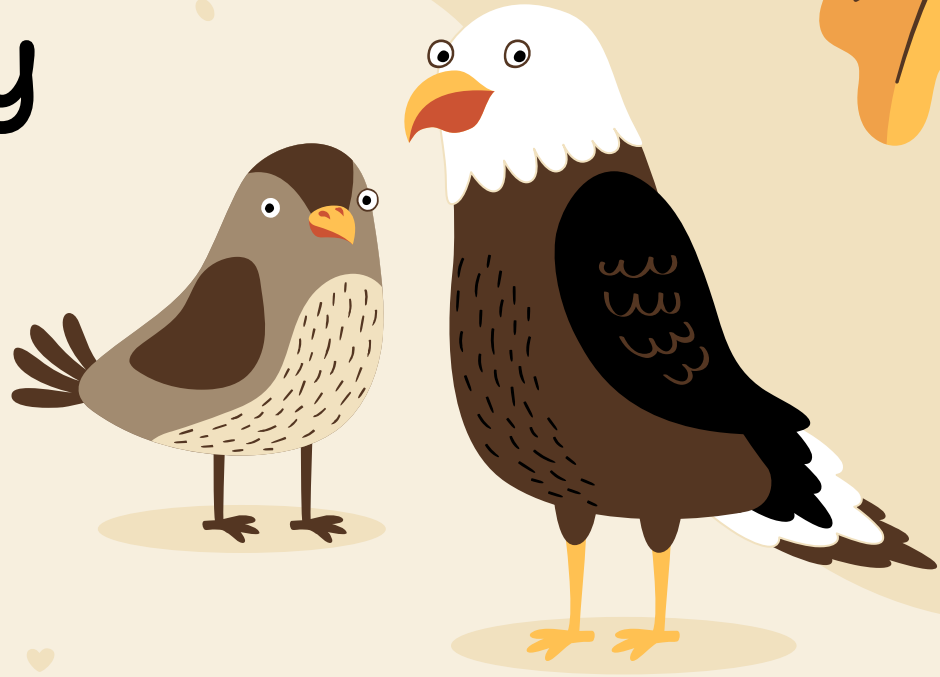


Team NatureAI

# Help Nature by saving Ecosystem

.....  
Birds are nature's gardeners and  
pollinators



# Problem Statement



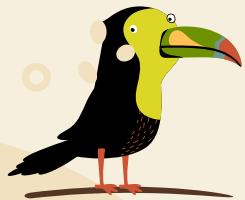
Every species on earth contributes in the balance of ecosystem.

Birds are also an essential part of our ecosystem. They help to pollinate plants, control insect populations, and disperse seeds. But birds are in trouble.

As over 1 in 5 bird species is now threatened with extinction.

Monitoring changes in bird species numbers can reveal the effectiveness of restoration projects. Traditional observer-based surveys for this purpose are costly and logistically challenging. In contrast, passive acoustic monitoring (PAM) combined with machine learning tools enables cost-effective, large-scale, and high-temporal-resolution assessments of the impact of restoration efforts on biodiversity.

# Proposed Methodology



01

## Collection

Collect audio data from forests

02

## Compress

Compress the audio using Encoder for efficient transmission

03

## Transmission

Transmit the compressed signals

04

## Decompress

Decompress the received audio for inference

05

## Prediction

Predict the audio and classify the bird

# Advantages of MLoPs for Bird Conservation



**Cost-Efficient:** It's cheaper than traditional methods because it doesn't require people to physically go out and observe birds.

**Cover Large Areas:** Machine learning can analyze bird sounds over vast areas, which would be difficult for humans to do.

**Quick Results:** Machine learning with audio craft compression gives results faster due to high-speed computing.

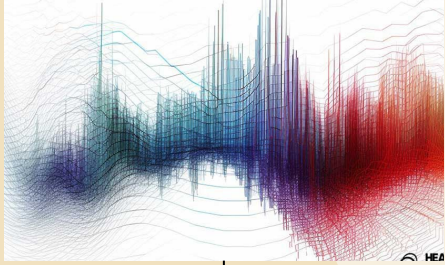
**Accuracy:** Machine learning can be very good at recognizing bird species accurately.

**Less Human Effort:** Humans don't need to spend as much time listening to recordings; the computer does the heavy lifting.

**Supports Biodiversity:** By tracking bird species, it helps protect the variety of life in an area.

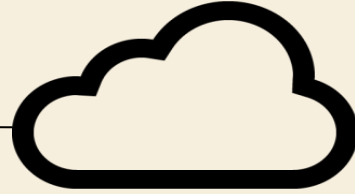
# Model Flow

Audio craft Encodec  
(Audio Decompression)



Birds Class Prediction

On cloud premises

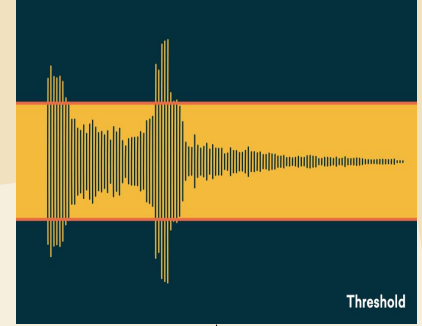


Cloud Server



End user

Audio craft Encodec  
(Audio compression)



On device premises

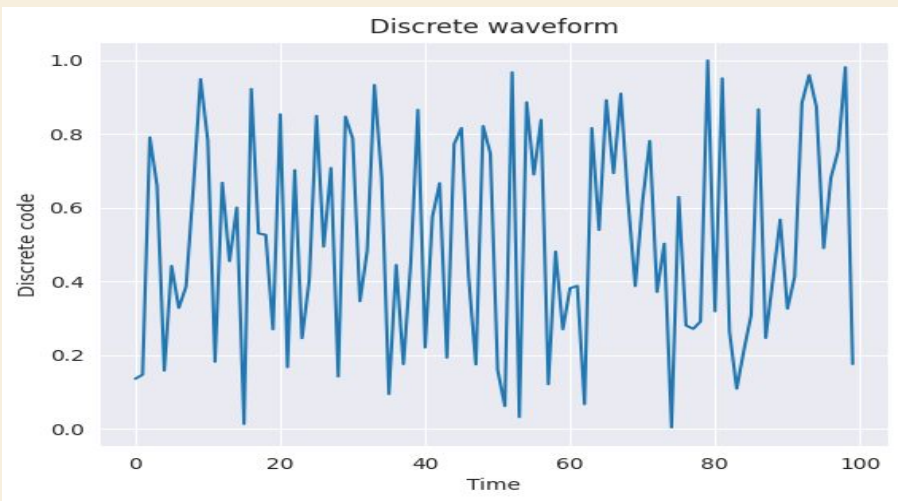


Voice capturing

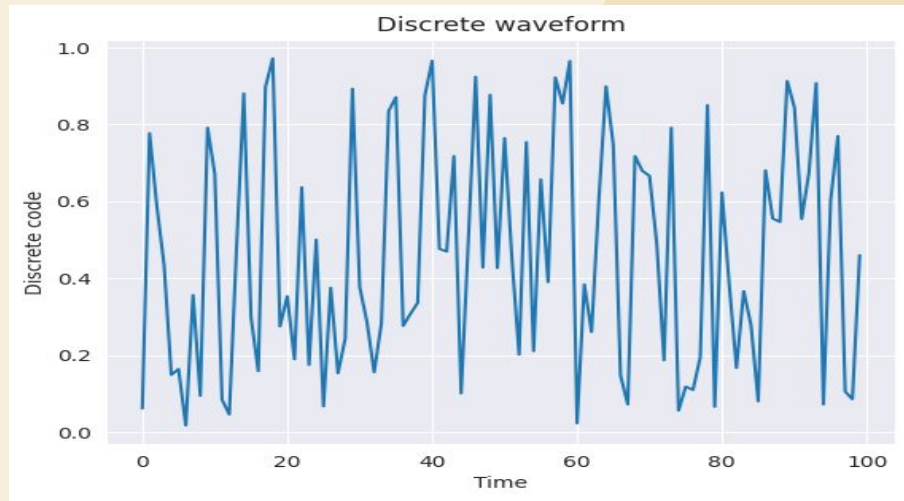
# Audio Craft Encodec



- High sound quality
- Small file sizes
- Fast encoding



Original  
Size: 141.4K



Compressed  
3.49K

# My Team!

1. Gul Hassan

2. Shaheer Khan

3. Mahwish Irshad

