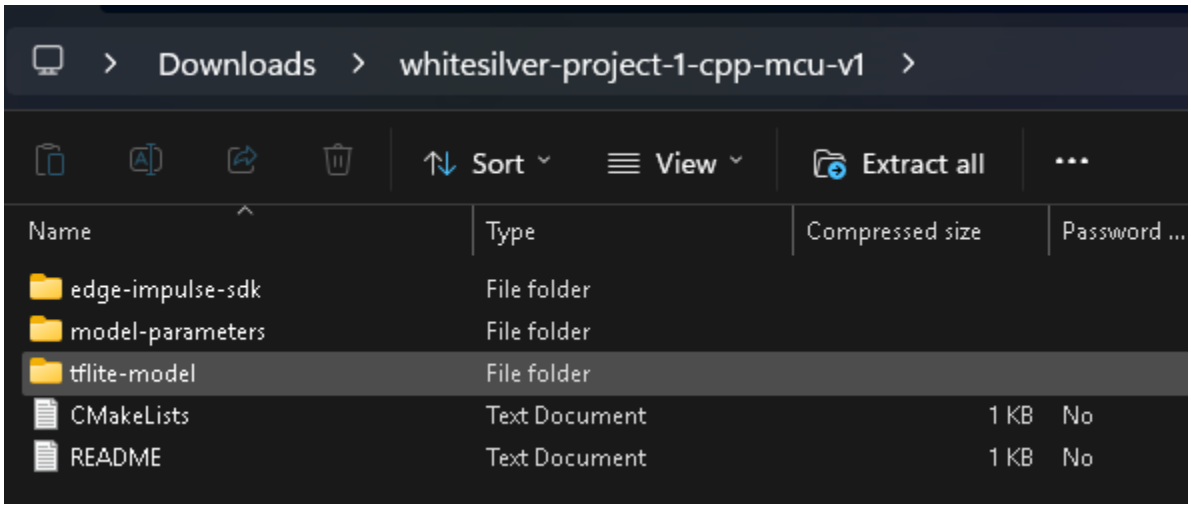

Parameters
Generate features
Raw data
Show:
All labels
unknown.6egg0d5n (book)
book
Raw features
Parameters
Image
Color depth
Grayscale
Save parameters
DSP result
Image
Processed features
On-device performance
PROCESSING TIME
7 ms.
PEAK RAM USAGE
4 KB


Parameters
Generate features
Training set
Data in training set
27 items
Classes
8 (book, fan, keyboard, monitor, mouse, pen, ring, watch)
Generate features
Feature generation output
Feature explorer
book
fan
keyboard
monitor
mouse
pen
ring
watch


Training settings
Number of training cycles
60
Use learned optimizer
Learning rate
0.001
Training processor
CPU
Data augmentation
Advanced training settings
Validation set size
20
%
Split train/validation set on metadata key
Batch size
32
Profile int8 model
Neural network architecture
Input layer (9,216 features)
FOMO (Faster Objects, More Objects) MobileNetV2 0.35
Choose a different model
Model
Model version:
Quantized (int8)
Last training performance (validation set)
F1 SCORE
25.0%
Confusion matrix (validation set)
BACKGROUND BOOK FAN KEYBOARD MONITOR MOUSE PEN RING WATCH
BACKGROUND 100% 0% 0% 0% 0% 0% 0% 0% 0%
BOOK 100% 0% 0% 0% 0% 0% 0% 0% 0%
FAN 100% 0% 0% 0% 0% 0% 0% 0% 0%
KEYBOARD - - - - - - - - -
MONITOR - - - - - - - - -
MOUSE - - - - - - - - -
PEN 100% 0% 0% 0% 0% 0% 0% 0% 0%
RING 100% 0% 0% 0% 0% 0% 0% 0% 0%
WATCH 0% 0% 0% 0% 0% 0% 0% 0% 100%
F1 SCORE 1.00 0.00 0.00 0.00 0.00
Metrics (validation set)
METRIC VALUE
Precision (non-background) 1.00
Recall (non-background) 0.14
F1 Score (non-background) 0.25
On-device performance
Engine:
EON™ Compiler (RAM optimized)
INFERENCING TIME
620 ms.
PEAK RAM USAGE
119.5K
FLASH USAGE
81.4K


Test data
Classify all
Set the 'expected outcome' for each sample to the desired outcome to automatically score the impulse.
SAMPLE NAME EXPECTED OUTCOME F1 SCORE RESULT
unknown.6egg7j1j monitor 100%
unknown.6egg6l5h book 0%
unknown.6egg2een pen 0%
unknown.6egfskuj ring 0%
unknown.6egesrh8 fan 0%
unknown.6ebbqg9h mouse 0%
unknown.6ebbq899 keyboard 66%
unknown.6ebbovrj watch 100%
Model testing output
Generating features for Image OK
Classifying data for Object detection...
Classifying data for float32 model...
Job scheduled
Job started
INFO: Created TensorFlow Lite XNNPACK delegate for CPU.
Classifying data for Object detection OK
Generating model testing summary...
Job completed (success)
Results
Model version:
Unoptimized (float32)
ACCURACY
25.00%
Metrics for Object detection
METRIC VALUE
Precision (non-background) 0.60
Recall (non-background) 0.38
F1 Score (non-background) 0.46
Feature explorer
object_detection - correct
object_detection - incorrect


Configure your deployment
You can deploy your impulse to any device. This makes the model run without an internet connection, minimizes latency, and runs with minimal power consumption. Read more.
Deployment target
C++ library
A portable C++ library with no external dependencies, which can be compiled with any modern C++ compiler.
Inference engine
EON™ Compiler
Same accuracy, 17% less RAM, 36% less ROM.
Model optimizations and performance
Model optimizations can increase on-device performance but may reduce accuracy. Performance estimate for Cortex-M4F 80MHz - Change target
Quantized (int8)
Selected
IMAGE OBJECT DETECTION TOTAL
LATENCY 7 ms. 620 ms. 627 ms.
RAM 4.0K 239.5K 230.5K
FLASH - 71.1K -
ACCURACY -
Unoptimized (float32)
Select
IMAGE OBJECT DETECTION TOTAL
LATENCY 7 ms. - 7 ms.
RAM 4.0K 887.1K 887.1K
FLASH - 101.9K -
ACCURACY 25.00%
To compare model accuracy, run model testing for all available optimizations.
Run model testing
Latest build
v1 [C++ library]
Today, 23:13:12
View docs
Build output
Creating job... OK (ID: 42635385)
Job scheduled at 10 Jan 2026 17:42:45
Job started at 10 Jan 2026 17:42:48
Writing templates...
Job scheduled at 10 Jan 2026 17:42:57
Job started at 10 Jan 2026 17:42:58
Compiling EON model...
Compiling EON model OK
Removing clutter...
Removing clutter OK
Copying output...
Copying output OK
Compiling EON model OK
Job scheduled at 10 Jan 2026 17:43:04
Removing clutter...
Removing clutter OK
Copying output...
Copying output OK
Job started at 10 Jan 2026 17:43:06
Creating archive...
Creating archive OK
Backing up deployment...
Backing up deployment OK
Job completed (success)


Downloads
whitesilver-project-1-cpp-mcu-v1
Sort
View
Extract all
Name
Type
Compressed size
Password ...
edge-impulse-sdk
File folder
model-parameters
File folder
tflite-model
File folder
CMakeLists
Text Document
1 KB
No
README
Text Document
1 KB
No