Harvard John A. Paulson
School of Engineering
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Silence to Sound

Generate Visually Aligned Sound for Videos

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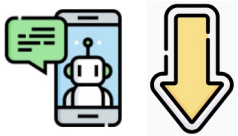
Oct 24th, Midterm Presentation

Problem Statement

Motivation

- Video has no sound
- Noise in soundtrack



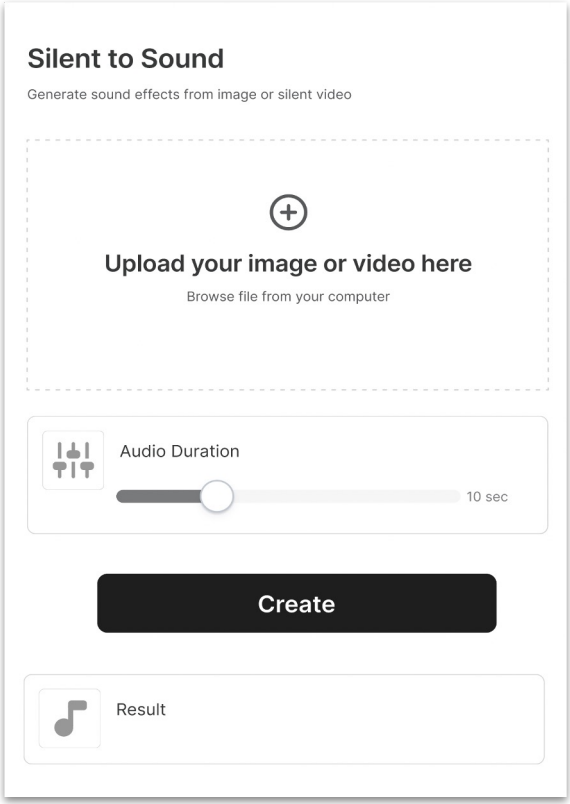
Our Solution: API that generates sound

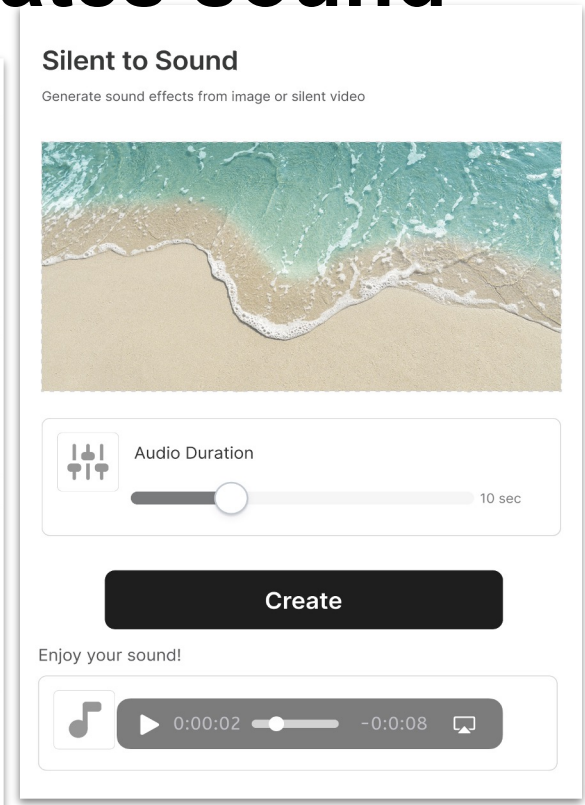
Motivation

- Video has no sound
- Noise in soundtrack

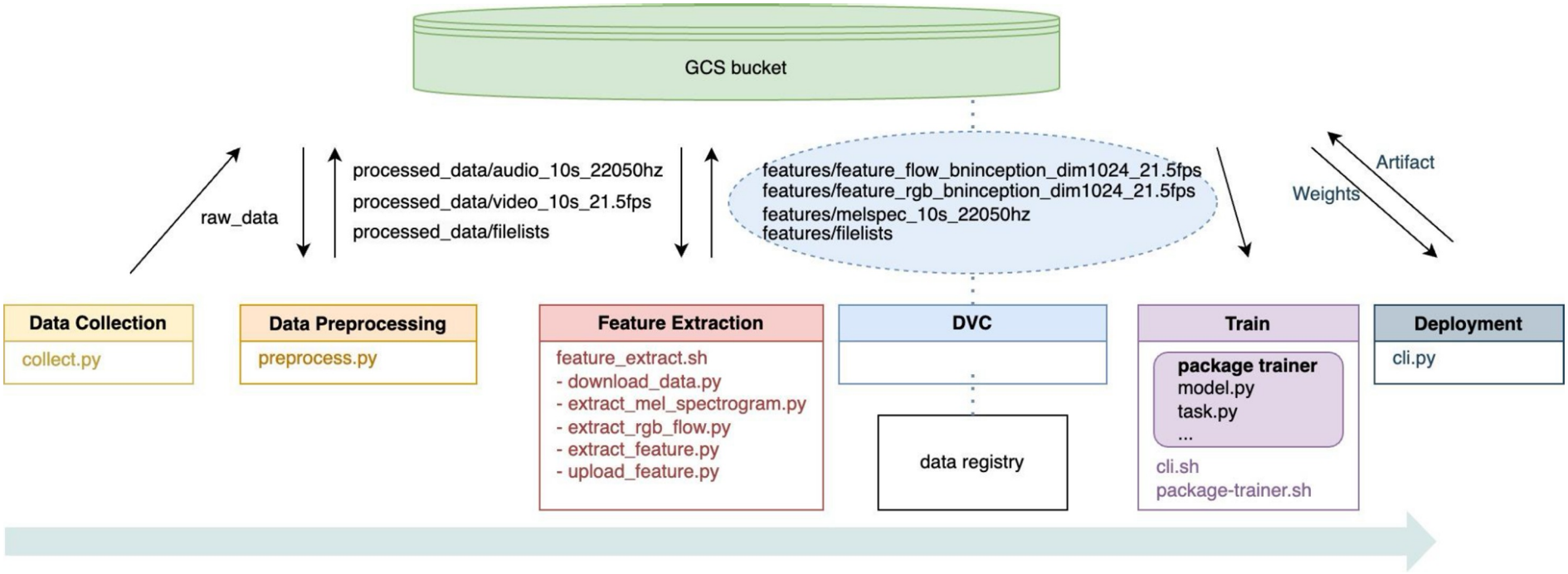
Potential Usage

- Video sound restoring
- Video de-noising
- Viewer experience enhancement
- Accessibility





Pipeline Overview



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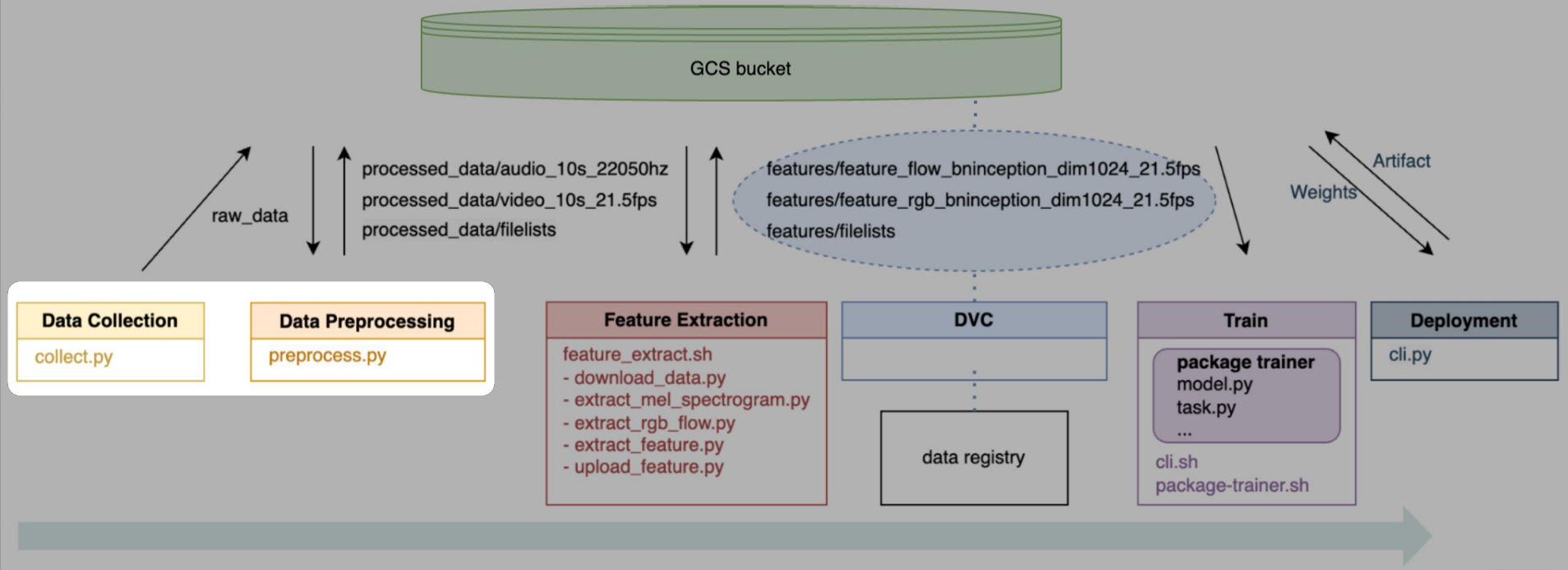

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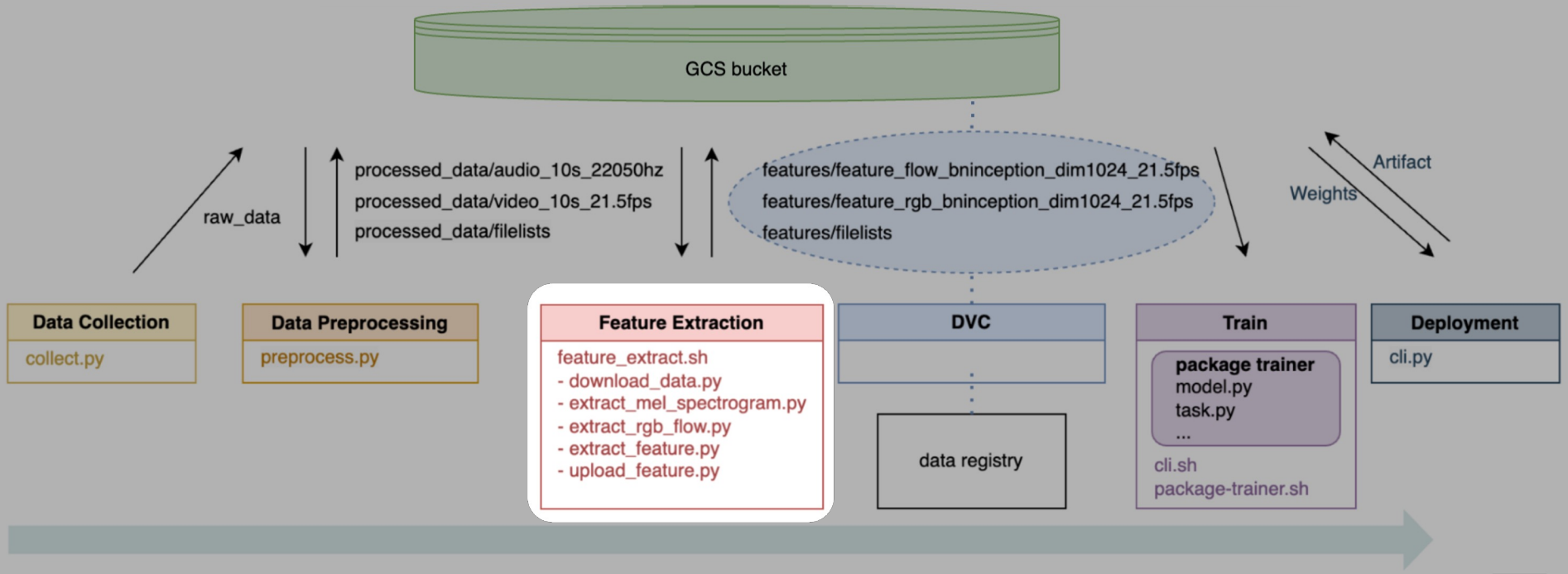

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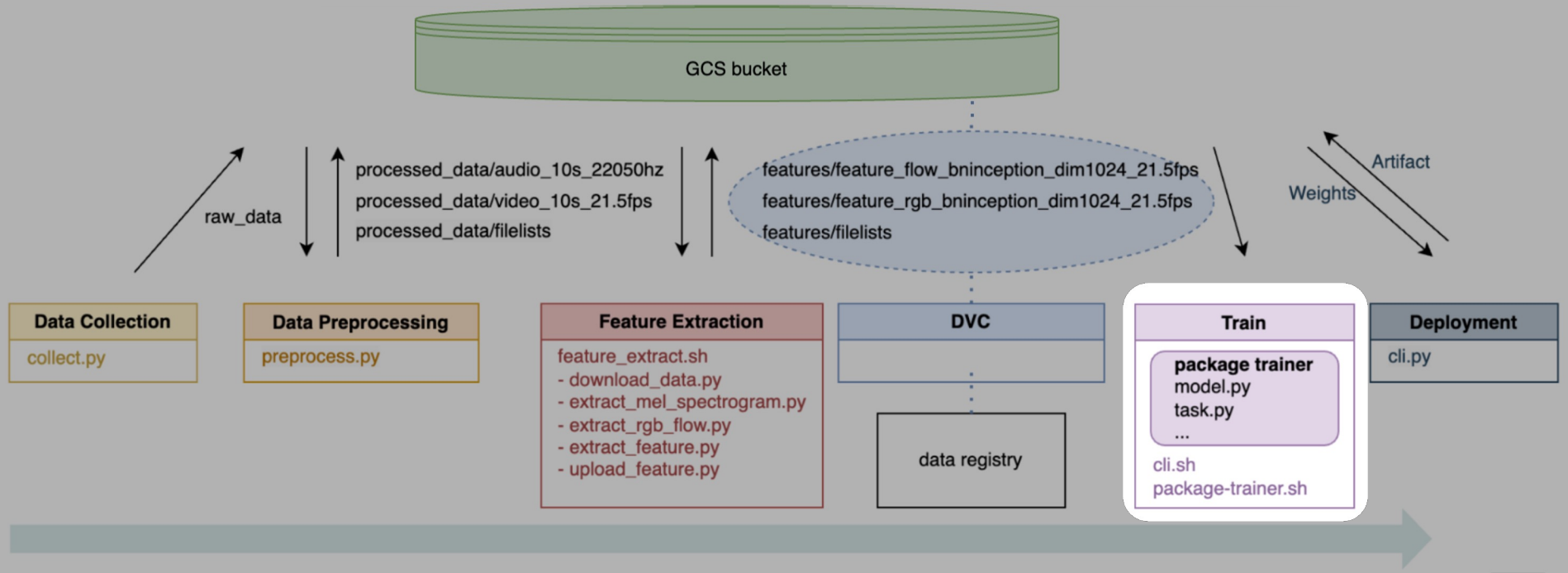

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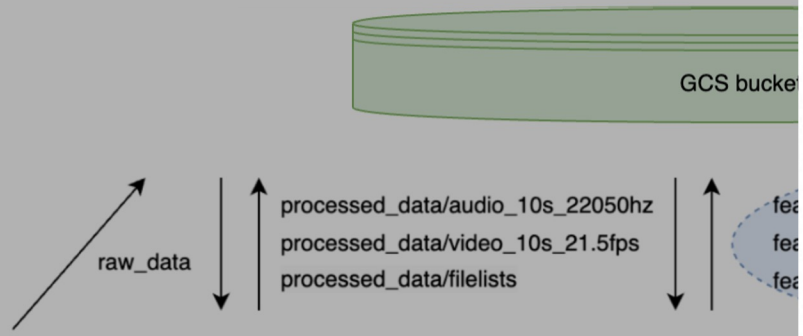
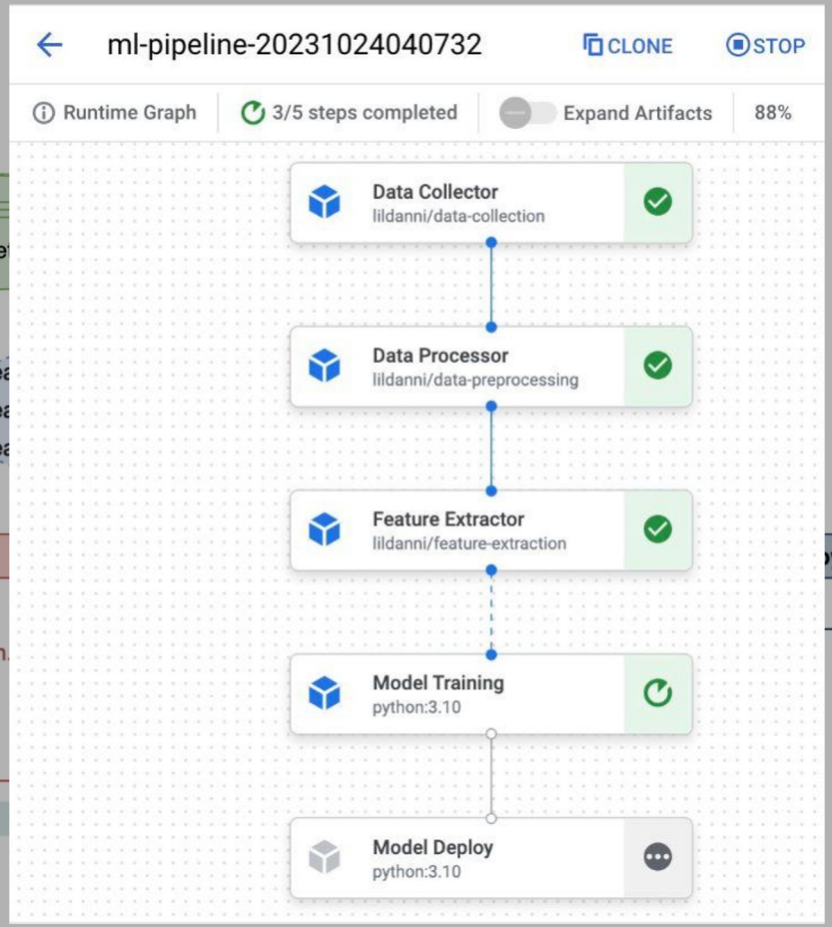


Data Collection	Data Preprocessing	Feature Extraction
collect.py	preprocess.py	feature_extract.sh - download_data.py - extract_mel_spectrogram. - extract_rgb_flow.py - extract_feature.py - upload_feature.py



Model Training

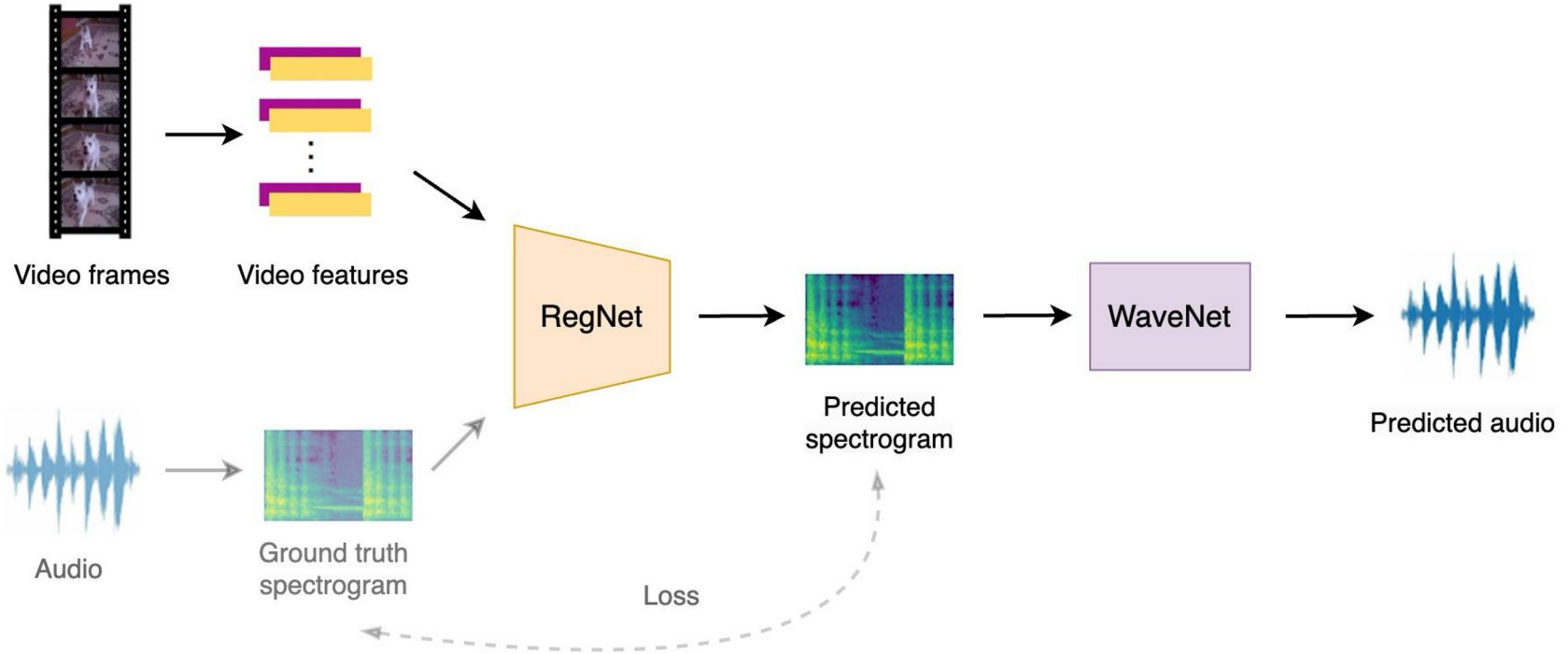


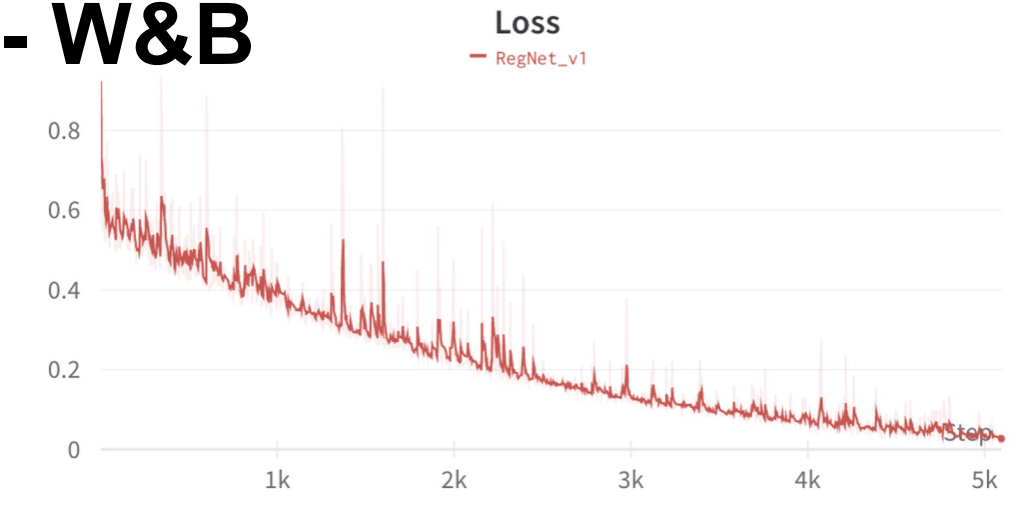
Image symbols from Chen et al. (2020). Generating Visually Aligned Sound From Videos. IEEE Trans. on Image Processing. [https://doi.org/10.1109/tip.2020.3009820]

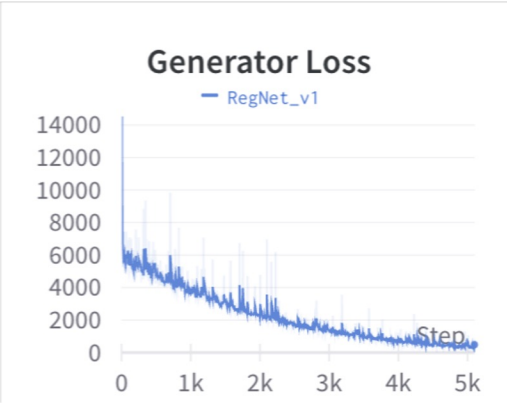
Training History - W&B

- 30 Epochs
- lr = 2e-4
- batch_size = 4

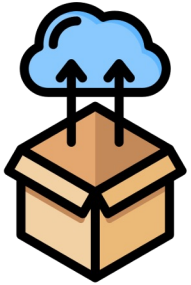
Regularization

- weight_decay = 1e-6
- grad_clip_thresh = 1.0

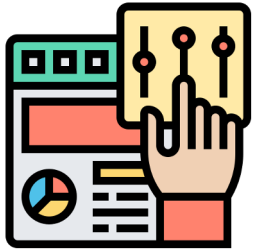




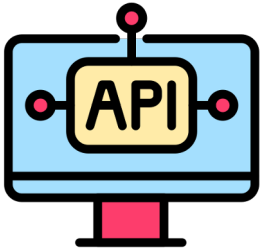
Next Steps



Finalize Model Deployment



Design User Interface



APIs & Frontend-Backend Integration

Thank you!