

# **TinyML Poster-Session – Resource-Constrained Keyword Spotting**

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## **Problem to be solved :**

With the advent of IoT and smart devices, there is an increased expectation for devices on the edge to be able to interface with user through voice.

In this poster-session, a method of running a resource constrained spoken word recognition using very little compute power on an Arm Cortex-M based micro-controller will be presented.

## **Technical Approach**

To be explored in this poster-session is explaining how to learn from a free-database which has plenty of 'bad' files and erroneously filed files, and letting the Neural Net guide itself in selecting appropriate files to learn from. Also covered, will be the Temporal Convolution Network (TCN) topology used as well as how we were able to map it to our signal processing accelerator to significantly reduce our MIPS further for inference on the microcontroller.

## **Results**

We have a working Neural Network capable of recognising ten spoken digits in around 2MIPS of compute.

## **Significance to TinyML community**

This poster-session will discuss some practical challenges in training and implementing a TCN such as to reduce energy consumption