香 港 中 文 大 学（深 圳）
THE CHINESE UNIVERSITY OF HONG KONG, SHENZHEN

Undergraduate Research Awards

COMPLETION FORM

Name (In English):__Yang_Yiqu_____
姓名（中文）:_____杨易趣_____ ___
学号 Student I.D. No:__121090711____
学院 School: ____数据科学学院_____
主修/课程 Major / Programme:__数据科学与大数据技术__
电子邮箱 E-mail: 121090711@link.cuhk.edu.cn
修业年 Year of Attendance:____2021____
预期毕业年份/学期 Expected Year / Term of Graduation: ____2025___
联络电话 Phone Number: __15949612062___
累计平均成绩 Cumulative GPA: _____

项目名称 Title of Proposal	Web Visual Interface: Based on Audio Splicing Localization Problem

项目摘要 Abstract

Audio splicing is a low-cost and straightforward tampered form of audio fraud. Splicing localization is to locate where the splicing tampering happens. Although there are a few studies on audio splicing localization, most of them use a much smaller dataset and locate the splicing points within a long segment, which can not accurately reflect the real model performance in the real-world application. In this study, we revisit audio splicing localization by using a large-scale splicing dataset and how accurate the model can be if we narrow down the localization range. We employ a ResNet-based model for localization and develop a large-scale dataset from LibriSpeech for experiments. The dataset consists of more than 130k utterances, including insertion, deletion and substitution splicing tampering. Moreover, on this basis, the project will build a web-based visual interface for explainable artificial intelligence in audio generation to make it easier to review and inspect speech waveform and spectrogram.

项目结题报告 Completion Report	The completion report should be prepared according to the template and submitted as an attachment to this completion form. If you have publication(s), the publication(s) can be treated as the completion report, and submitted as an attachment to this completion form instead.

项目成果 Outcomes (Conference paper, Journal paper, Patent...)

I have developed an interactive web page for audio segmentation and recognition. The web page allows users to upload multiple audio files and displays the probability of segmentation for each file. It also provides visualizations of the waveform and wave spectrogram for each audio file and the segmentation probabilities at different time points.

Key features of the project include:

1.File Upload: Users can upload multiple audio files in various formats.

2.Segmentation Probability: The web page calculates and displays the probability of segmentation for each uploaded audio file.

3.Waveform and wave spectrogram Visualization: The waveform of each audio file is visualized, allowing users to see the audio's amplitude over time.

4.Time Point Segmentation Probability: The segmentation probabilities at different time points within each audio file are visualized, enabling users to identify potential boundaries.

5.User Interaction: The web page provides an interactive interface where users can zoom in/out on the waveform and hover over time points to see corresponding segmentation probabilities.

This project aims to assist users in analyzing audio data by providing insights into potential segmentation points and their probabilities. It offers a user-friendly and interactive platform for exploring and understanding audio content.

SUPERVISOR'S COMMENTS AND ENDORSEMENT

I am pleased to provide my comments and endorsement for Yang Yiqu and her outstanding work on the web-based visual interface for audio splicing detection and analysis. Throughout the project, Yang Yiqu has demonstrated exceptional skills and dedication in developing a user-friendly platform for audio editing and clipping. I am confident that Yang Yiqu's research outcomes will have a lasting influence and contribute to advancements in audio technology.

SUPERVISOR'S SIGNATURE

☐ I hereby certify the authenticity and originality of the applicant's research work as well as the completion report.

导师姓名和学院
Name and School of Supervisor(s)

_____Wu Zhizheng_____ _____SDS_____ _____

Signature of Supervisor Date 2023.7.11

学生签名
STUDENT'S SIGNATURE

☐ I hereby agree to abide by URA's policies and procedures governing the Undergraduate Research Awards.

姓名
Name

_____Yang Yiqu_____ _____SDS_____ _____

Signature 杨易趣 Date 2023.7.11

*please submit this completion report to *ura@cuhk.edu.cn* no later than three weeks after the project completion date.