

Technical Report

BioDCASE 2026 Task 5: Cross-Domain Mosquito Species Classification

1. Introduction

Mosquito species identification based on flight audio is critical for infectious disease monitoring.

This task focuses on cross-domain generalization, where test recordings come from new recording devices and environments.

We implement the official baseline acoustic classification system to finish this task.

2. Data Preprocessing

We use the official development dataset for model training.

During data preparation, we fixed a common bug triggered by macOS hidden metadata files starting with `._`. These invalid files would cause audio loading failure, so we add filtering rules to exclude them and match filenames strictly.

All audio clips are resampled to 16kHz uniformly.

3. Acoustic Feature Extraction

Log-Mel spectrogram is chosen as the input feature for the classifier.

Experimental configuration:

Sample rate: 16000 Hz

Mel filter banks: 128 bands

The logarithmic mel spectrum can effectively characterize the frequency characteristics of mosquito wingbeat sounds.

4. Classification Model

We build a lightweight convolutional neural network (CNN) as the classifier.

The network consists of two convolution and pooling layers, which automatically extract spatial features from mel-spectrogram images.

The model is trained on the development dataset with Adam optimizer and cross-entropy loss.

5. Inference and Output

After training converges, we load the model checkpoint and run prediction on all audio files in the evaluation set.

All predicted mosquito species labels are exported into the CSV file following the official format.

6. Species Categories

Four target mosquito species in this competition:

Aedes albopictus, *Aedes aegypti*, *Culex pipiens*, *Anopheles gambiae*