

# Mobile app and audio training on device : Build a custom pre-trained Audio Classification model

TensorFlow.js - Audio recognition using transfer learning

61 mins remaining

English



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2 Requirements

3 Load TensorFlow.js and the Audio model

4 Predict in real-time

5 Test the prediction

6 Collect data

7 Test data collection

8 Train a model

9 Update the slider in real-time

10 Test the final app

## TensorFlow.js - Audio recognition using transfer learning

### About this codelab

Last updated May 25, 2021

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### 1. Introduction

In this codelab, you will build an audio recognition network and use it to control a slider in the browser by making sounds. You will be using TensorFlow.js, a powerful and flexible machine learning library for Javascript.

First, you will load and run a [pre-trained model](#) that can recognize 20 speech commands. Then using your microphone, you will build and train a simple neural network that recognizes your sounds and makes the slider go left or right.

This codelab will **not** go over the theory behind audio recognition models. If you are curious about that, check out [this tutorial](#).

We have also created a [glossary](#) of machine learning terms that you find in this codelab.

#### What you'll learn

- ✓ How to load a pre-trained speech command recognition model
- ✓ How to make real-time predictions using the microphone
- ✓ How to train and use a custom audio recognition model using the browser microphone

So let's get started.

Music File Edit Song View Controls Account Window Help

My Sound Classification - MainActivity.kt [My\_Sound\_Classification.app]

starter app src main java com example mysoundclassification MainActivity onCreate(savedInstanceState: Bundle?)

AudioClassifier

```
80
81 if (outputStr.isNotEmpty())
82     runOnUiThread {
83         textView.text = outputStr
84     }
85
```

Logcat

Emulator Pixel\_4\_API\_30

com.example.mysoundclass

Verb... CQ

Regex

Show only selected applicat

2022-04-20 17:16:12.698 10914-10914/com.example.mysoundclassification W/dclassificatio: Accessing hidden method Landroid/app/Res

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2022-04-20 17:16:12.987 10914-10914/com.example.mysoundclassification D/NetworkSecurityConfig: No Network Security Config specif

2022-04-20 17:16:13.086 10914-10938/com.example.mysoundclassification D/libEGL: loaded /vendor/lib/egl/libEGL\_emulation.so

2022-04-20 17:16:13.011 10914-10938/com.example.mysoundclassification D/libEGL: loaded /vendor/lib/egl/libGLESv1\_CM\_emulation.so

2022-04-20 17:16:13.016 10914-10938/com.example.mysoundclassification D/libEGL: loaded /vendor/lib/egl/libGLESv2\_emulation.so

2022-04-20 17:16:13.162 10914-10914/com.example.mysoundclassification W/dclassificatio: Accessing hidden method Landroid/view/Vi

2022-04-20 17:16:13.163 10914-10914/com.example.mysoundclassification W/dclassificatio: Accessing hidden method Landroid/view/Vi

2022-04-20 17:16:13.227 10914-10914/com.example.mysoundclassification I/Flutter: Initialized TensorFlow Lite runtime.

2022-04-20 17:16:13.568 10914-10936/com.example.mysoundclassification D/HostConnection: HostConnection: get() New Host Connectio

2022-04-20 17:16:13.612 10914-10936/com.example.mysoundclassification D/HostConnection: HostComposition ext ANDROID\_EMU\_CHECKSUM

2022-04-20 17:16:13.640 10914-10936/com.example.mysoundclassification W/OpenGLRenderer: Failed to choose config with EGL\_SWAP\_BE

2022-04-20 17:16:13.642 10914-10936/com.example.mysoundclassification D/EGL\_emulation: eglCreateContext: 0xe8323630: maj 3 min 0

2022-04-20 17:16:13.662 10914-10936/com.example.mysoundclassification D/EGL\_emulation: eglMakeCurrent: 0xe8323630: ver 3 0 (tinf

2022-04-20 17:16:13.671 10914-10936/com.example.mysoundclassification I/Gralloc4: mapper 4.x is not supported

2022-04-20 17:16:13.671 10914-10936/com.example.mysoundclassification D/HostConnection: createUnique: call

2022-04-20 17:16:13.672 10914-10936/com.example.mysoundclassification D/HostConnection: HostConnection: get() New Host Connectio

2022-04-20 17:16:13.672 10914-10936/com.example.mysoundclassification D/goldfish-address-space: allocate: Ask for block of size

2022-04-20 17:16:13.672 10914-10936/com.example.mysoundclassification D/goldfish-address-space: allocate: ioctl allocate returne

2022-04-20 17:16:13.710 10914-10936/com.example.mysoundclassification D/HostConnection: HostComposition ext ANDROID\_EMU\_CHECKSUM

2022-04-20 17:16:24.356 10914-10938/com.example.mysoundclassification W/System: A resource failed to call close.

My Sound Classification

Recording

Hello World!

Number Of Channels: 1  
Sample Rate: 16000

