

## EDGE INTELLIGENCE LAB

P SUSHMA

25MML0050

The data is split into an 80:20 ratio for training and testing.

The screenshot shows the EDGE IMPULSE dashboard for a project named 'sushma0208 / sushma0208-project-1'. The interface includes a sidebar with navigation options: Dashboard, Devices, Data acquisition, Experiments, EON Tuner, and Impulse design. The main area displays the 'Dataset' section with a 'DATA COLLECTED' count of 20 items and a 'TRAIN / TEST SPLIT' of 80% / 20%. A table lists the dataset items, including 'Chair.6ebc1csj', 'Chair.6ebbv1k', 'Chair.6ebbnfi', 'Keyboard.6ebbrkfc', 'Keyboard.6ebbrej9', 'Keyboard.6ebbrach', 'Desktop.6ebbpkjp', and 'Dataset.6ebbh2o4'. A 'Collect data' button is visible, and a 'RAW DATA' section prompts the user to 'Click on a sample to load...'. An 'Upgrade Plan' button is also present in the sidebar.

SAMPLE NAME	LABEL	ADDED
Chair.6ebc1csj	Chair	Jan 08 2026, 17...
Chair.6ebbv1k	Chair	Jan 08 2026, 17...
Chair.6ebbnfi	Chair	Jan 08 2026, 17...
Keyboard.6ebbrkfc	Keyboard	Jan 08 2026, 17...
Keyboard.6ebbrej9	Keyboard	Jan 08 2026, 17...
Keyboard.6ebbrach	Keyboard	Jan 08 2026, 17...
Desktop.6ebbpkjp	Desktop	Jan 08 2026, 17...
Dataset.6ebbh2o4	Desktop	Jan 08 2026, 17...

Create impulse by adding image block and classification block.

The screenshot shows the 'Impulse #1' configuration screen in the EDGE IMPULSE dashboard. The interface includes a sidebar with navigation options: Dashboard, Devices, Data acquisition, Experiments, EON Tuner, and Impulse design. The main area displays the 'Impulse #1' configuration with a description: 'An impulse takes raw data, uses signal processing to extract features, and then uses a learning block to classify new data.' The configuration is divided into four sections: 'Image data' (Input axes: image, Image width: 96, Image height: 96, Resize mode: Fit shortest), 'Image' (Name: image, Input axes (1): image), 'Classification' (Name: Classification, Input features: Image, Output features: 4 (Chair, Desktop, Keyboard, Mouse)), and 'Output features' (8 (Chair, Desktop, Keyboard, Mouse, Chair, Desktop, Keyboard, Mouse)). A 'Save Impulse' button is visible at the bottom right.

Save the parameters and generate features

EDGE IMPULSE

Dashboard

Devices

Data acquisition

Experiments

EON Tuner

Impulse design

Create impulse

Image

Classification

Transfer learning

Upgrade Plan

Get access to higher job limits and more collaborators.

View plans

sushma0208 / sushma0208-project-1 PERSONAL


Target: Cortex-M4F 80MHz

Parameters

Generate features

Raw data

Show: All labels Chair.6ebc1csj (Chair)



Raw features

0x90402, 0xa0404, 0xb0706, 0xc0101, 0xd1a1d, 0xe1d22, 0xf1c1c, 0x201d1f, 0x26...

Parameters


Image

Color depth 0 RGB

Save parameters

DSP result

Image



Processed features

0.8353, 0.0157, 0.0078, 0.0392, 0.8157, 0.0157, 0.0431, 0.0275, 0.0235, 0.8118, ...

Resume tutorial

EDGE IMPULSE

Dashboard

Devices

Data acquisition

Experiments

EON Tuner

Impulse design

Create impulse

Image

Classification

Transfer learning

Upgrade Plan

Get access to higher job limits and more collaborators.

View plans

sushma0208 / sushma0208-project-1 PERSONAL

Target: Cortex-M4F 80MHz

Parameters

Generate features

Training set

Data in training set 16 items

Classes 4 (Chair, Desktop, Keyboard, Mouse)

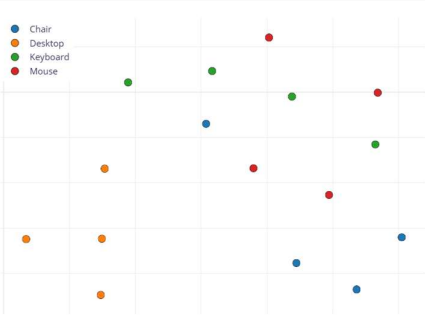
Generate features

Feature generation output

0

Feature explorer

Chair Desktop Keyboard Mouse



On-device performance

PROCESSING TIME PEAK RAM

Resume tutorial

Save and train the network and get the classification accuracy

EDGE IMPULSE

Dashboard

Devices

Data acquisition

Experiments

EON Tuner

Impulse design

Create impulse

Image

Classification

Transfer learning

Upgrade Plan

Get access to higher job limits and more collaborators.

View plans

sushma0208 / sushma0208-project-1 PERSONAL

Target: Cortex-M4F 80MHz

Neural Network settings

Training settings

Number of training cycles 10

Use learned optimizer

Learning rate 0.0005

Training processor CPU

Advanced training settings

Neural network architecture

Neural network

Transfer learning

Input layer (27,648 features)

2D conv / pool layer (16 filters, 3 kernel size, 1 layer)

2D conv / pool layer (32 filters, 3 kernel size, 1 layer)

Flatten layer

Training output

Model

Model version: Quantized (int8)

Last training performance (validation set)

ACCURACY 75.0%

LOSS 0.84

Confusion matrix (validation set)

	CHAIR	DESKTOP	KEYBOARD	MOUSE
CHAIR	100%	0%	0%	0%
DESKTOP	0%	100%	0%	0%
KEYBOARD	50%	0%	50%	0%
MOUSE	-	-	-	-
F1 SCORE	0.67	1.00	0.67	-

Metrics (validation set)

METRIC	VALUE
Weighted average Precision	0.88
Weighted average Recall	0.75
Weighted average F1 score	0.75

Resume tutorial

EDGE IMPULSE

Dashboard

Devices

Data acquisition

Experiments

EON Tuner

Impulse design

Create impulse

Image

Classification

Transfer learning

Upgrade Plan

Get access to higher job limits and more collaborators.

View plans

2D conv / pool layer (16 filters, 3 kernel size, 1 layer)

2D conv / pool layer (32 filters, 3 kernel size, 1 layer)

Flatten layer

Dropout (rate 0.25)

Add an extra layer

Output layer (4 classes)

Save & train

Metrics (validation set)

METRIC	VALUE
Weighted average Precision	0.88
Weighted average Recall	0.75
Weighted average F1 score	0.75

Data explorer (full training set)

Chair - correct

Desktop - correct

Keyboard - correct

Mouse - correct

Keyboard - incorrect

On-device performance

Engine: EON™ Compiler

INFERRING ... 554 ms.

PEAK RAM USAGE 182.8K

FLASH USAGE 106.4K

Resume tutorial

Select the network and do transfer training and get the training performance.

EDGE IMPULSE

Dashboard

Devices

Data acquisition

Experiments

EON Tuner

Impulse design

Create impulse

Image

Classification

Transfer learning

Upgrade Plan

Get access to higher job limits and more collaborators.

View plans

sushma0208 / sushma0208-project-1

PERSONAL

Target: Cortex-M4F 80MHz

Neural Network settings

Training settings

Number of training cycles 20

Use learned optimizer

Learning rate 0.0005

Training processor CPU

Data augmentation

Advanced training settings

Neural network architecture

Input layer (27,648 features)

MobileNetV1 96x96 0.25 (no final dense layer, 0.1 dropout)

Training output

Model

Model version: Quantized (int8)

Last training performance (validation set)

ACCURACY 50.0%

LOSS 1.18

Confusion matrix (validation set)

	CHAIR	DESKTOP	KEYBOARD	MOUSE
CHAIR	100%	0%	0%	0%
DESKTOP	0%	100%	0%	0%
KEYBOARD	0%	50%	0%	50%
MOUSE	-	-	-	-
F1 SCORE	1.00	0.67	0.00	0.00

Metrics (validation set)

METRIC	VALUE
Weighted average Precision	0.38
Weighted average Recall	0.50
Weighted average F1 score	0.42

Resume tutorial

EDGE IMPULSE

Dashboard

Devices

Data acquisition

Experiments

EON Tuner

Impulse design

Create impulse

Image

Classification

Transfer learning

Upgrade Plan

Get access to higher job limits and more collaborators.

View plans

Input layer (27,648 features)

MobileNetV1 96x96 0.25 (no final dense layer, 0.1 dropout)

Choose a different model

Output layer (4 classes)

Save & train

Metrics (validation set)

METRIC	VALUE
Weighted average Precision	0.38
Weighted average Recall	0.50
Weighted average F1 score	0.42

Data explorer (full training set)

Chair - correct

Desktop - correct

Keyboard - correct

Mouse - correct

Chair - incorrect

Keyboard - incorrect

Mouse - incorrect

On-device performance

Engine: EON™ Compiler (RAM optimized)

INFERENCING ... 493 ms.

PEAK RAM USAGE 134.2K

FLASH USAGE 296.1K

Resume tutorial