# VoiceFixer

# TFGAN Vocoder - Training - Time Domain losses



# . .

# Function:

 $^{F}+\lambda_{1}L^{D}$ 



# Domain

# \_osses:



$$L^T = \sum_{k} L_k^t$$



 $L_k^t(\hat{s}, s) = \lambda_5 L_k^{energy}(\hat{s}, s) + \lambda_6 L_k^{phase}(\hat{s}, s) + \lambda_7 L_k^{time}(\hat{s}, s)$ 

k	1	2	3	4
frame-length	1	240	480	960
hop-length	1	120	240	480

#### Table.3 Windowing parameter for each k

### Domain

# Training

### losses

### Vocoder

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 $+\lambda_1 L^D$ 

$$L^T = \sum_{k} L_k^t$$

 $L_k^t(\hat{s}, s) = \lambda_5 L_k^{energy}(\hat{s}, s) + \lambda_6 L_k^{phase}(\hat{s}, s) + \lambda_7 L_k^{time}(\hat{s}, s)$ 

#### energy

sample:

#### function

# 

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# effect:



metallic

# Remove

mean

### energy

# O Capture

# phase

information:

 $L^{time}(\hat{s}, s) = \| v(\hat{s}) - v(s) \|_{1}$ 

 $L^{energy}(\hat{s}, s) = \| v(\hat{s_w}^2) - v(s_w^2) \|_{1}$ 

 $L^{phase}(\hat{s},s) = \left\| \Delta v(\hat{s_w}^2) - \Delta v(s_w^2) \right\|_{1},$ 

 $v(s)_{1\times w} = (m(s_0), m(s_1), \dots, m(s_w))$ 

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### parameter

# Windowing

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### Domain

### Function:

### Losses:

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