

Kaggle 오디오 데이터를 이용한 소리 분류 모델

틀리는 문제는 왜 항상 틀릴까?

TEAM KYLius-method

<https://github.com/kyliusmethod/KYLius-method>

Member:

Seunghyuk-kim Sangwook-kwak Suwon-yu Daegon-Lee

We do:

- Deep-dive into DEEP LEARNING
- Analyze all your data
- Research Neural-Network



목 차

오늘 알아볼 것들

1. DATA SET

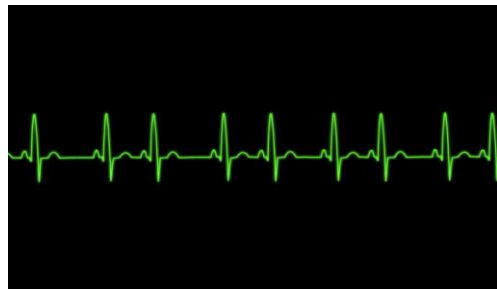
2. Introduction to Sound processing

3. Data preprocessing(전처리)

4. Model

5. Ensemble

6. 결론



 freesound

kaggle


Kyuus

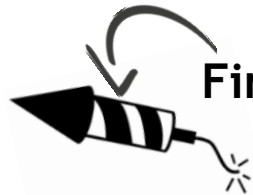
1. DATA



DATA



Trumpet



Firework



Cough!



Bus



Laughter

Sounds

41 Classes



Finger snap



Drum

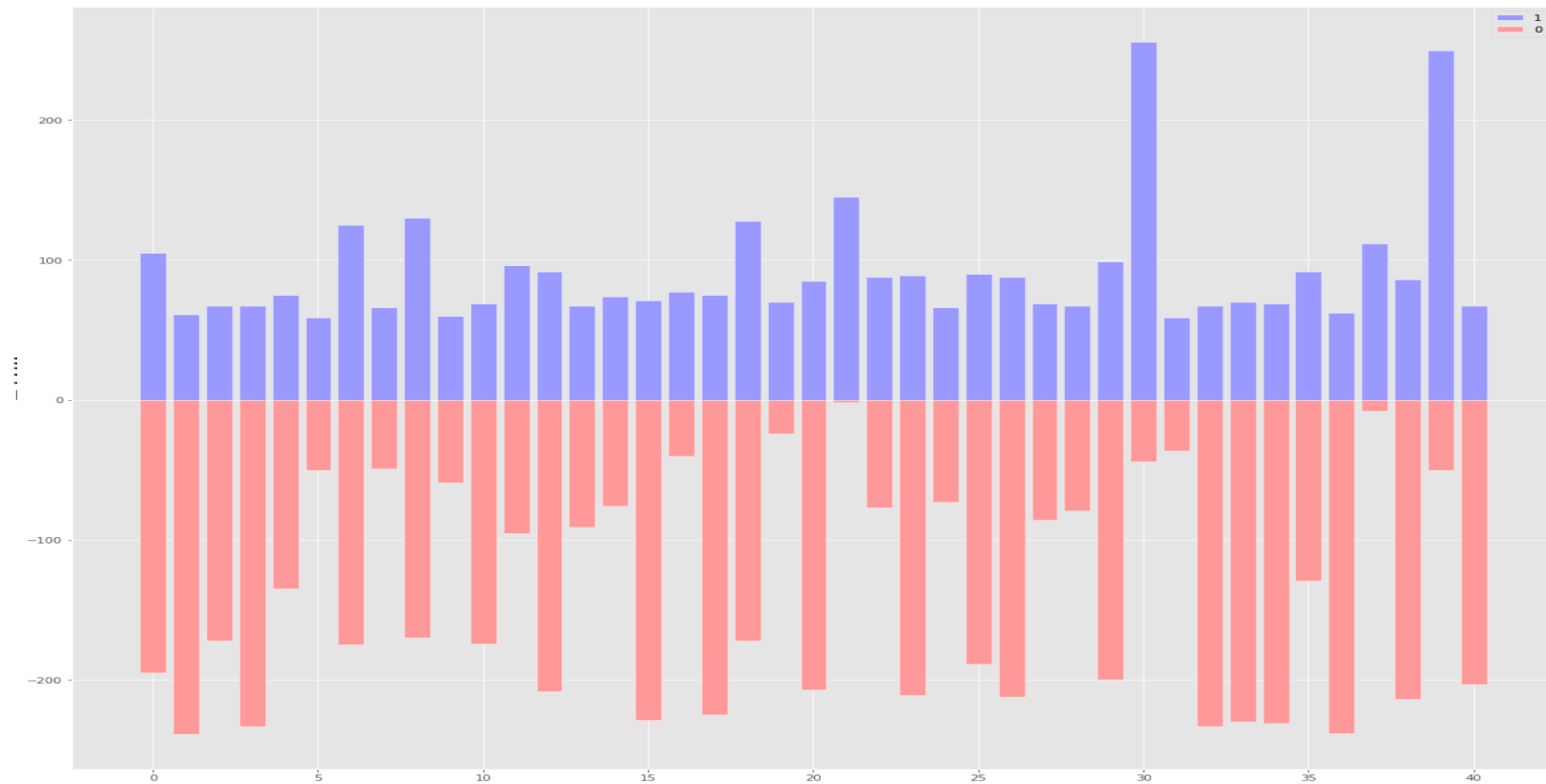
Fart



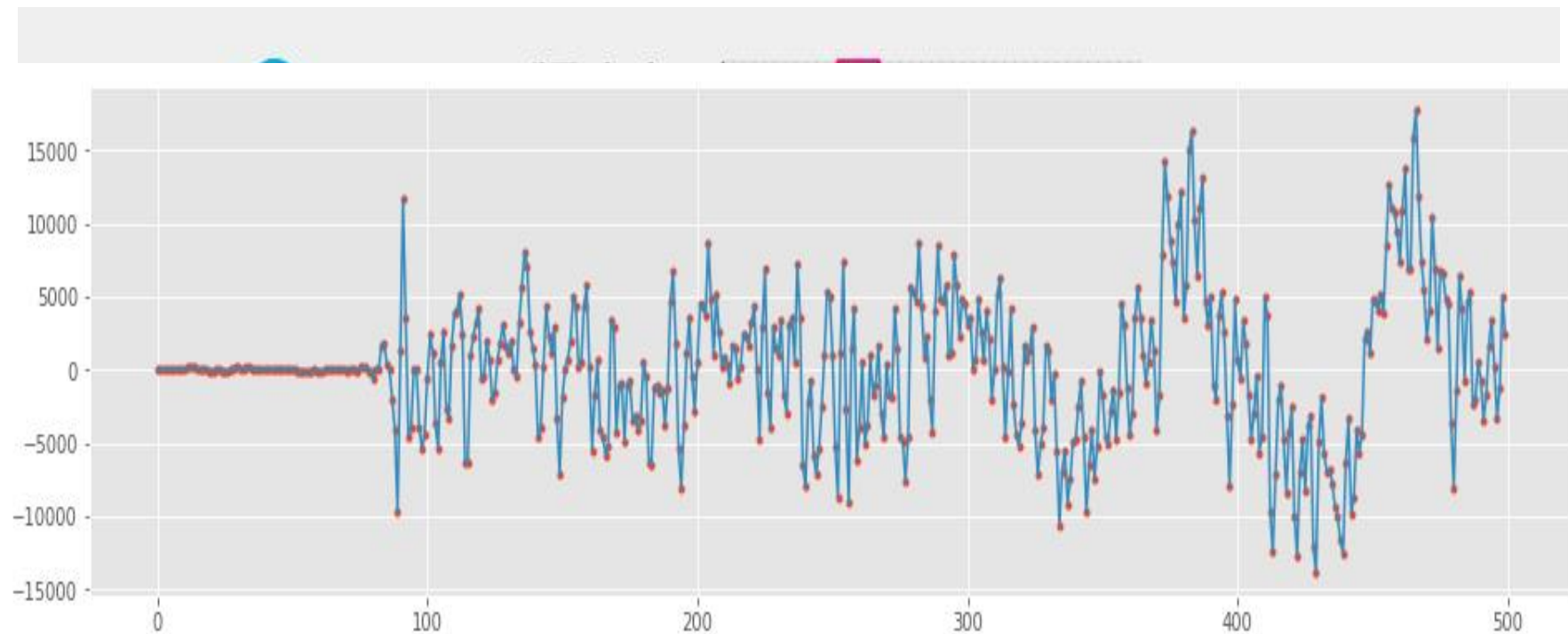
Meow



DATA



DATA

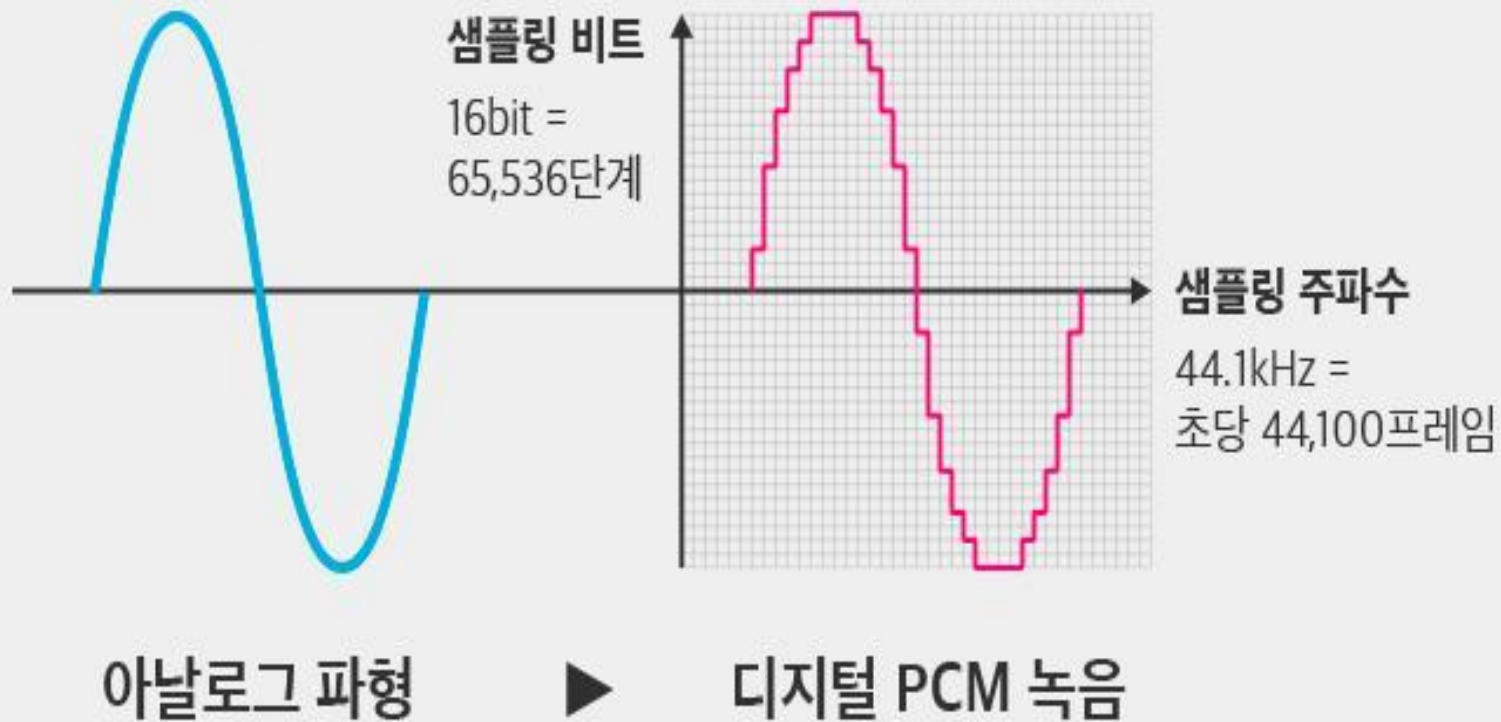


아날로그 파형

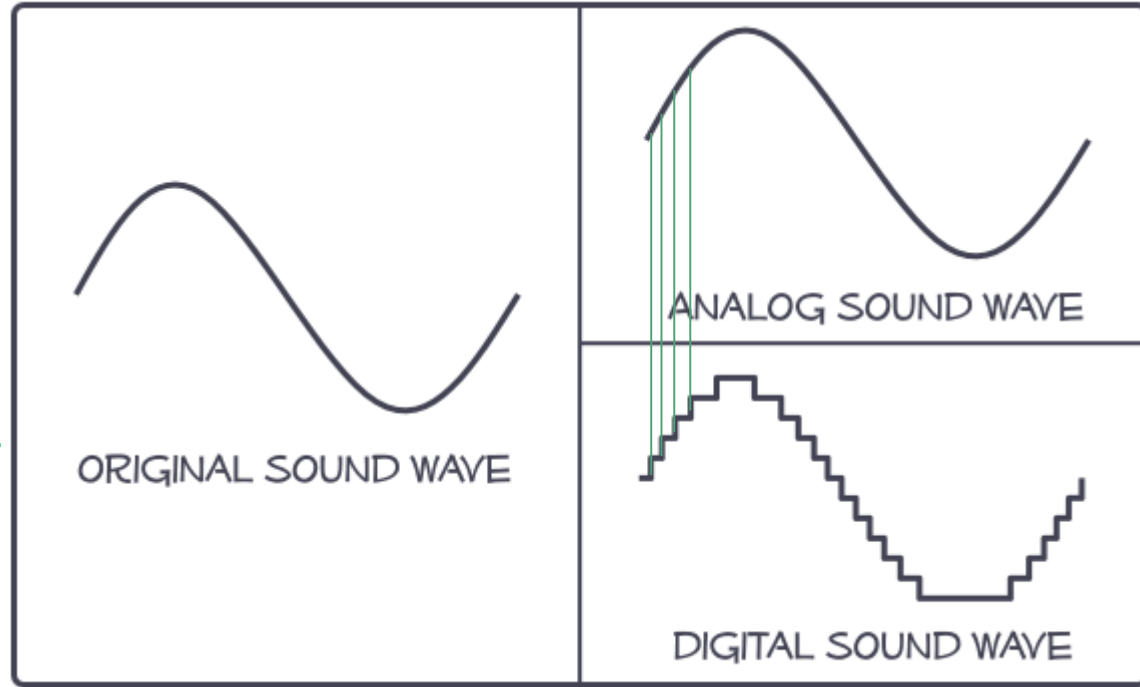


디지털 PCM 녹음

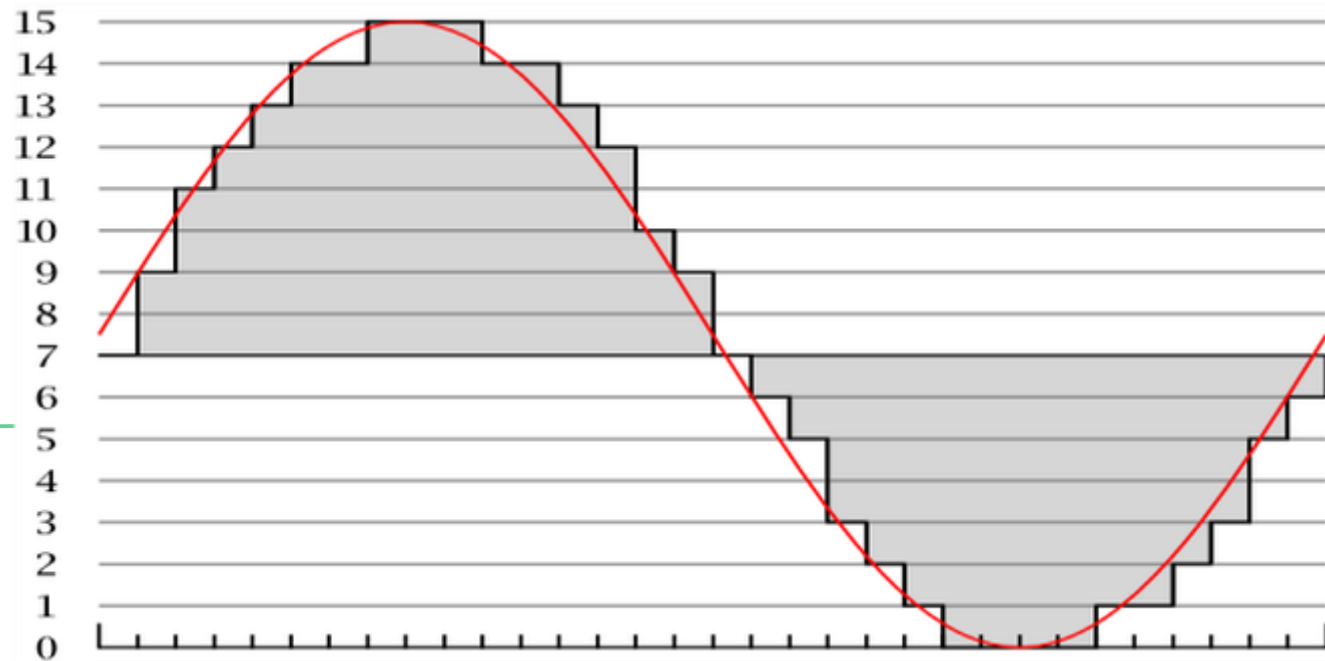
DATA



DATA

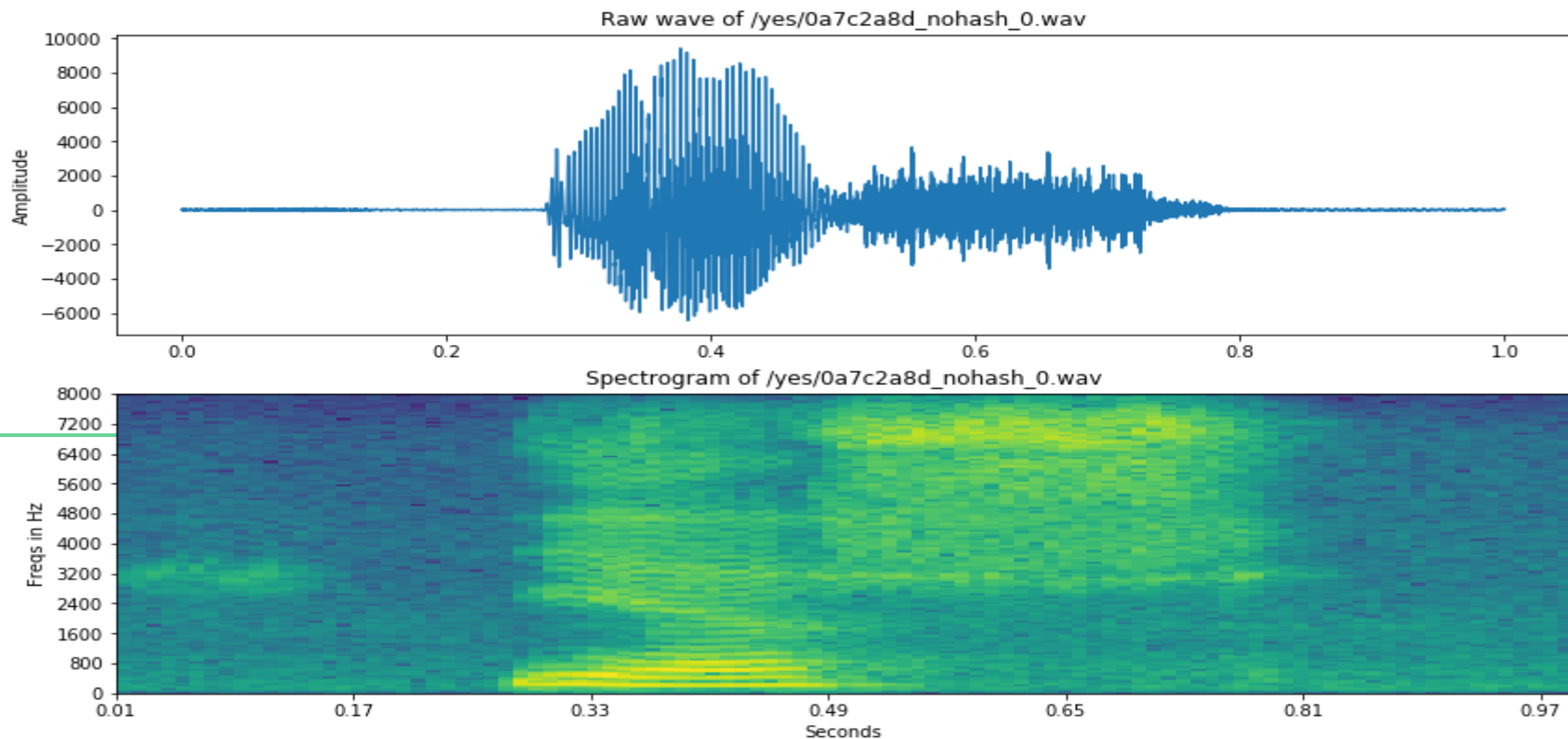


DATA

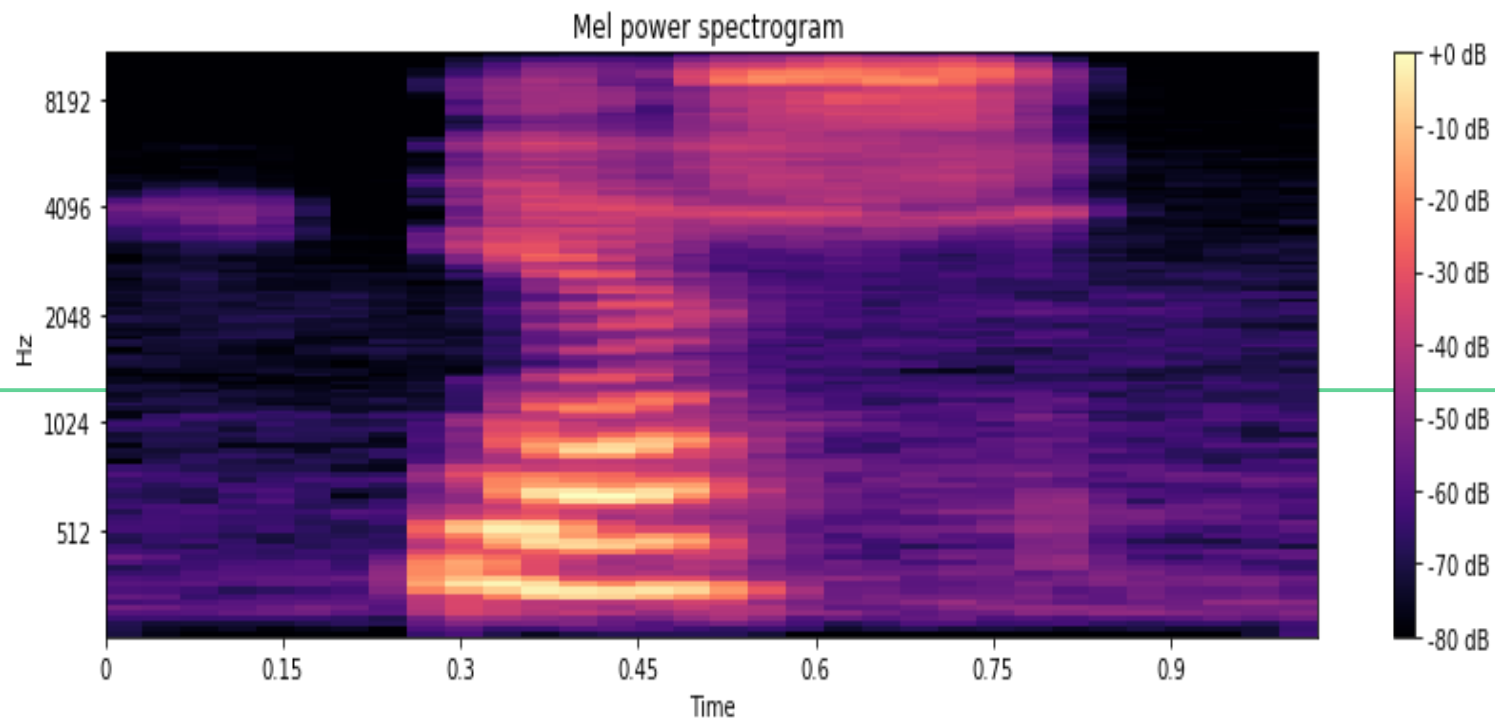


2. SOUND PROCESSING

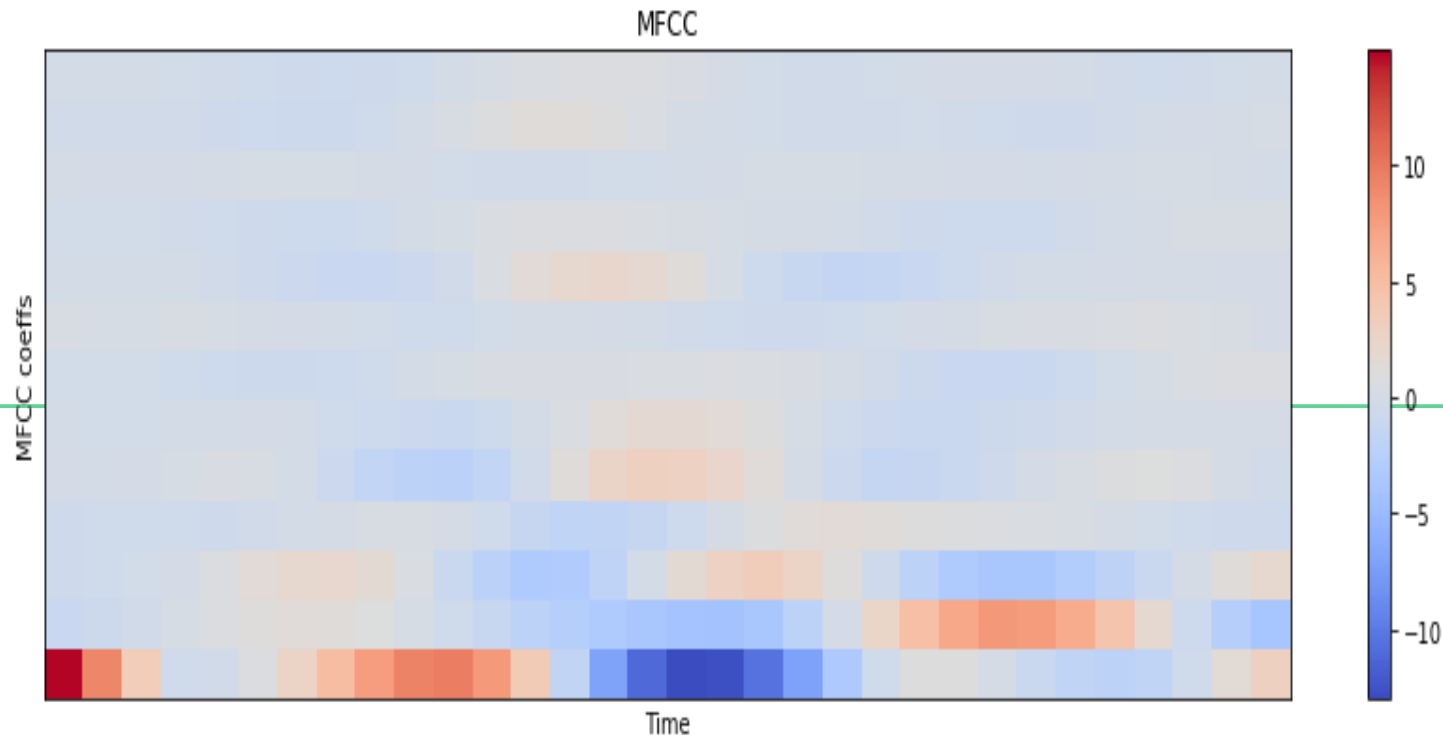
SOUND PROCESSING



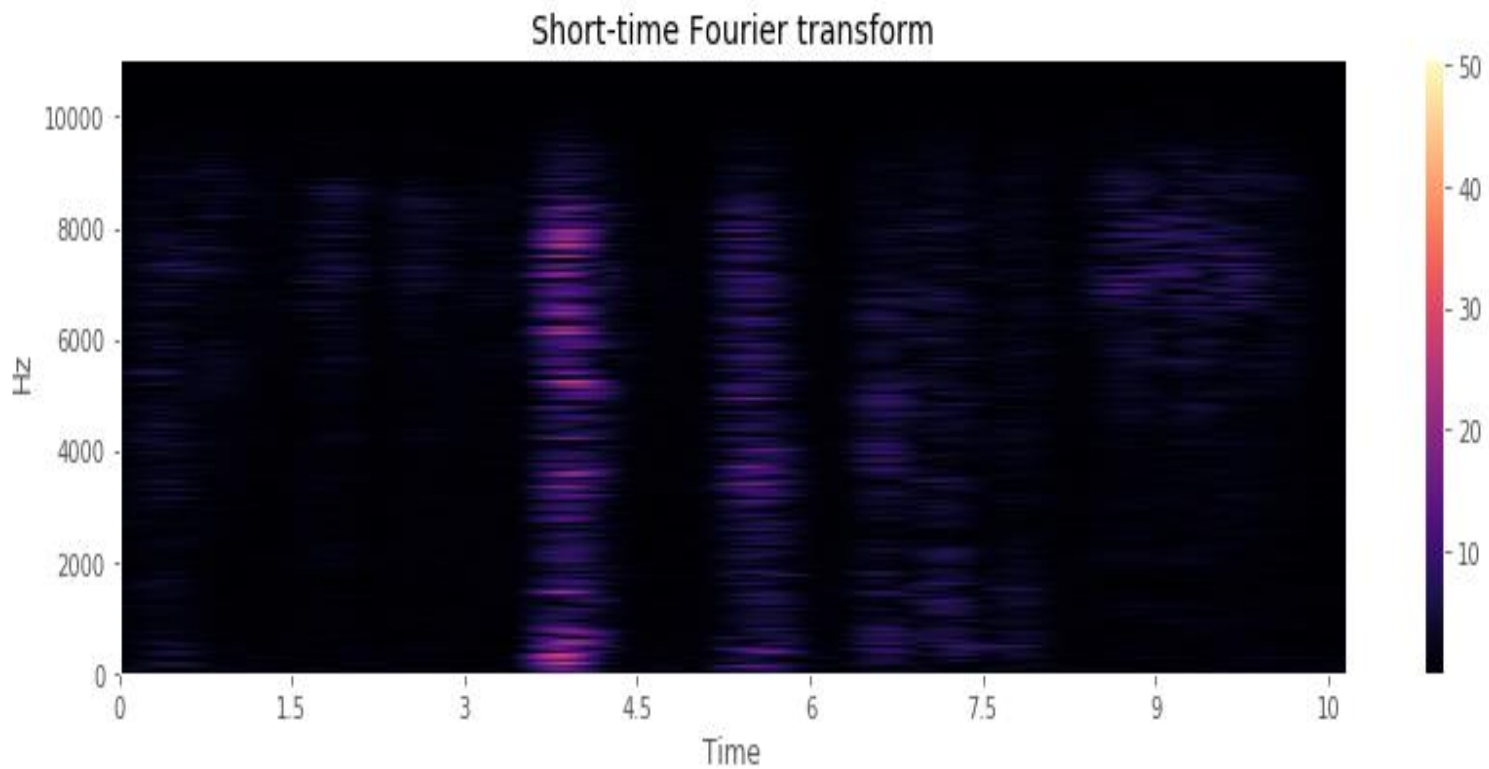
SOUND PROCESSING



SOUND PROCESSING



SOUND PROCESSING



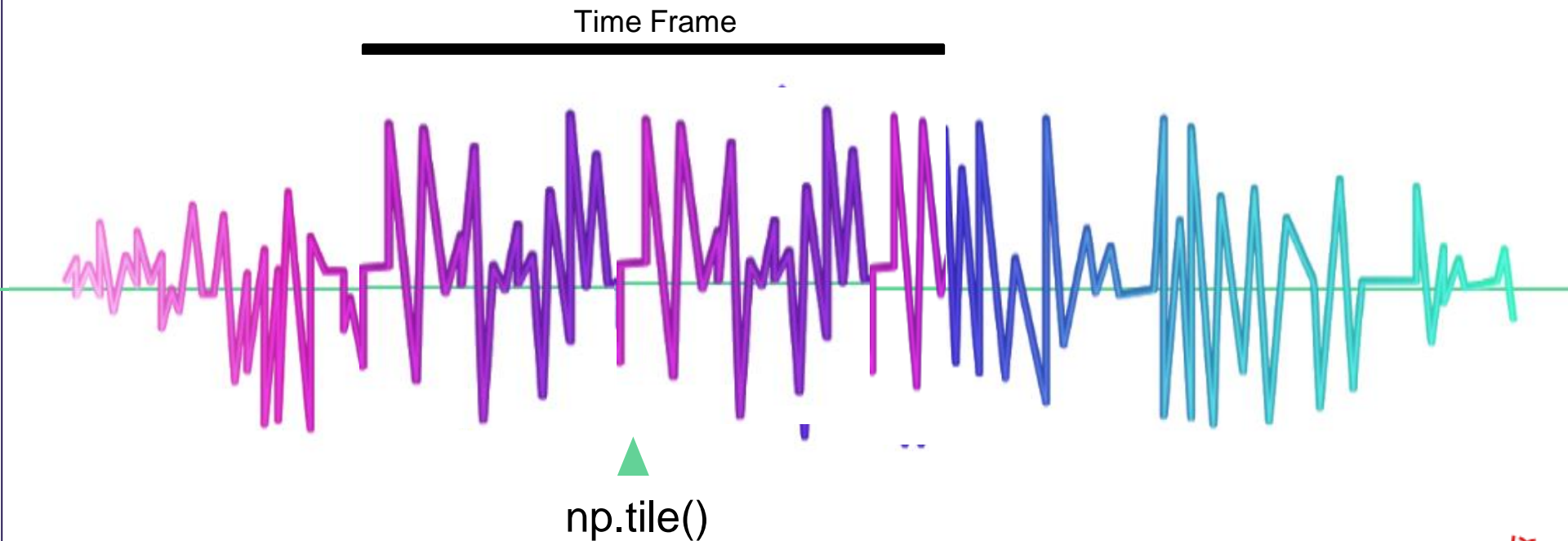
3. DATA PREPROCESSING

DATA PROCESSING

서로 다른 규격의 Time Frame을 정규화

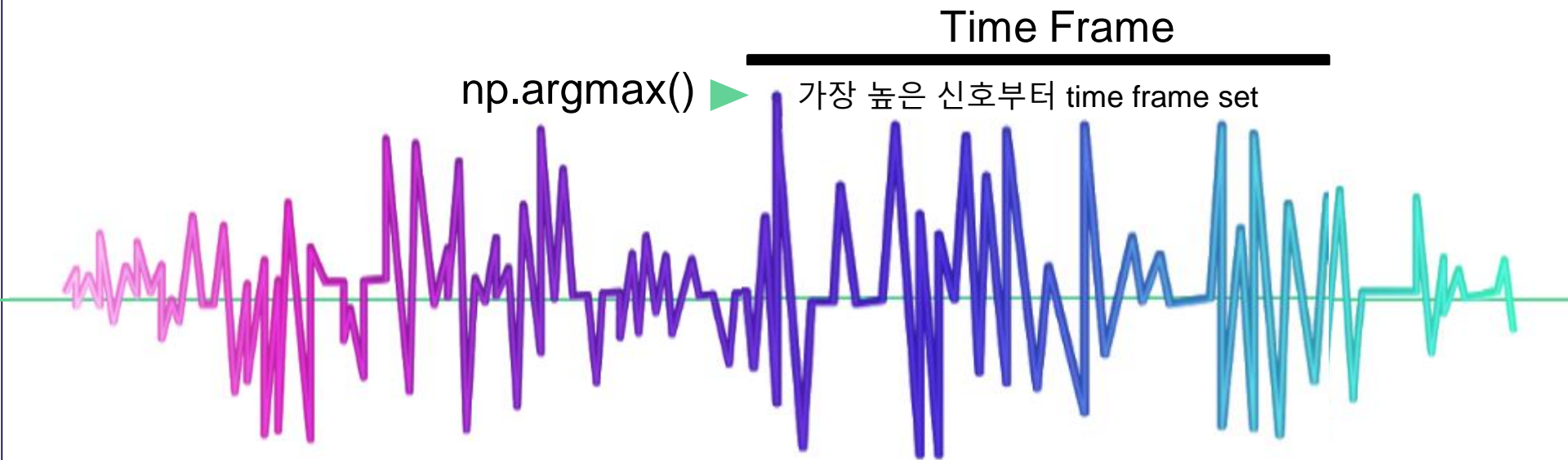


DATA PROCESSING



현저히 짧은 File은 반복처리하여 정규화

DATA PROCESSING



4. MODEL

MODEL

IN PUT

CONVONLUTION LAYER #1

Batch normalization

CONVONLUTION LAYER #2

Batch normalization

CONVONLUTION LAYER #3

Batch normalization

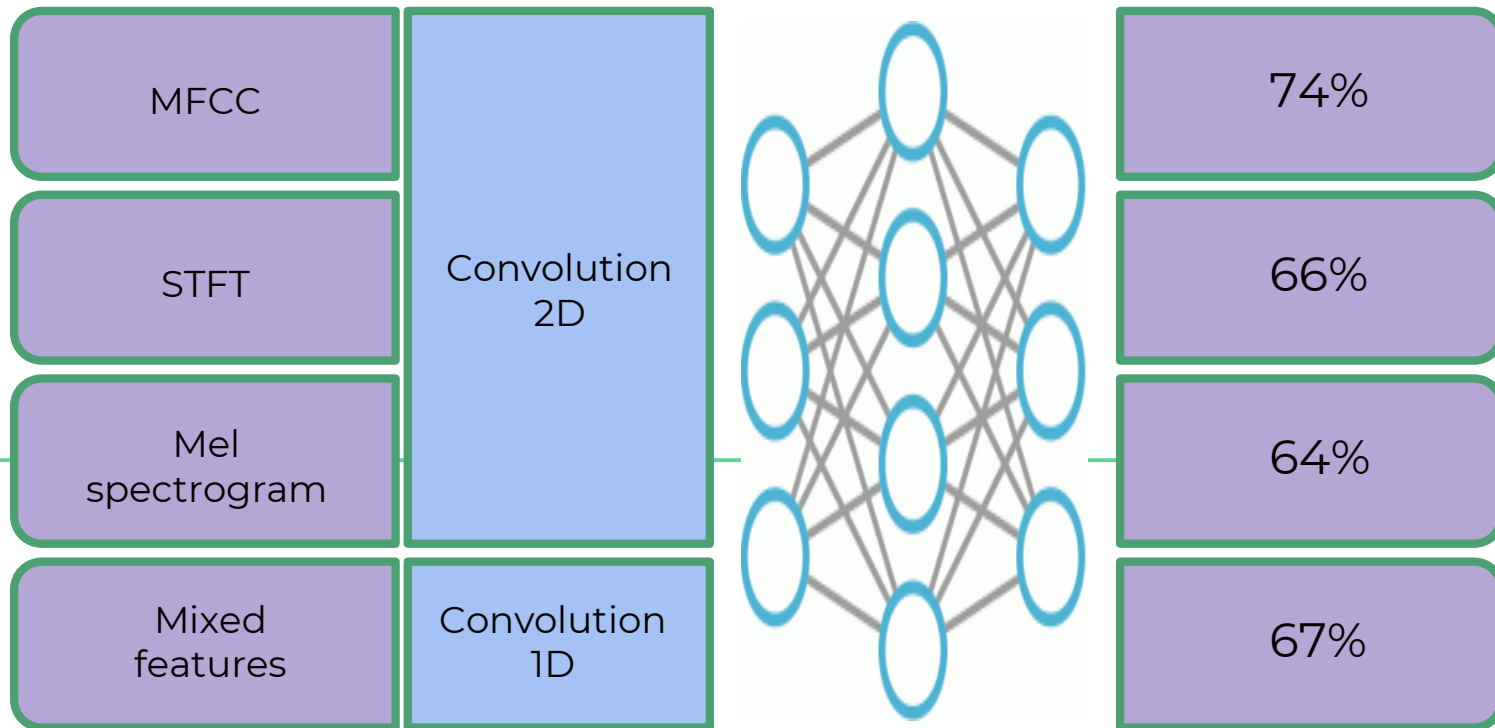
DENSE #1

Batch normalization

DENSE #2

MODEL

모델 비교



5. ENSEMBLE

ENSEMBLE

MFCC	74%
STFT	66%
Mel spectrogram	64%
Mixed features	67%

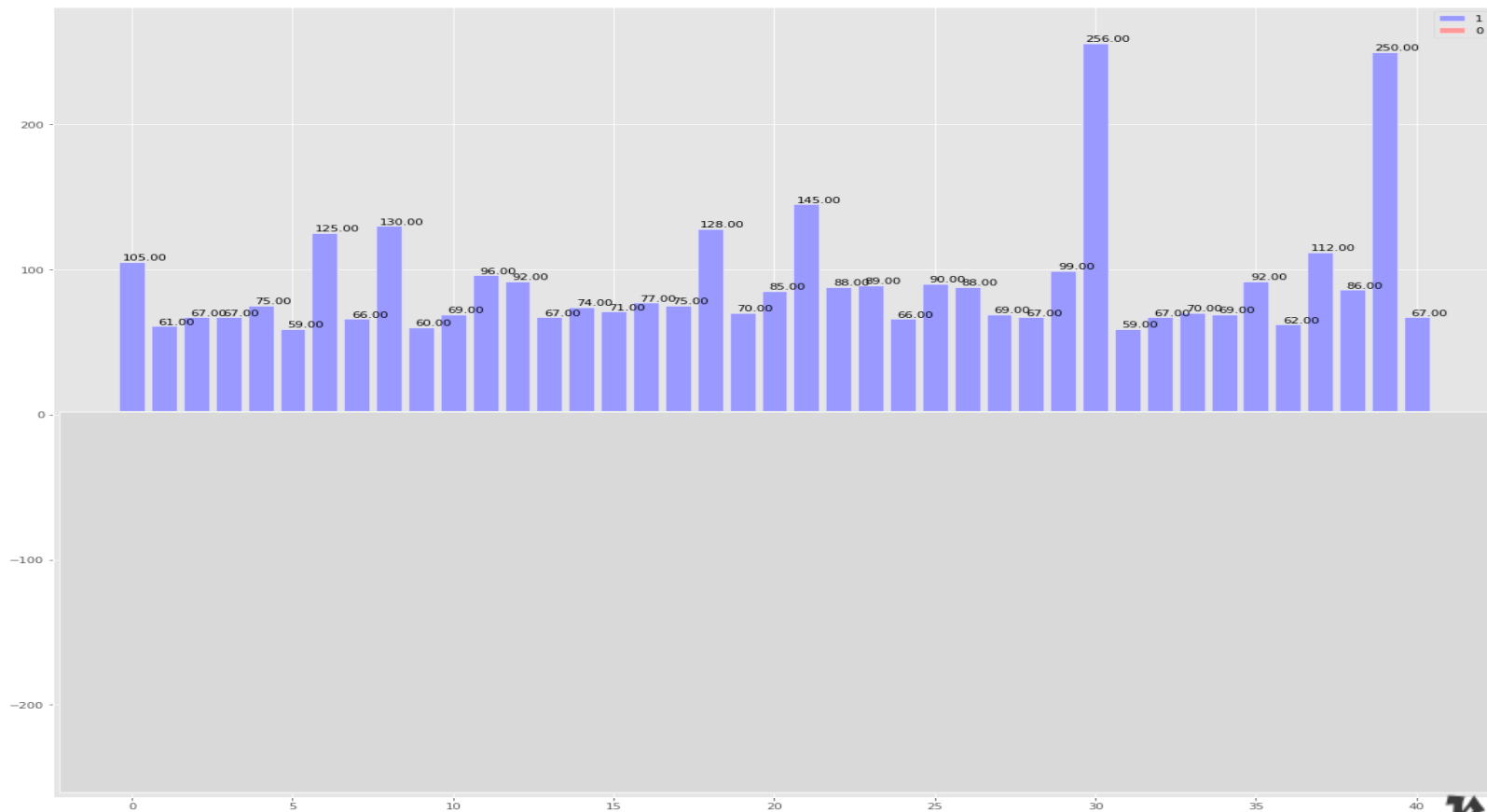
ENSEMBLE

Error list (MFCC)
aaf6167e.wav
710d8919.wav
5f6ea2fe.wav
1b73bbfd.wav
491b140e.wav
...
....

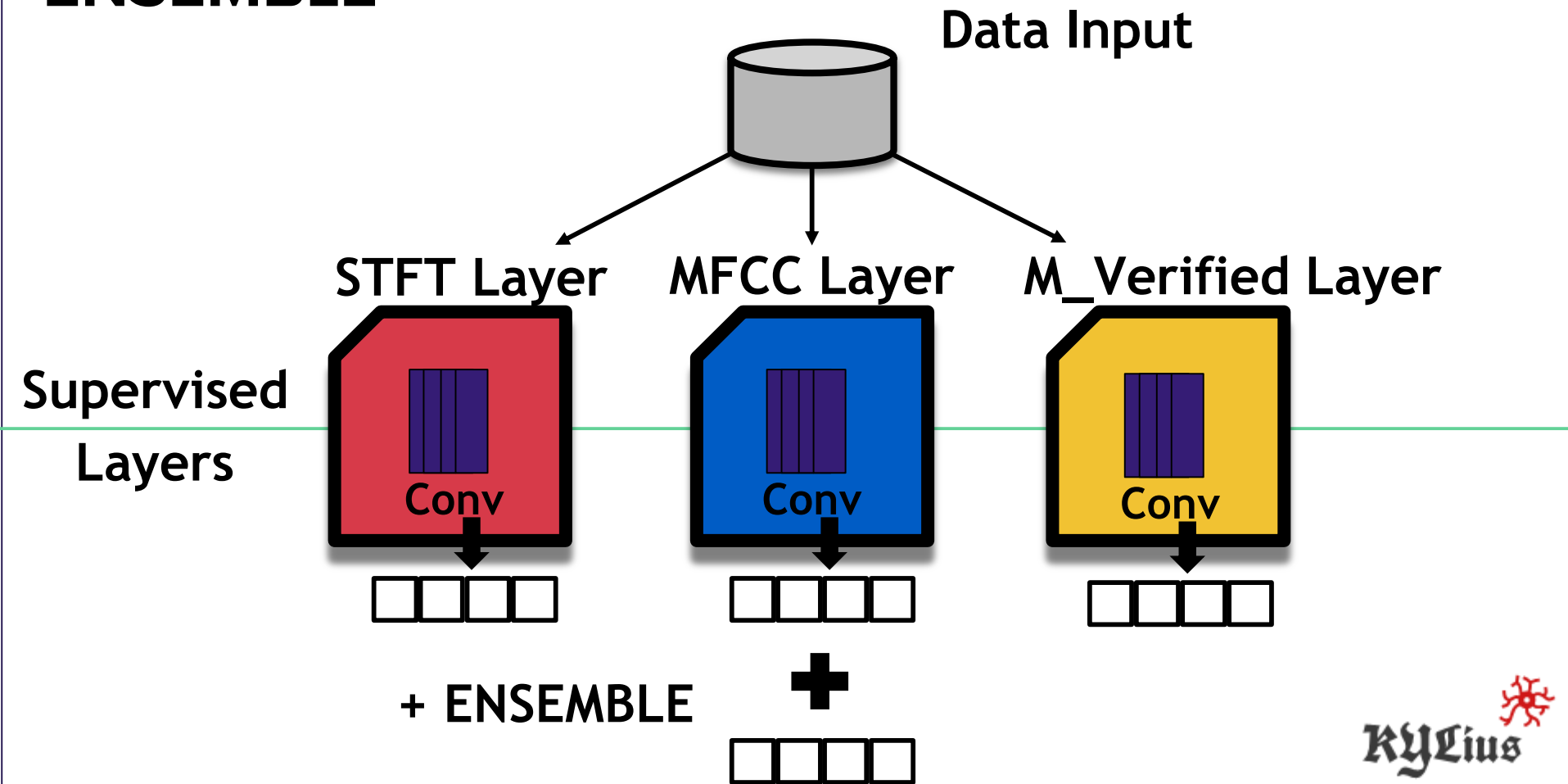
Error list (MFCC)
aaf6167e.wav
710d8919.wav
5f6ea2fe.wav
1b73bbfd.wav
491b140e.wav
...
....



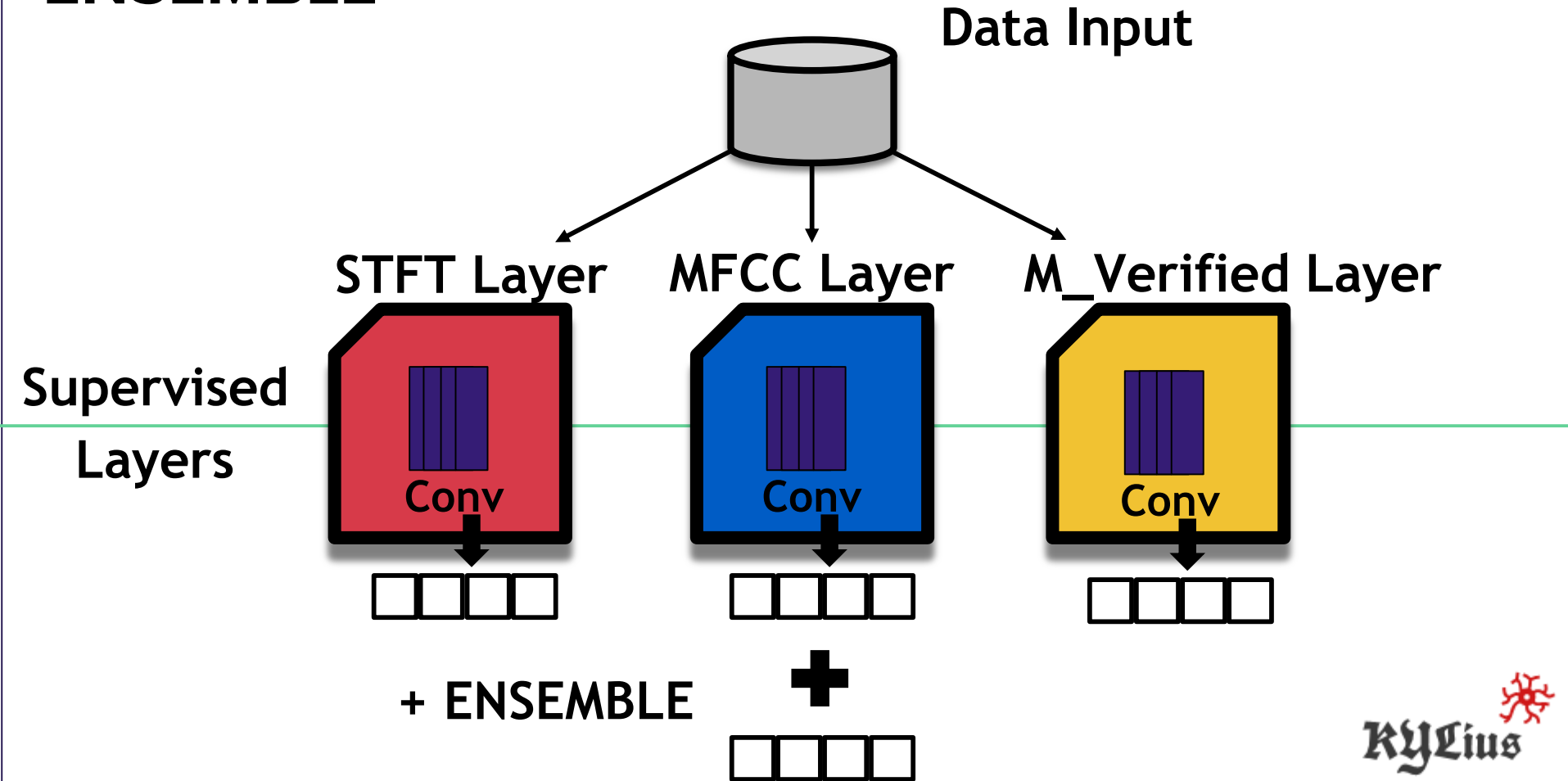
ENSEMBLE



ENSEMBLE



ENSEMBLE




ENSEMBLE

49

▲40

KYLius




0.876

6

now

Your Best Entry ↑

Your submission scored 0.876, which is an improvement of your previous score of 0.823. Great job!

 Tweet this!

41	new	rajat arora		0.825	3	17h
42	new	kyl-team		0.823	1	4m
43	▼8	yukiya		0.822	3	14d

결 론

Model of
KYEius



87.6%



감사합니다.
