MARATRON

책을 듣다

Name 이남기

Date 2019.03 ~ 2019.06

Git https://github.com/brainmining-for-bigdata

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Intro

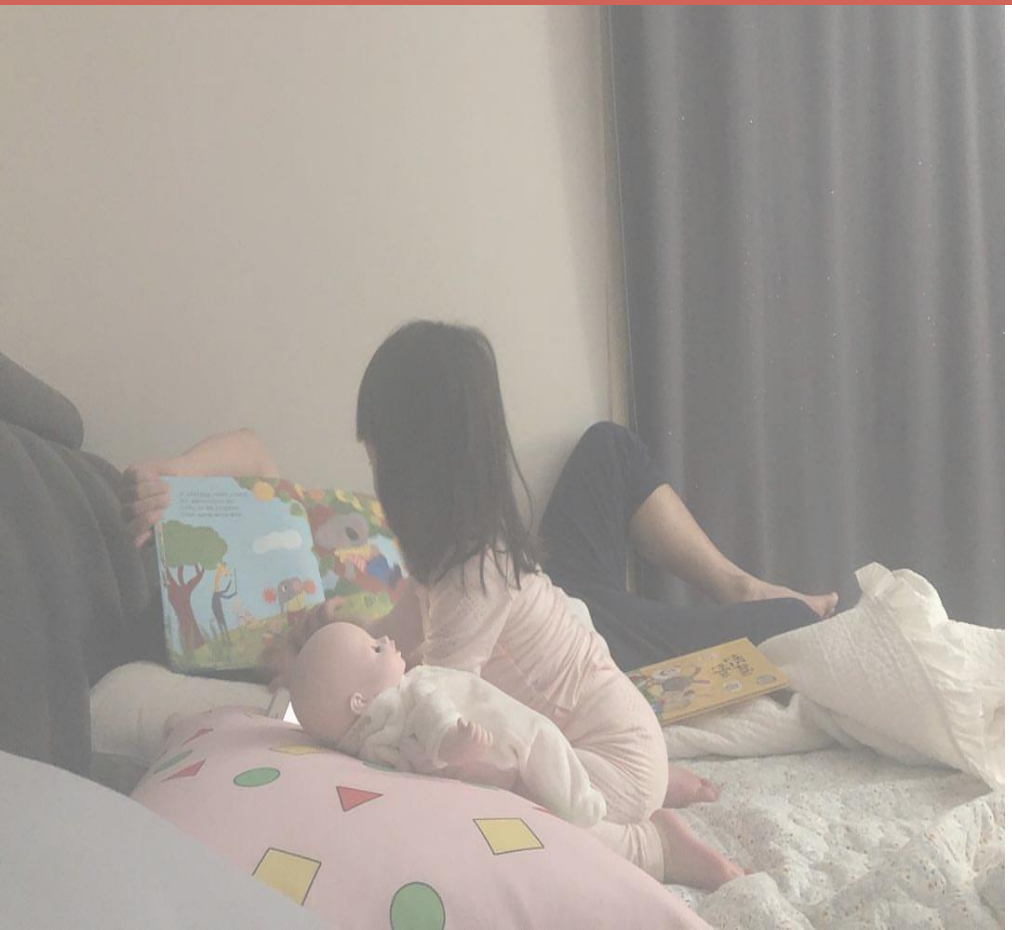
Background

발디딜 틈도 없는 지하철.
간신히 이어폰을 꺼내어 귀에 꽂습니다.

들려오는 목소리.....

「내가 읽고 싶은 책을 누군가 아름다운 목소리로 읽어준다면 얼마나 좋을까요?」

Background



퇴근 후 매일 밤 아이가 잠들기 전 책을 읽어주고 싶지만.

쏟아지는 피곤에 정작 먼저 잠드는건 아빠네요...

「아이에게 엄마아빠의 목소리로 책을 읽어 준다면? 」

Summary

프로젝트명 : MARATRON

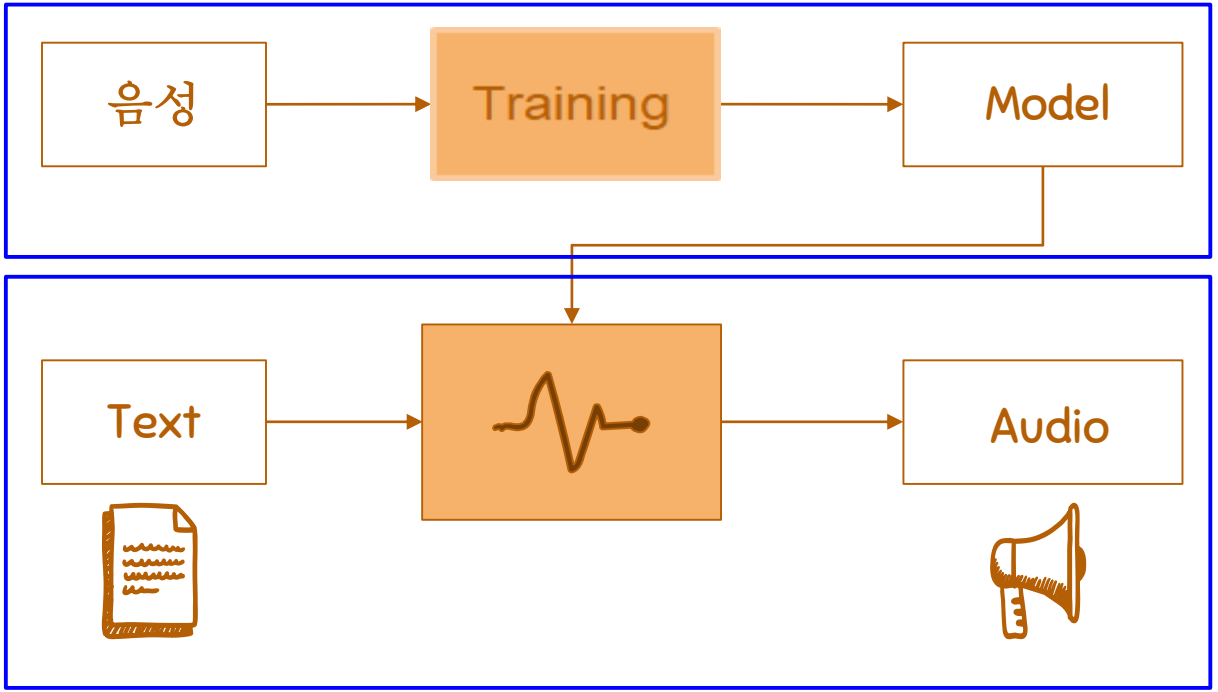
서비스명 : 책을 듣다.

프로젝트 정의 : 개인화 음성 합성 기술 TTS(Text to Speech)를 기반으로 목소리를 분석해 학습된 목소리로 글을 읽어주는 웹 서비스

활동기간 : 2019.03.12 ~ 2019.06.22

Concept

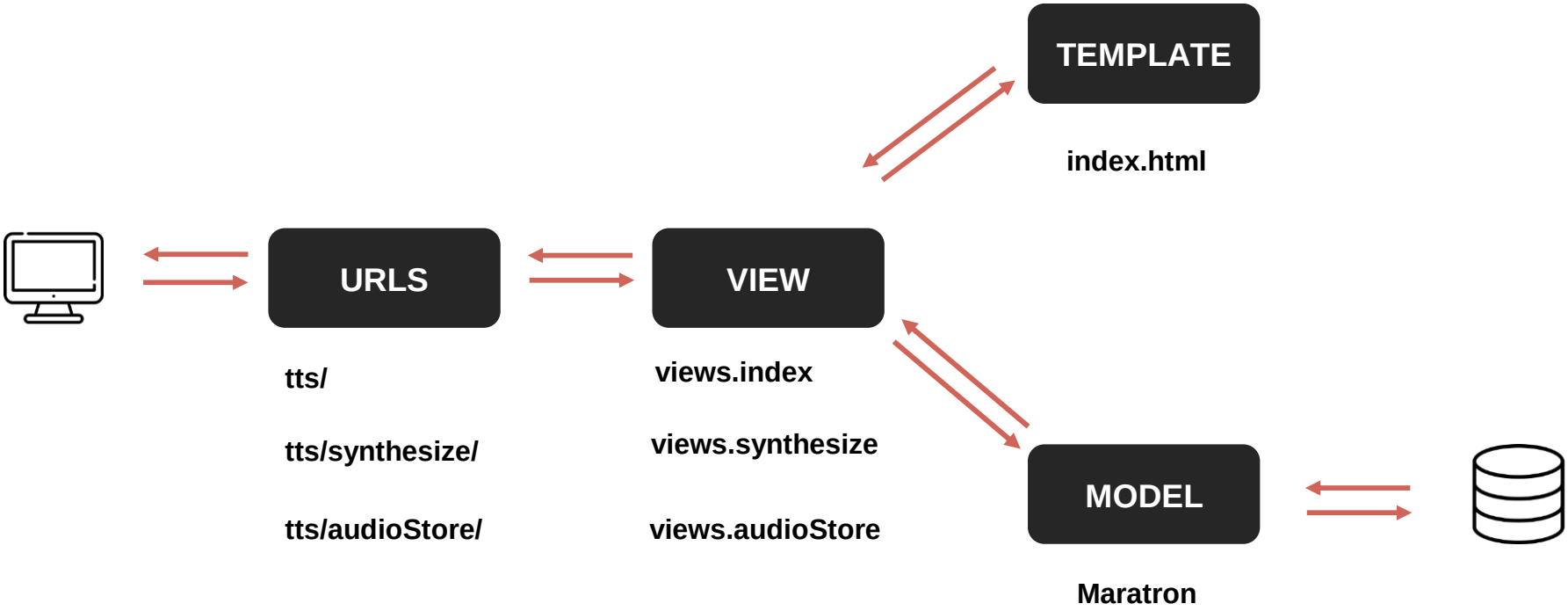
충분한 시간의 음성만
있다면 텍스트를
원하는 음성으로 합성



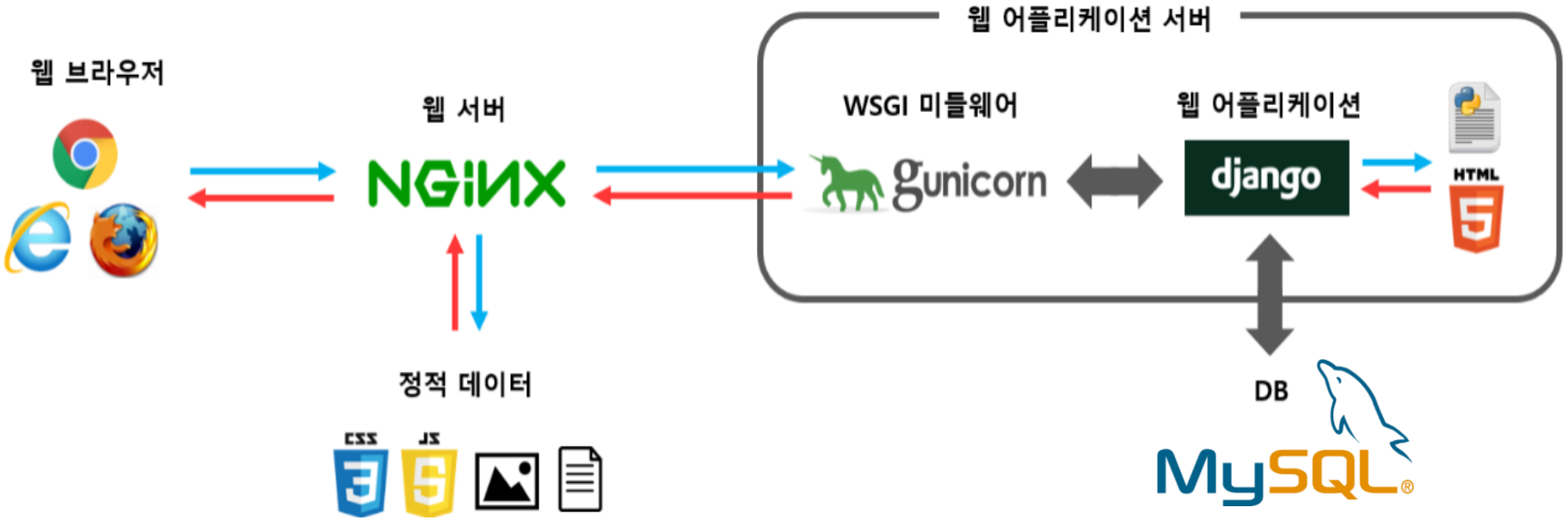
Technology Stack

Collaboration	slack, Google Drive, OvenApp.io, GitHub
Front-End	HTML, JS, CSS, AJAX, jQuery
Back-End	python, TensorFlow, django
Database	MySQL
Infra	docker, Google Cloud, NGINX
Development	Visual Studio Code

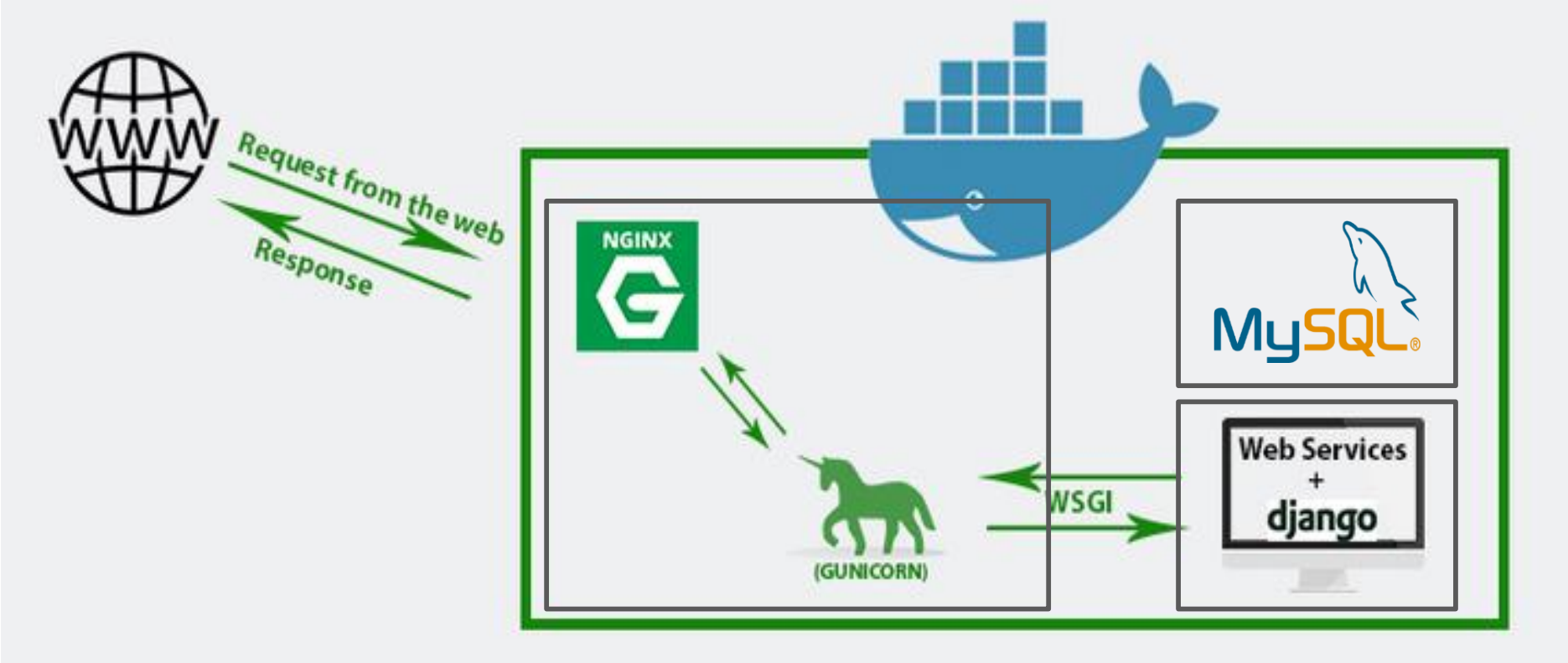
Django MVT Pattern



Deployment : Django Server Architecture



Deployment : Docker 사용 - 3개의 container로 구성

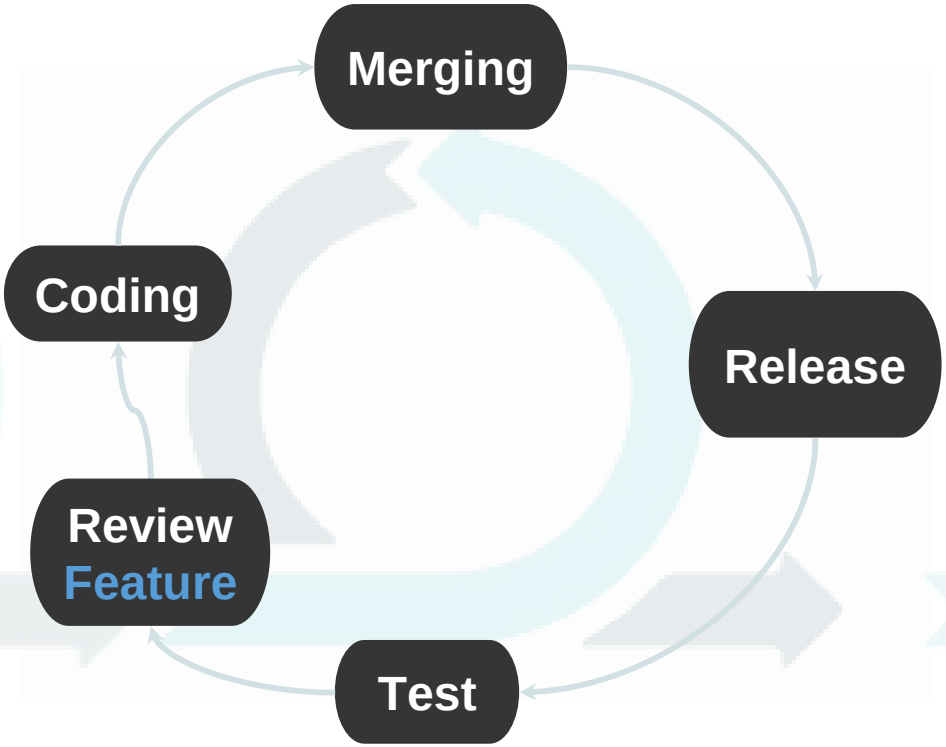


Service Release : 배포 플랫폼 선정

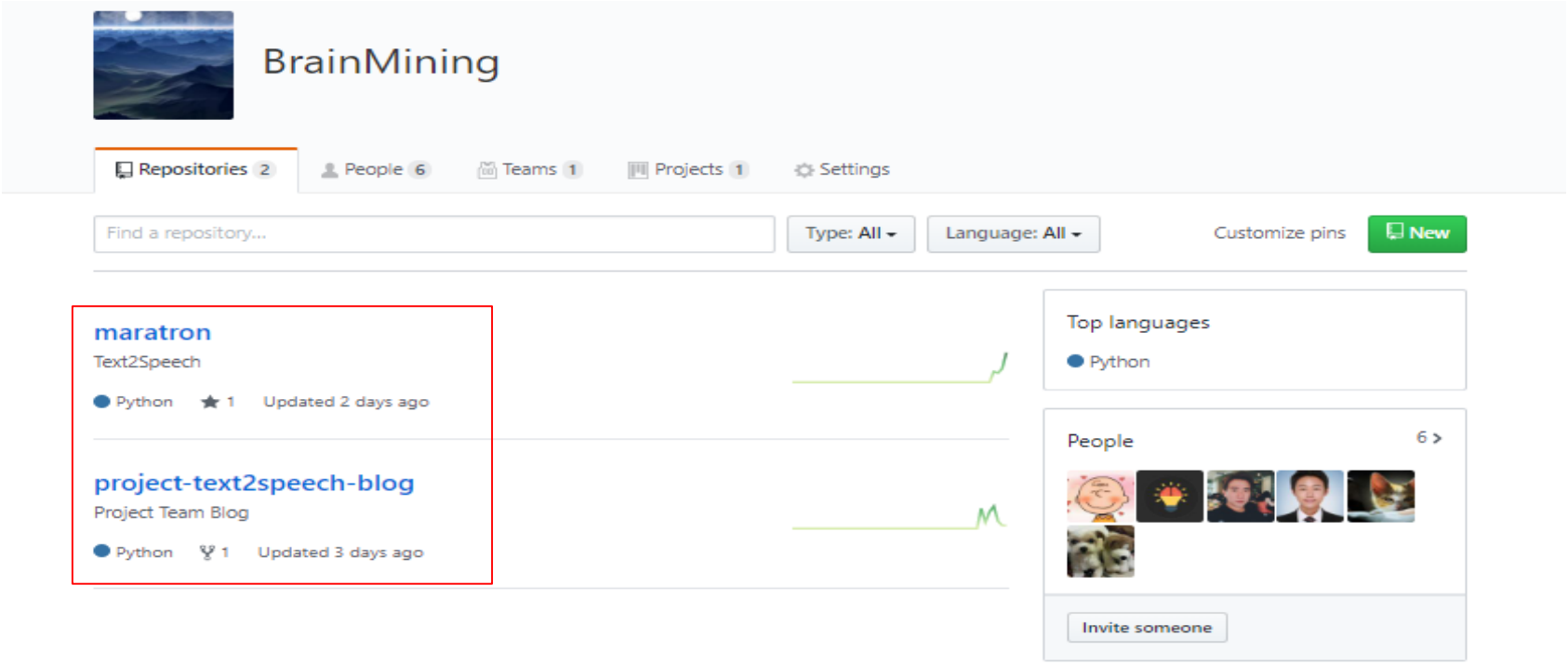
python™

django

Management : Agile



Management : GitHub Organization account

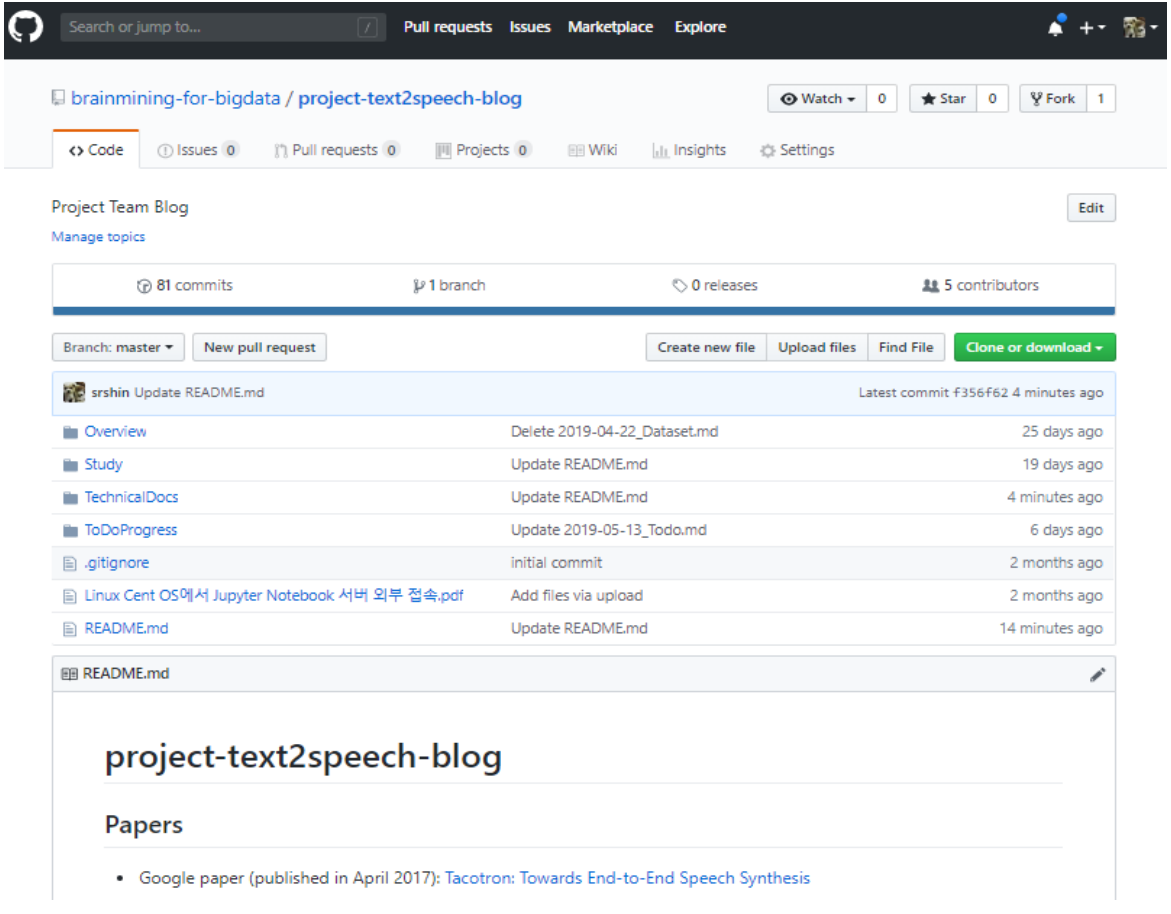


https://github.com/brainmining-for-bigdata

Management: Documentation

Project Blog

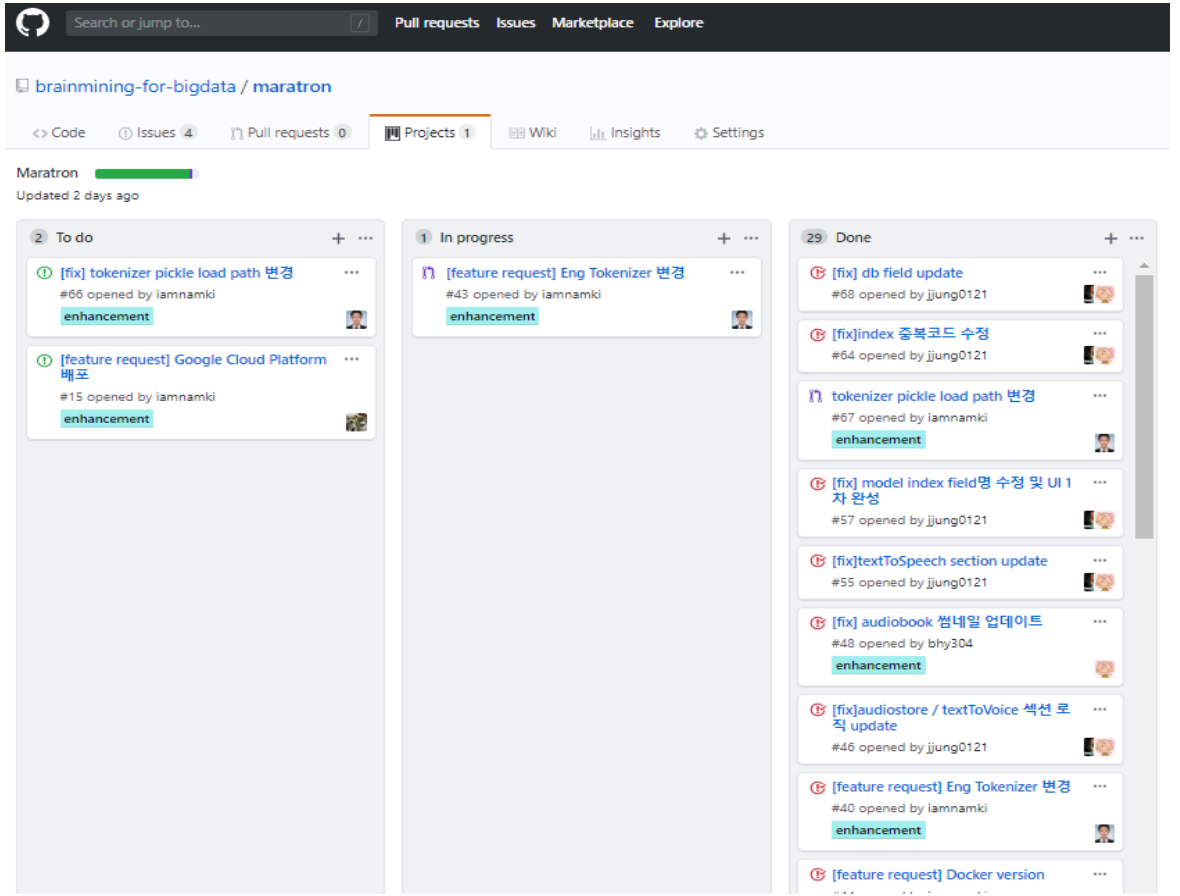
- Overview
- Study
- Technical Docs
- ToDoProgress : 회의록



Management: Project Management

Kanban System

- Todo
- In progress
- Done



Management : Issue Tracking

Issue Type

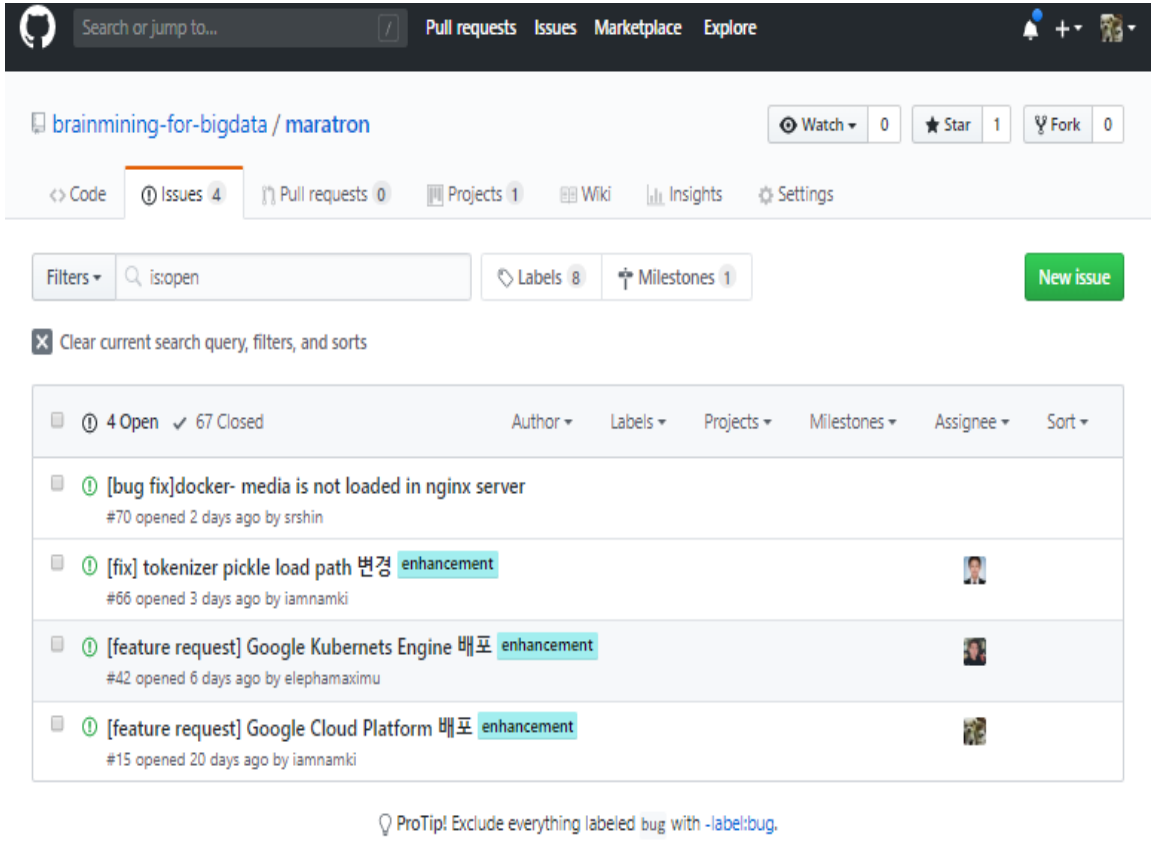
- [Feature Request]
- [Bug Fix]

Issue Status

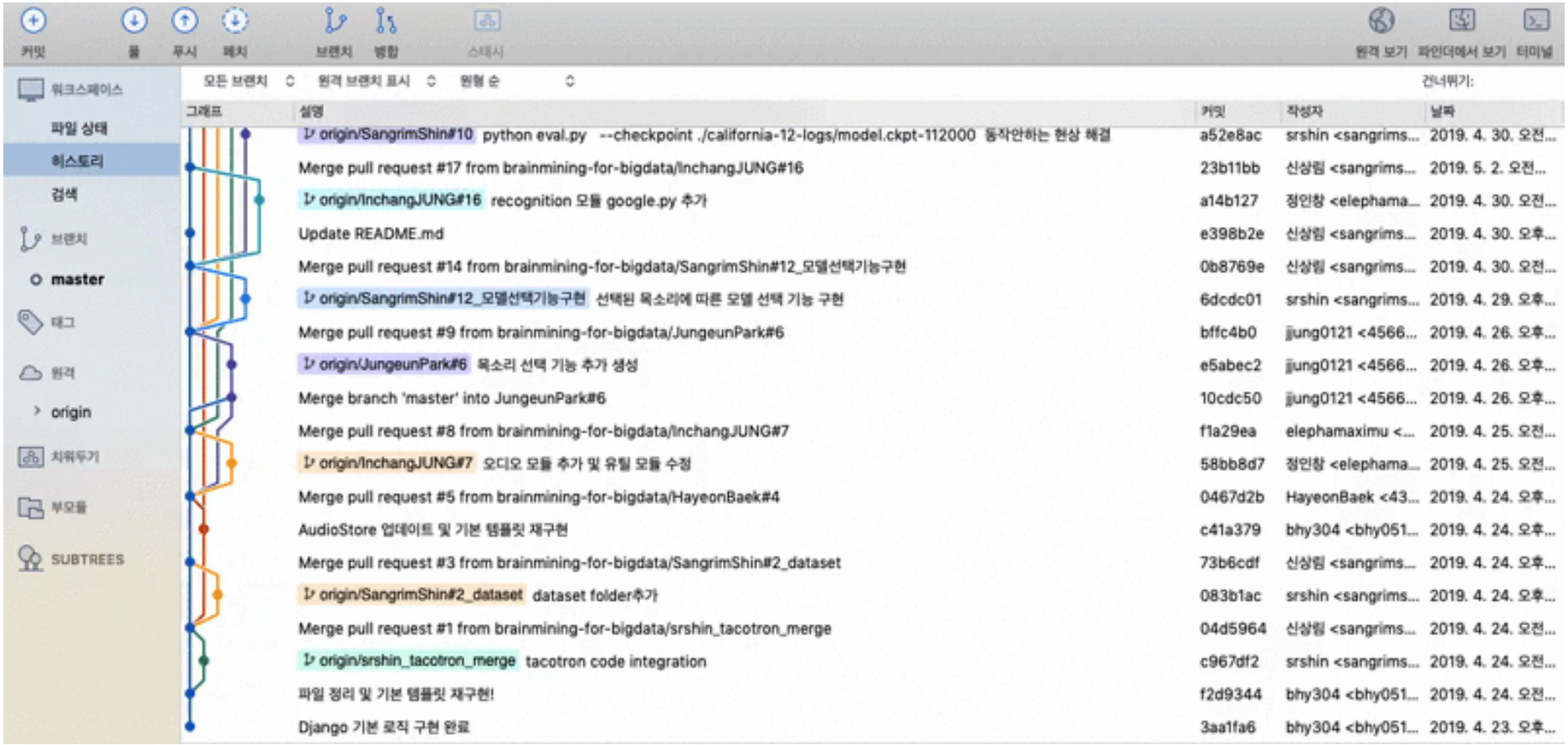
- Open
- Closed

Integration

- Kanban 과 연동
- Commit과 연계

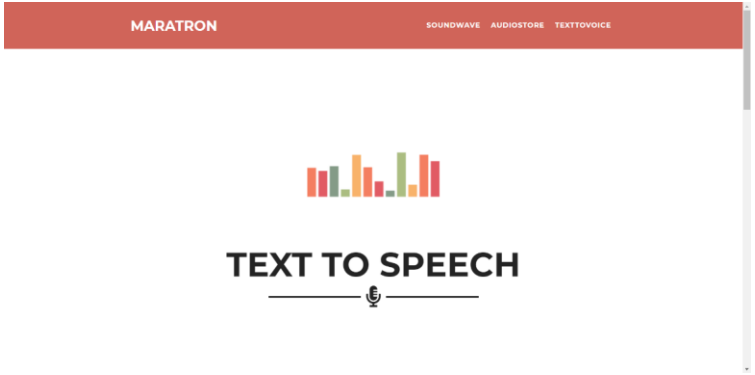


Management : Issue Tracking



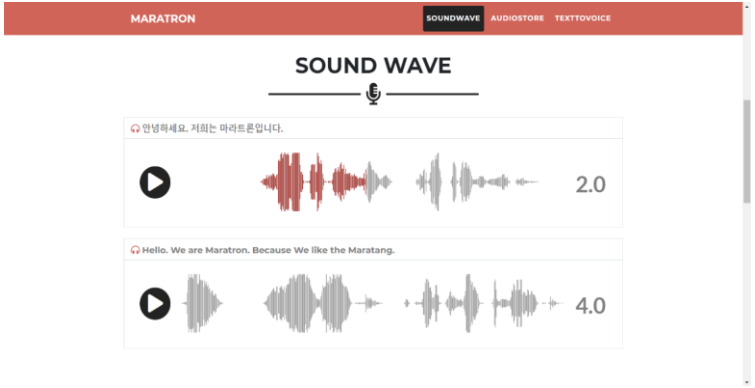
Service

Implement



MARATRON

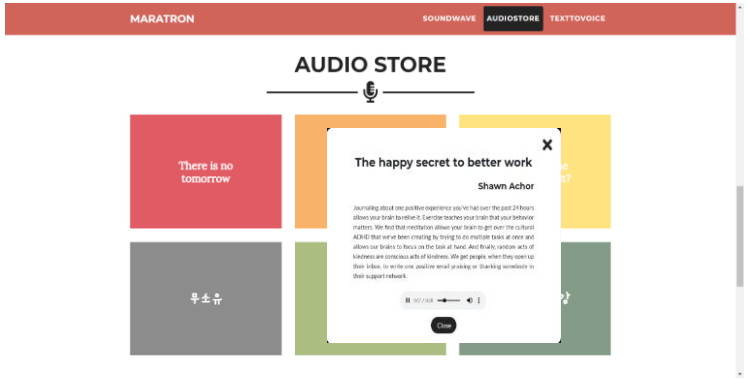
AUDIO STORE , SOUND WAVE , TEXT TO VOICE 메뉴 선택 가능.



SOUND WAVE

Training되어 있는 목소리의 샘플 오디오를 통해 목소리를 확인할 수 있다.

Implement



AUDIO STORE

미리 등록되어 있는 오디오 컨텐츠를 들을 수 있다.

TEXT TO VOICE

Voice Type을 선택 - 읽어주길 원하는 Text 입력 - Synthesize - 오디오제공

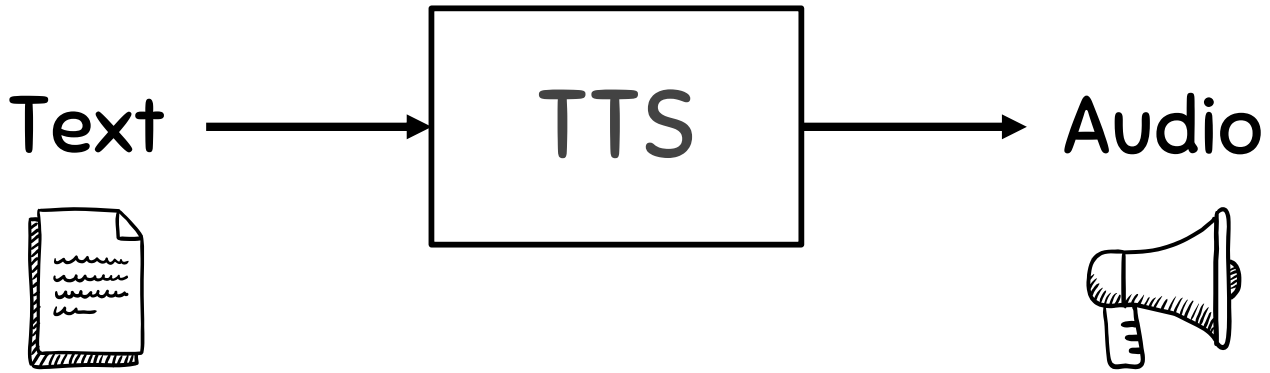
Model

Model : Dataset

Voice Type	English_Female	English_Male	Korean_Female
Total Size	2.6 GB	567 MB (zip)	3 GB
Total Length	24 hours	20 hours	12 hours
Number of audio-clips	13,100	1 audio file	12,853
Training Check-Point	40,000	112,000	64,000

Model

TEXT-TO-SPEECH : Concept



Model : Paper

TACOTRON: TOWARDS END-TO-END SPEECH SYNTHESIS

Google paper (published in April 2017)

TACOTRON: TOWARDS END-TO-END SPEECH SYNTHESIS

Yuxuan Wang*, RJ Skerry-Ryan*, Daisy Stanton, Yonghui Wu, Ron J. Weiss†, Navdeep Jaitly,

Zongheng Yang, Ying Xiao*, Zhifeng Chen, Samy Bengio†, Quoc Le, Yannis Agiomyrgiannakis,

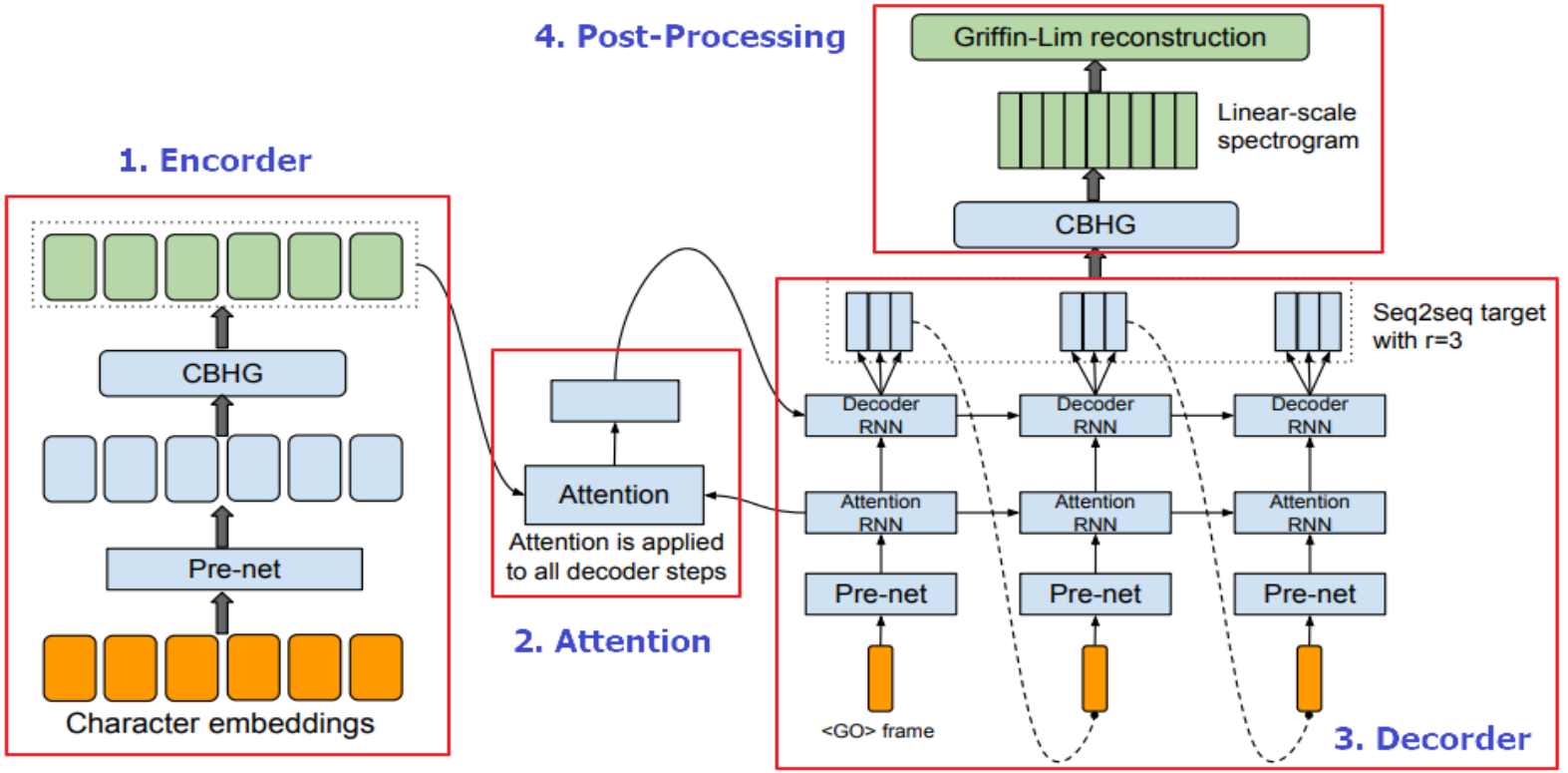
Rob Clark, Rif A. Saurous*

Google, Inc.
{yxwang,rjryan,rif}@google.com

ABSTRACT

A text-to-speech synthesis system typically consists of multiple stages, such as a text analysis frontend, an acoustic model and an audio synthesis module. Building these components often requires extensive domain expertise and may contain

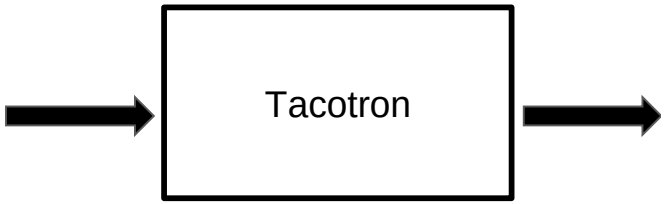
Model : Tacotron

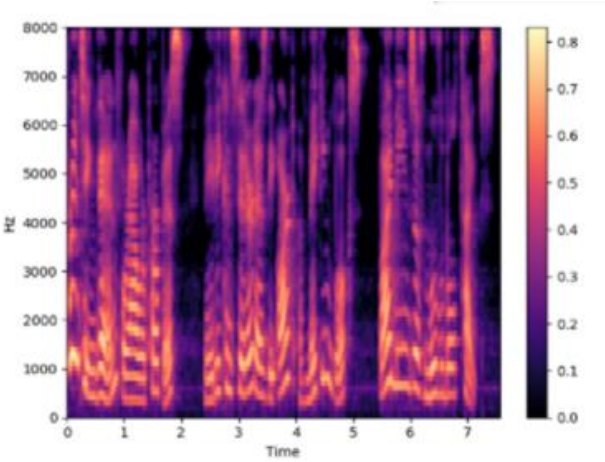


Model : Training Model

Over the MIRACLE

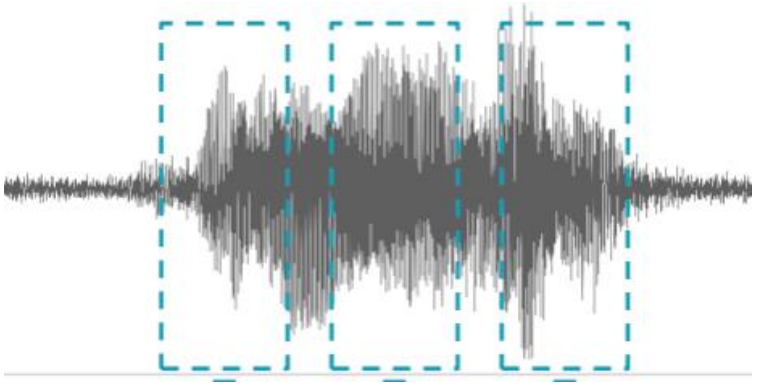
<Text>

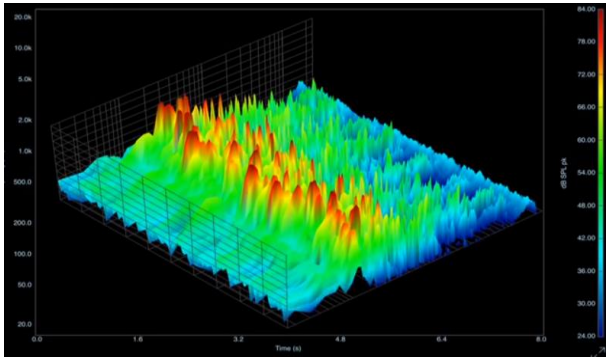


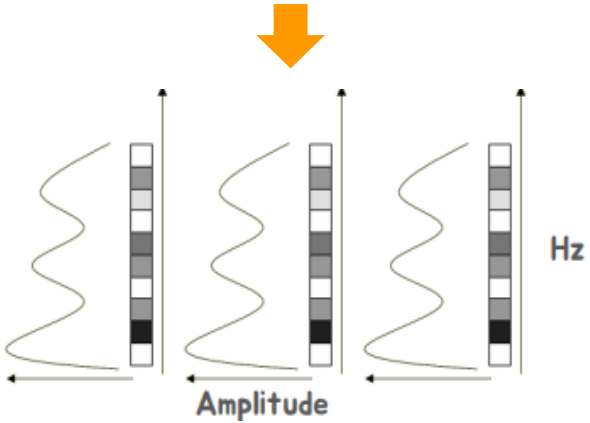


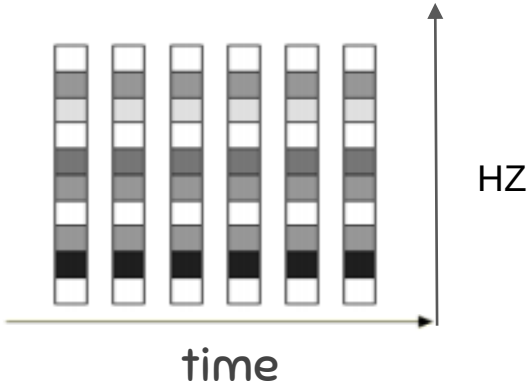
<spectrogram>

Model : Spectrogram - 소리를 형상화

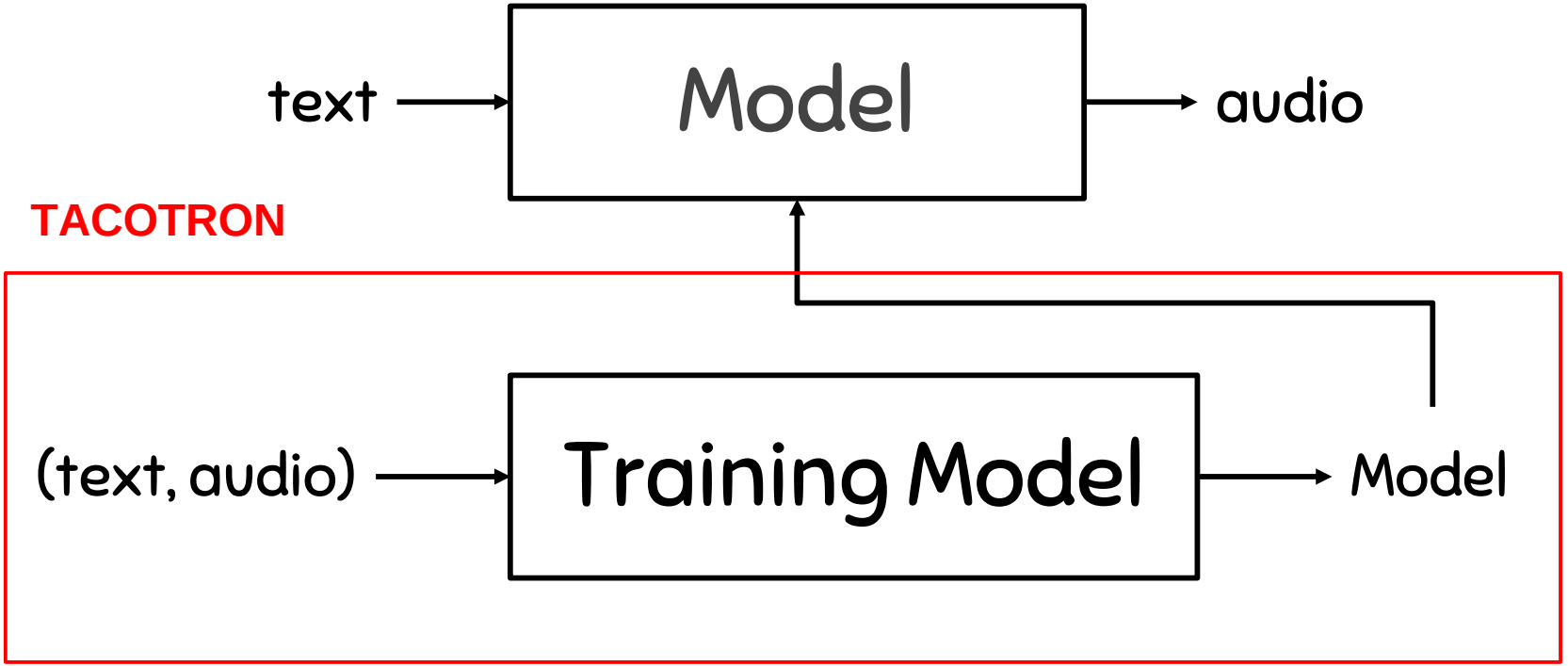




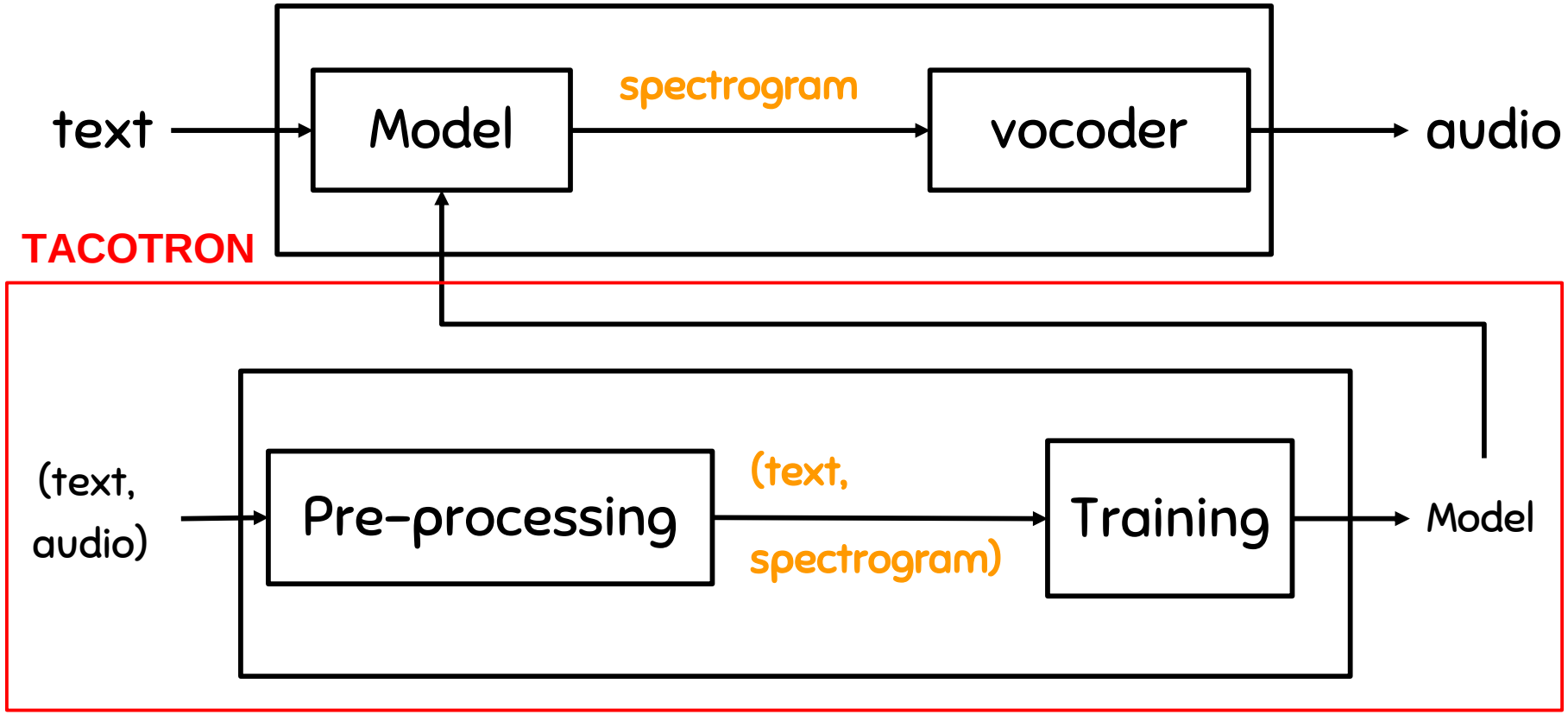




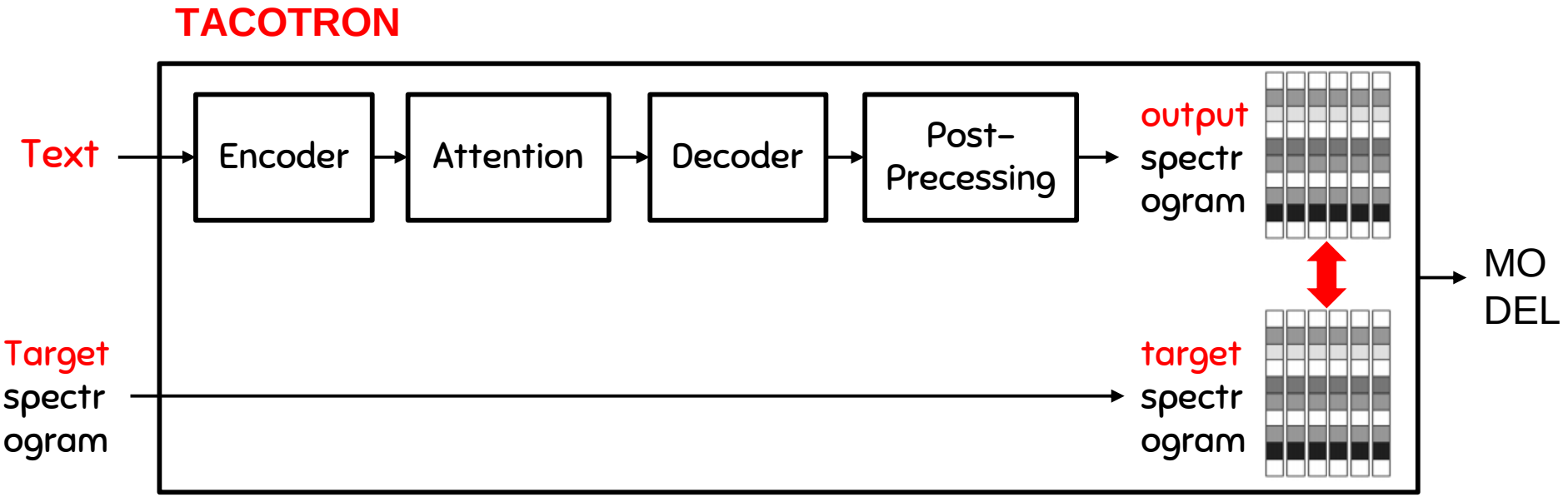
Model : structure



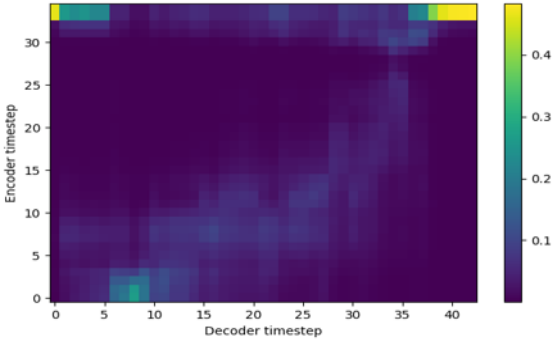
Model : structure



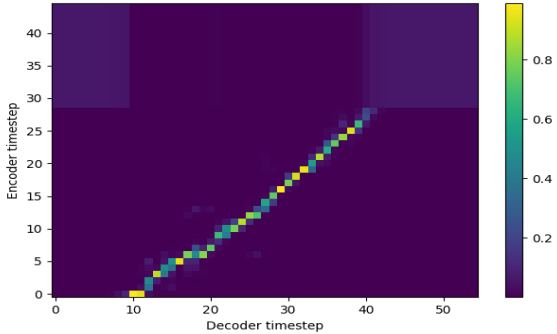
Model : Tacotron



Training Model : linear Spectrogram



tacotron, None, 2019-05-03 18:51, step=5000, loss=0.12108



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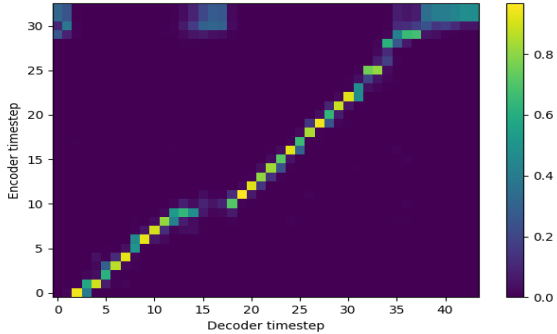

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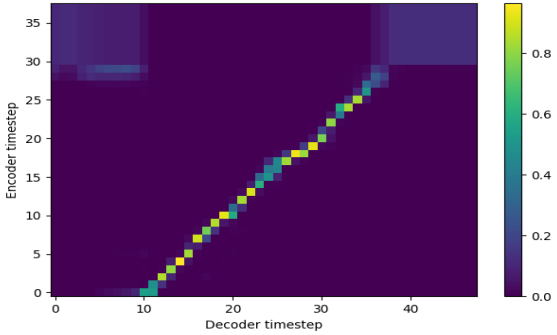

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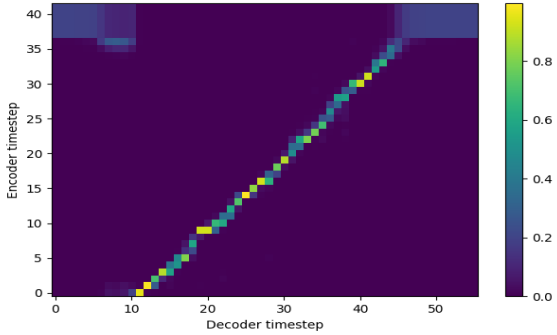
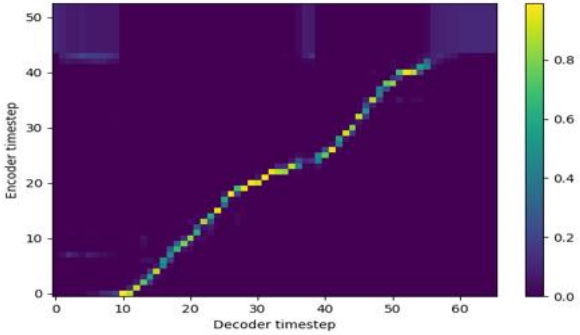
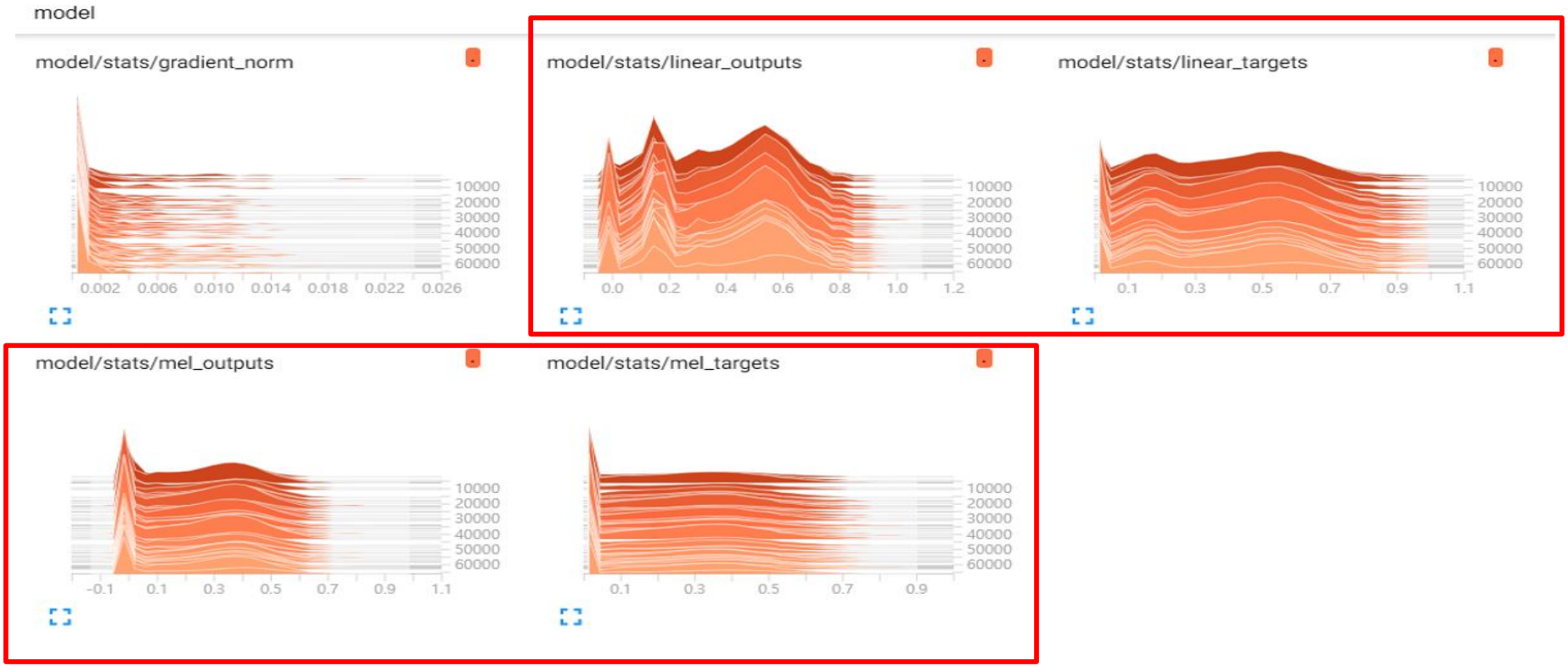


tacotron, None, 2019-05-06 10:42, step=50000, loss=0.08184

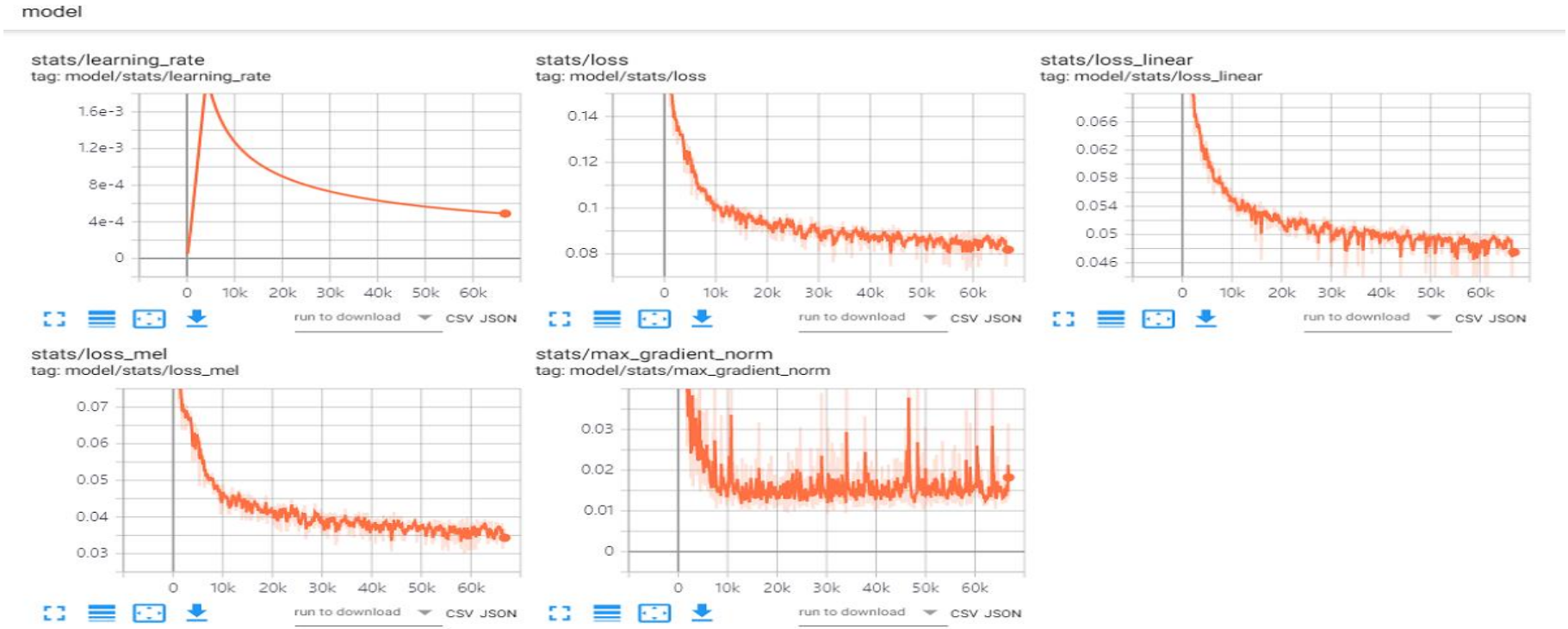


tacotron, None, 2019-05-07 09:17, step=65000, loss=0.08697

Tensorboard



Tensorboard



감사합니다.