

# Kaggle 오디오 데이터를 이용한 소리 분류 모델

틀리는 문제는 왜 항상 틀릴까?

# TEAM KYLius-method

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

Member:

Seunghyuk-kim Sangwook-kwak Soowon-yoo Daegon-Lee

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We do:

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

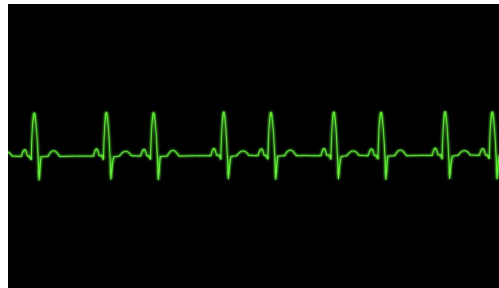


# 목 차

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# 오늘 알아볼 것들

1. DATA SET
2. Introduction to Sound processing
3. Data preprocessing(전처리)
4. Model
5. Ensemble
6. 결론



# **1. DATA**

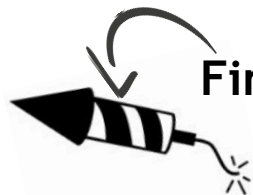
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**DATA**



Trumpet



Firework



Cough!



Bus



Laughter

**Sounds**

**41 Classes**



Finger snap



Drum

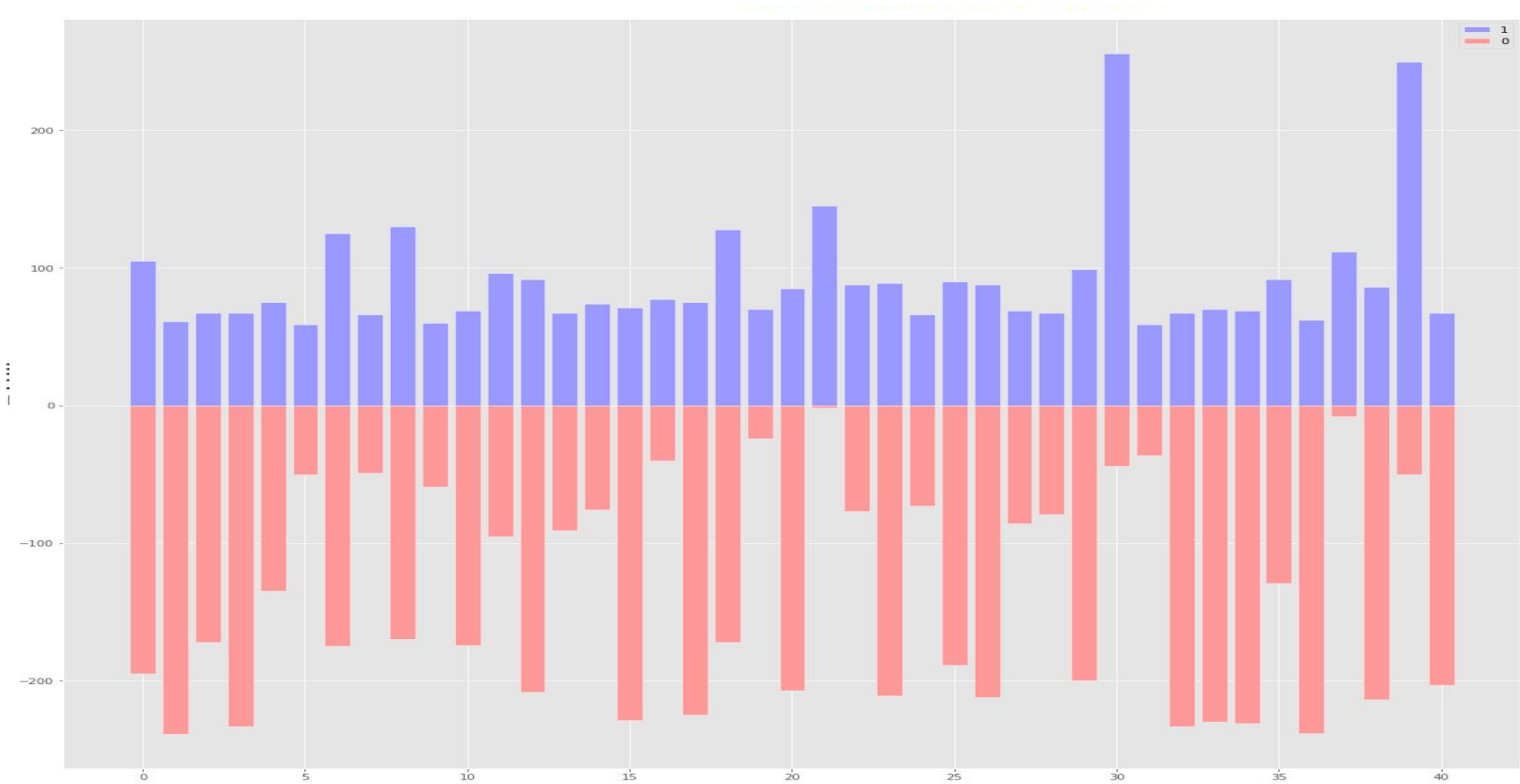
Fart



Meow

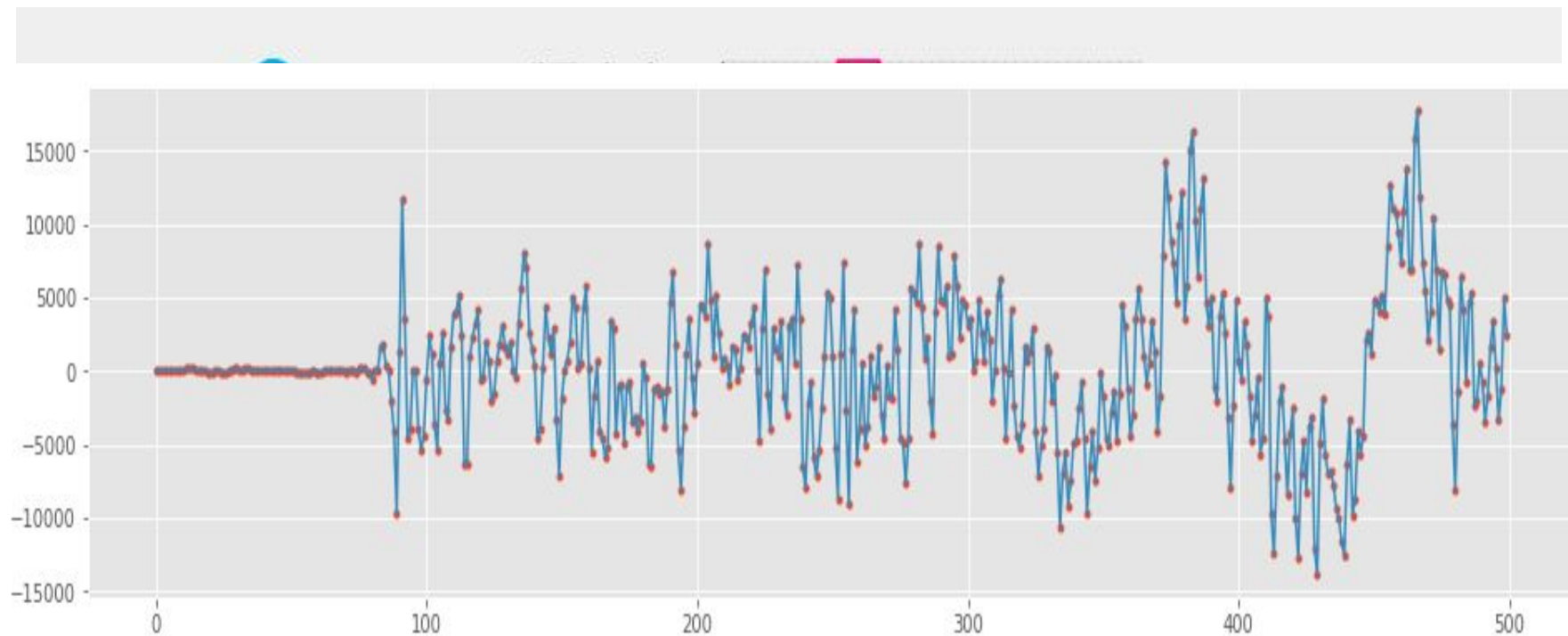


# DATA





# DATA

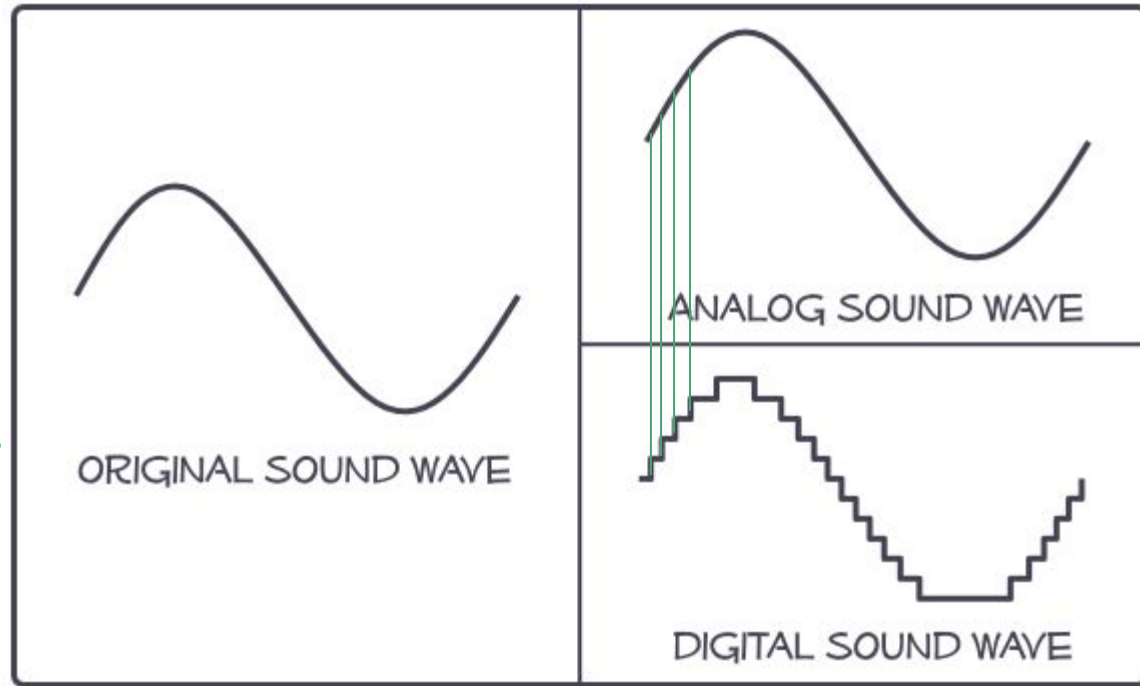


아날로그 파형

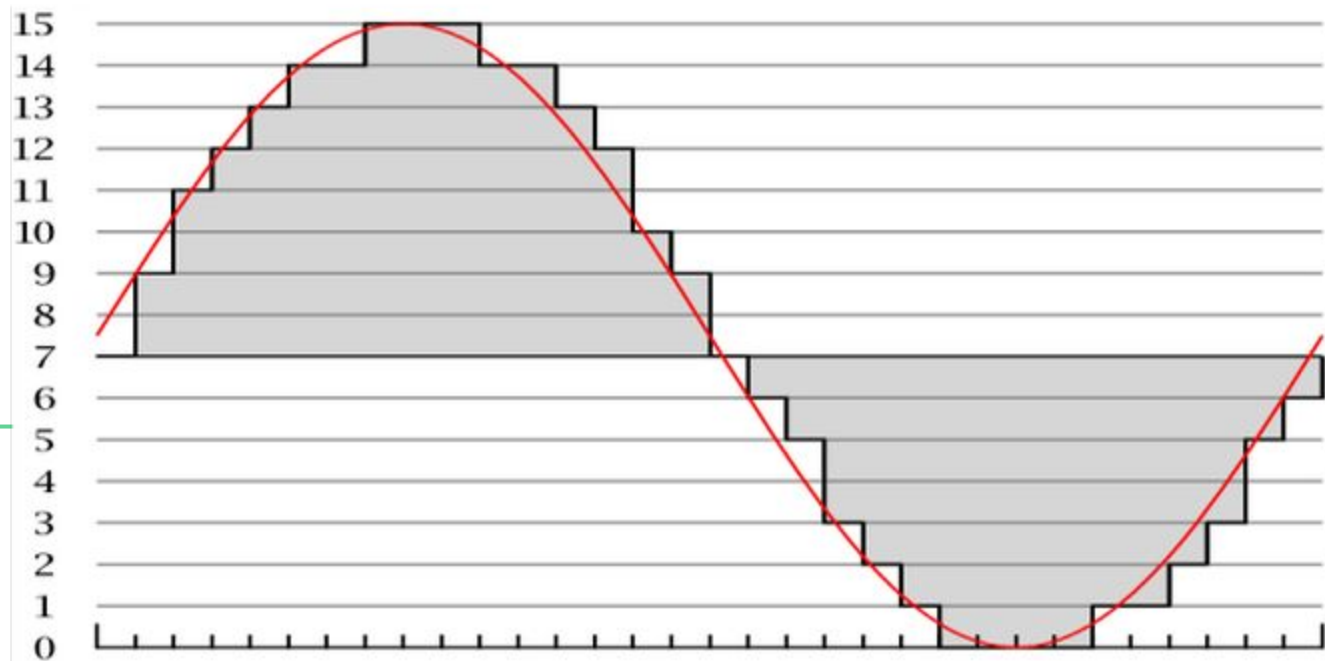


디지털 PCM 녹음

# DATA



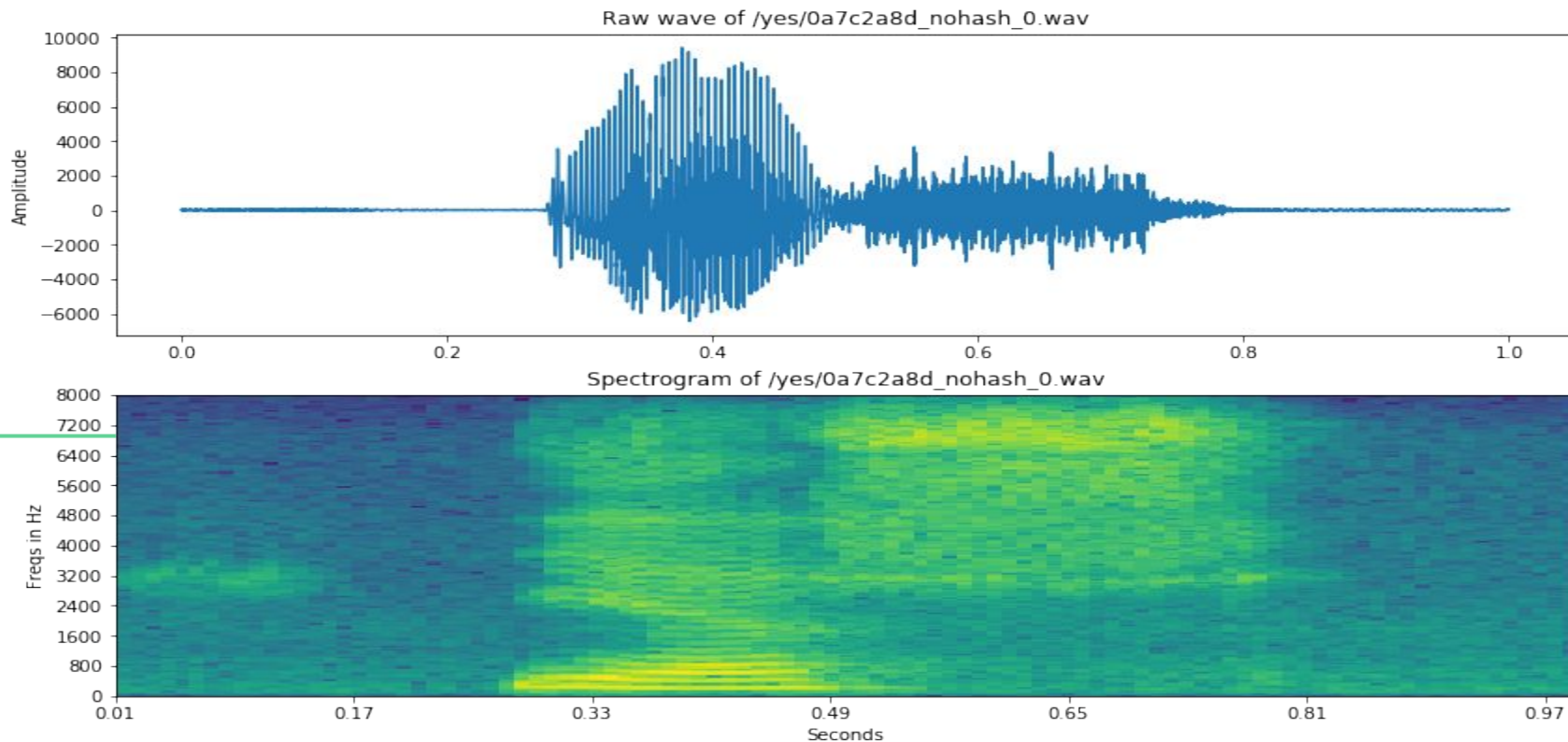
# DATA



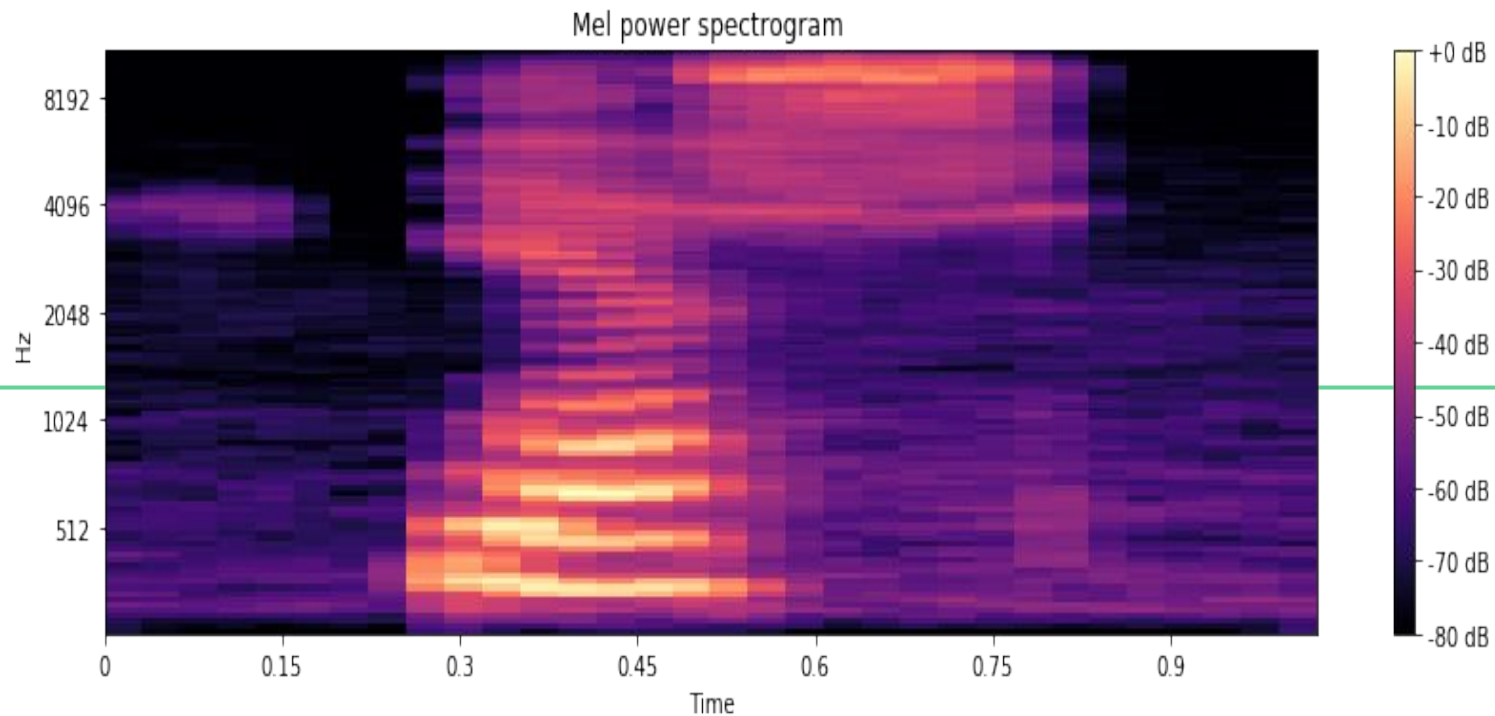
## **2. SOUND PROCESSING**

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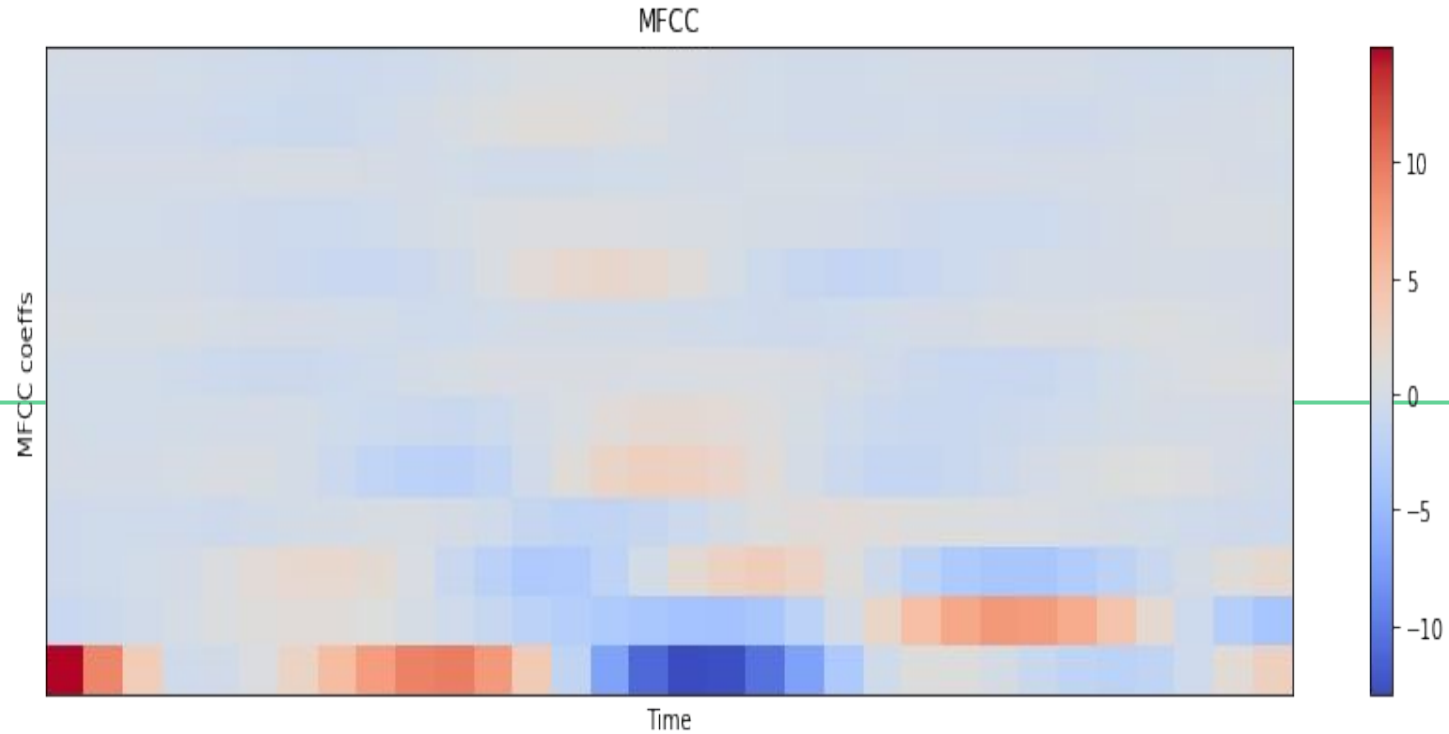
# SOUND PROCESSING



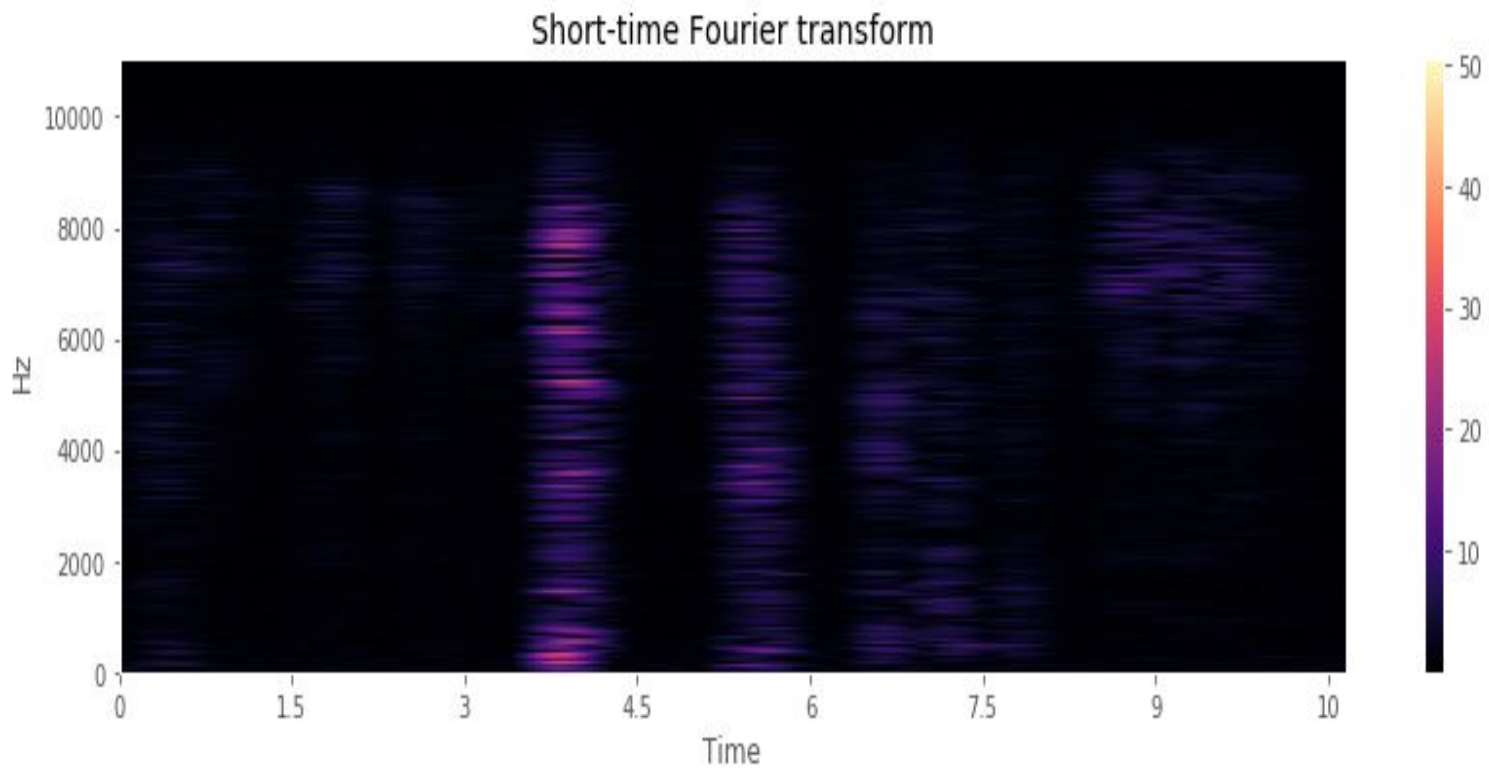
# SOUND PROCESSING



# SOUND PROCESSING



# SOUND PROCESSING



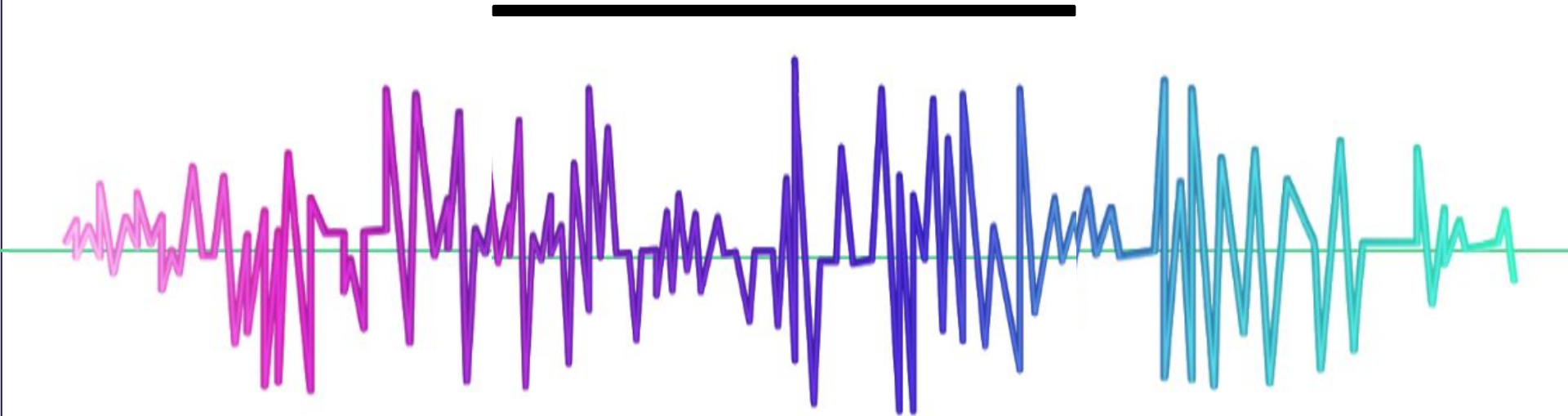


# **3. DATA PREPROCESSING**

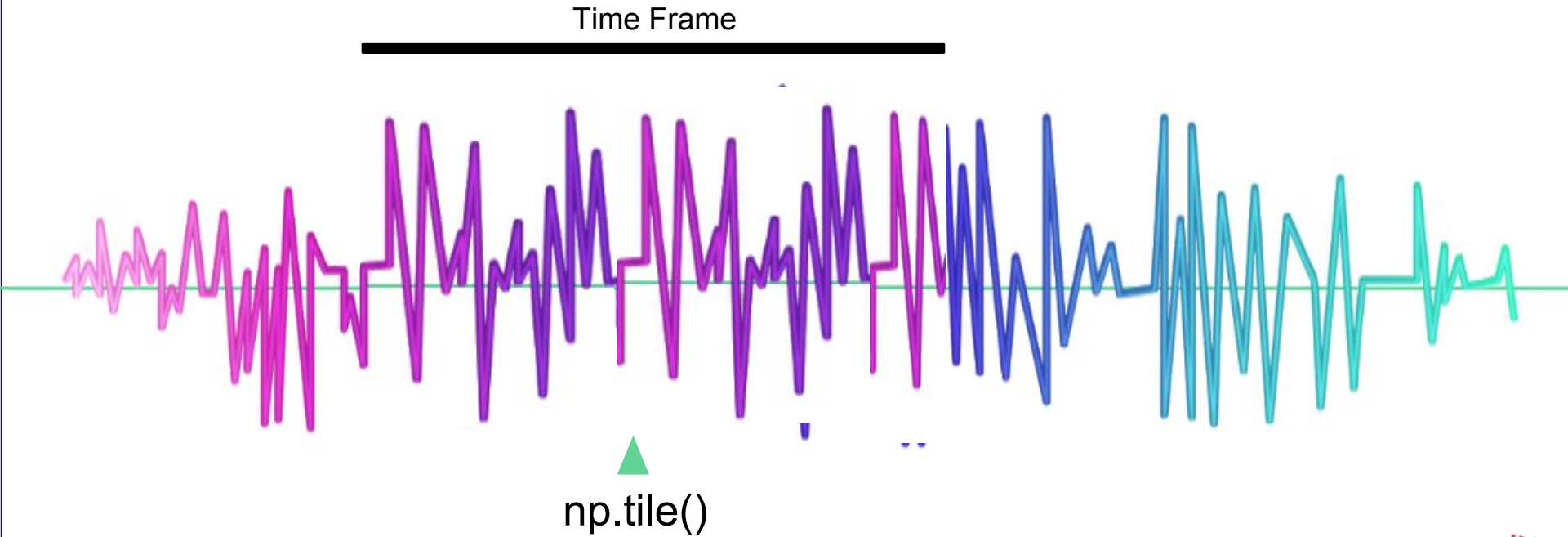
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# DATA PROCESSING

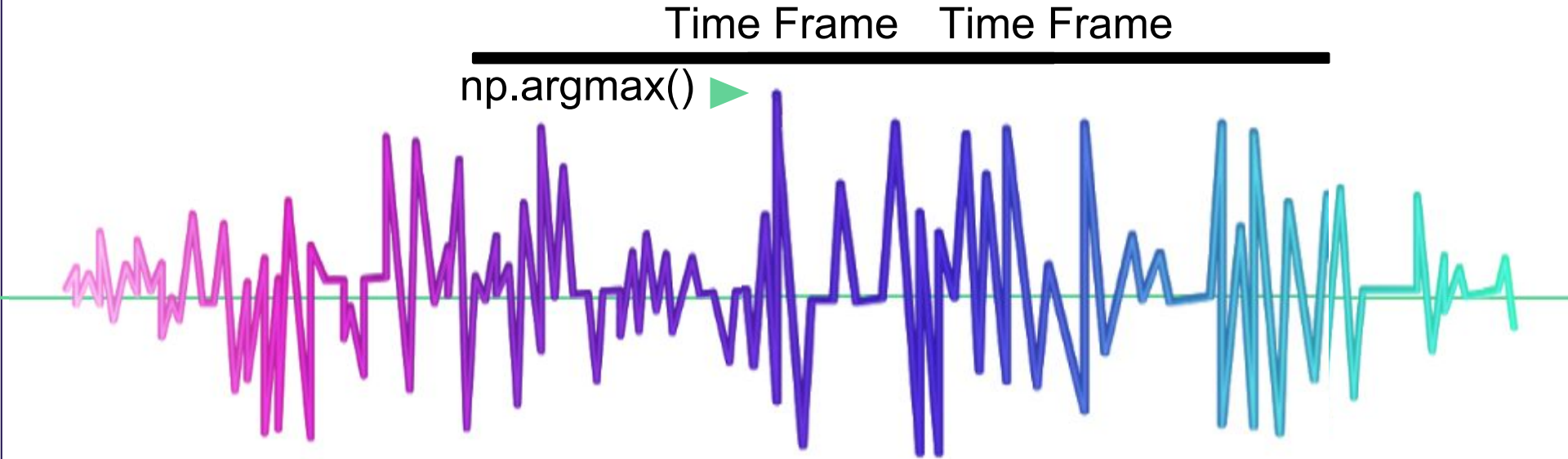
Time Frame



# DATA PROCESSING



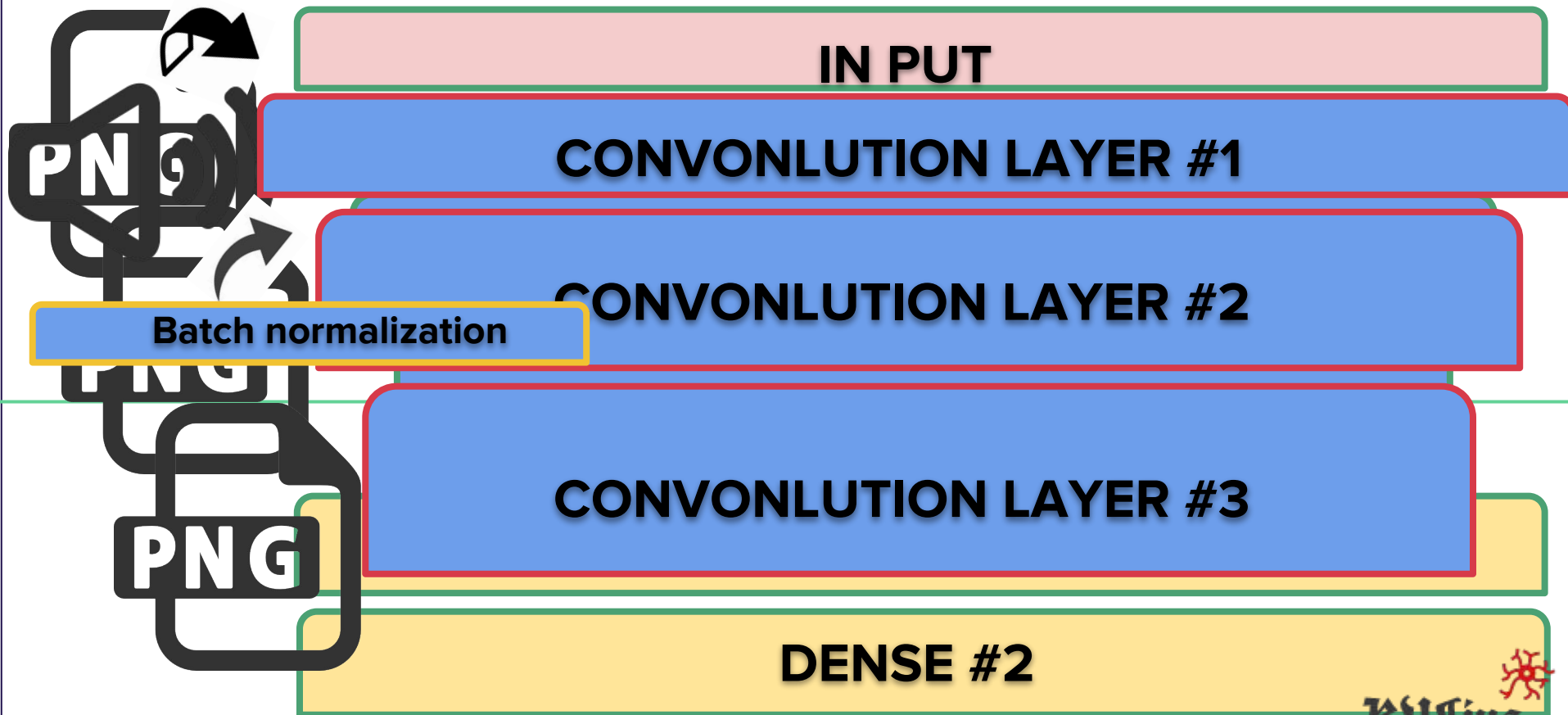
# DATA PROCESSING



## 4. MODEL

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# MODEL



# MODEL

**IN PUT**

**CONVONLUTION LAYER #1**

**Batch normalization**

**CONVONLUTION LAYER #2**

**Batch normalization**

**CONVONLUTION LAYER #3**

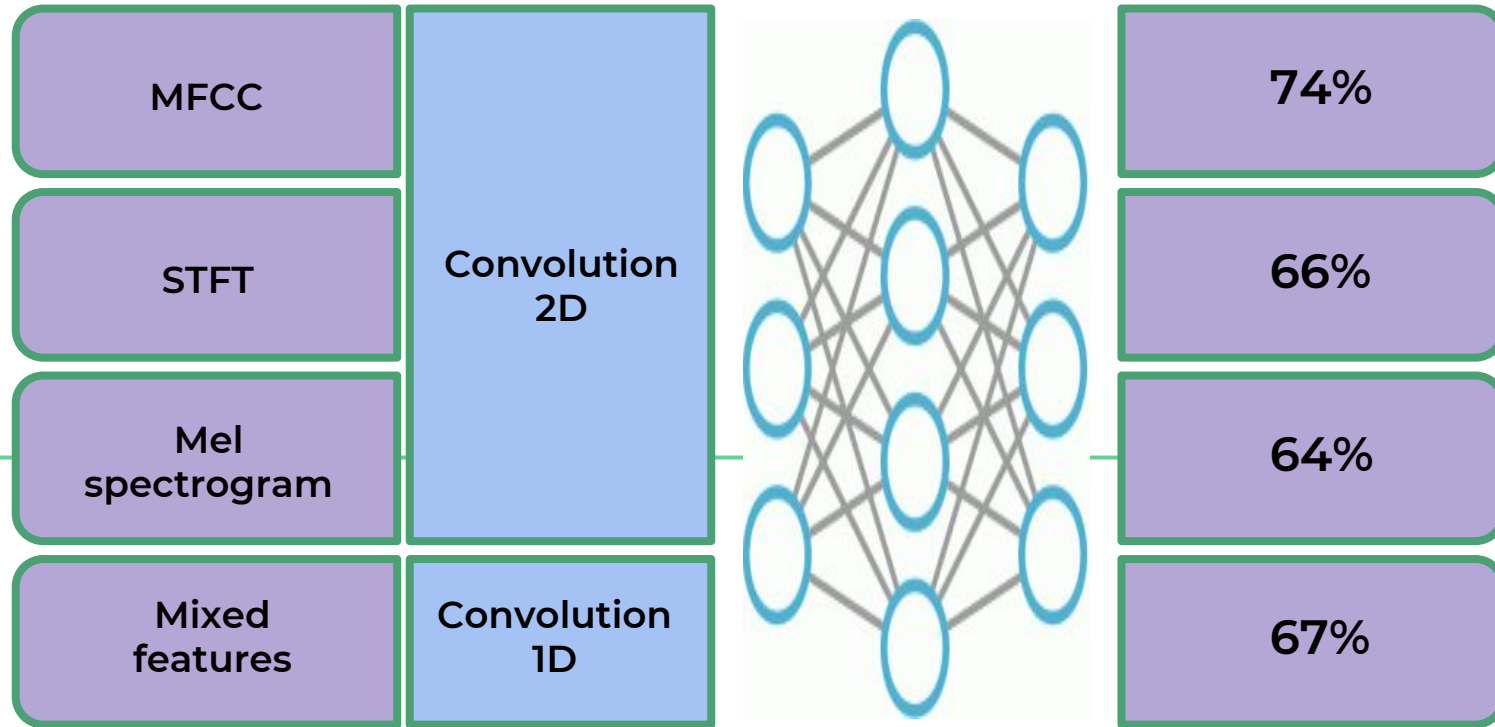
**Batch normalization**

**DENSE #1**

**Batch normalization**

**DENSE #2**

# MODEL





# 5. ENSEMBLE

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# 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

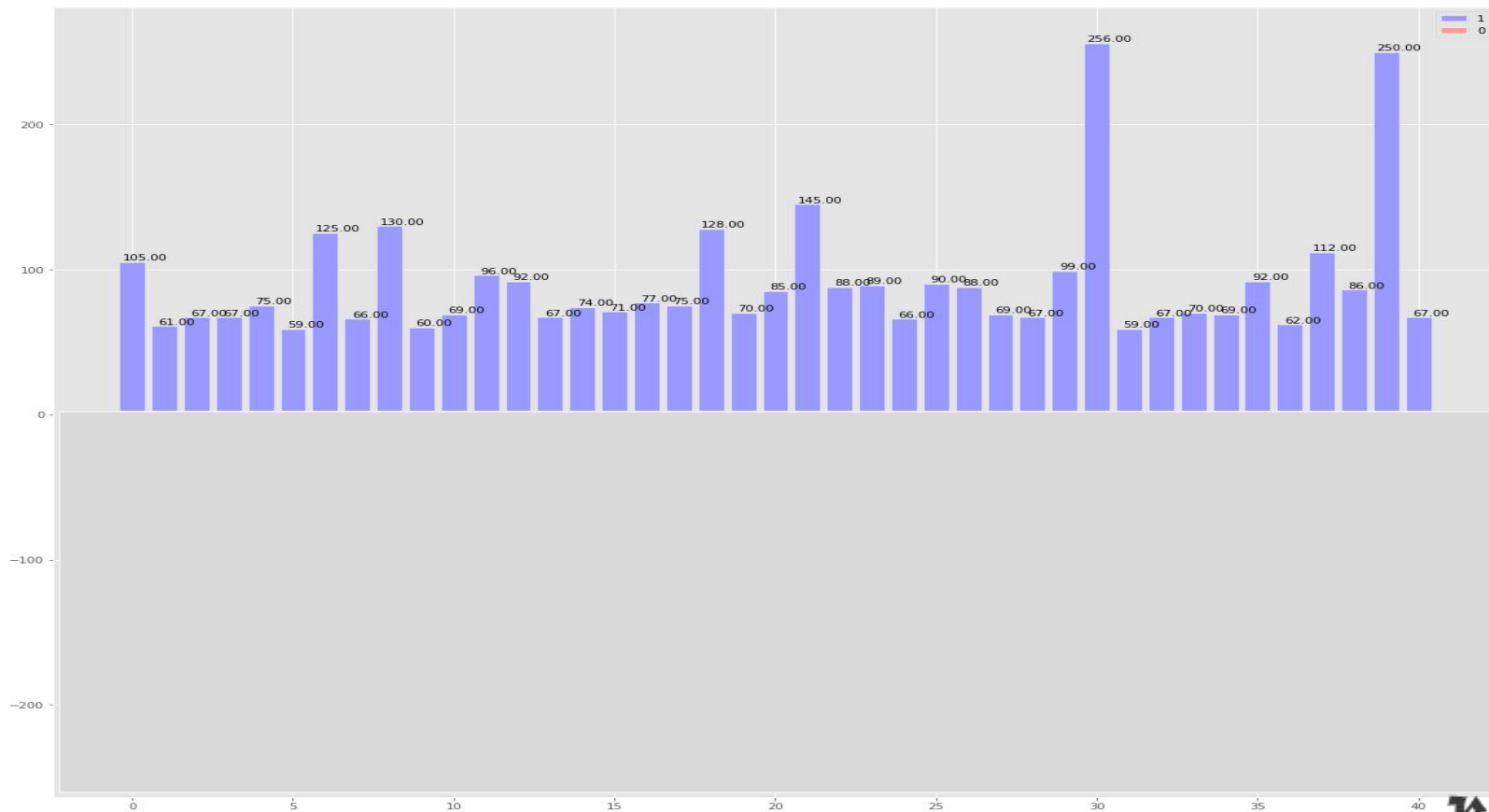
491b140e.wav

...

....



# ENSEMBLE



# ENSEMBLE

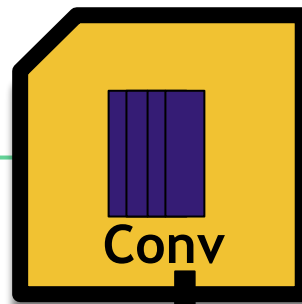
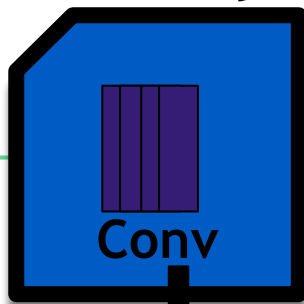
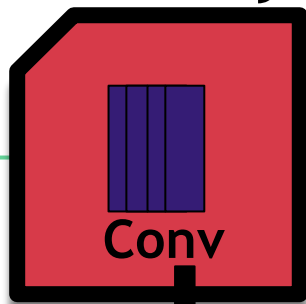
Data Input

STFT Layer

MFCC Layer

M\_Verified Layer

Supervised  
Layers



+ ENSEMBLE



# ENSEMBLE

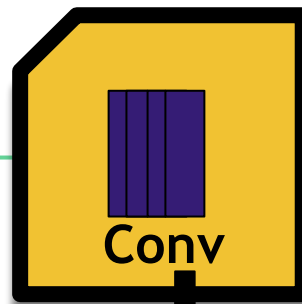
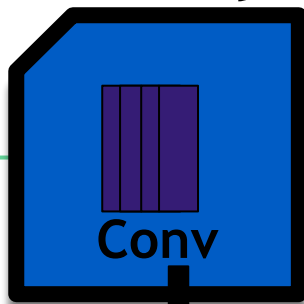
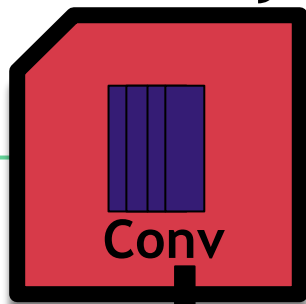
Data Input

STFT Layer

MFCC Layer

M\_Verified Layer

Supervised  
Layers



+ ENSEMBLE



# ENSEMBLE

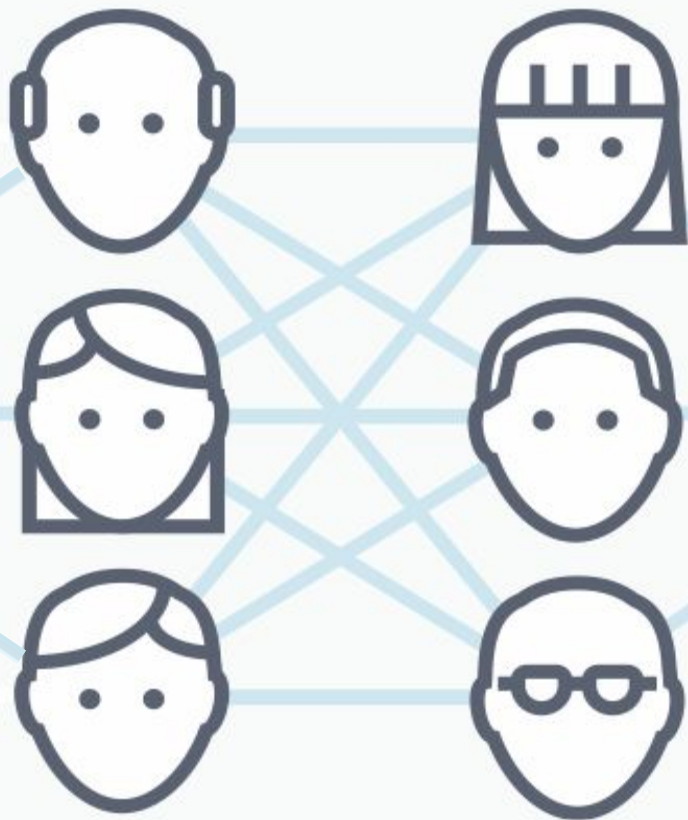
41	new	rajat arora		0.825	3	17h
42	new	kyl-team		0.823	1	4m
43	▼ 8	yukiya		0.822	3	14d

# 결론

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Model of  
Kyeius



82?3%

감사합니다.

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