

Sequence Meets CV

시계열 데이터가 컴퓨터비전을 만나면

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Invite someone

Instructions

1. HAI 깃허브
사이트로 이동

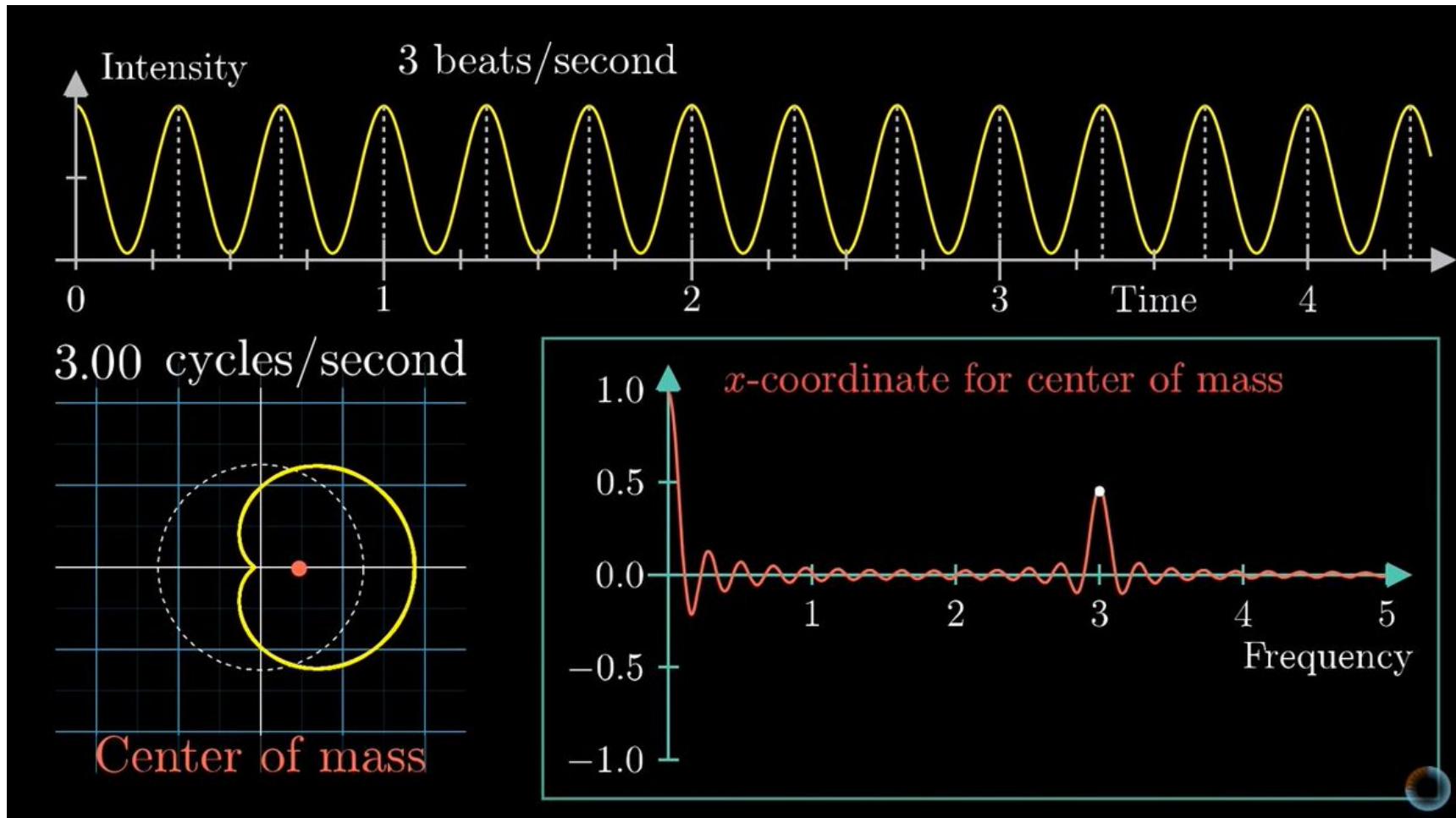
2. NLP_2020
으로 이동

Contents

1. Sequence becomes Image

2. Applications of Image Representation

Discrete Fourier Transform



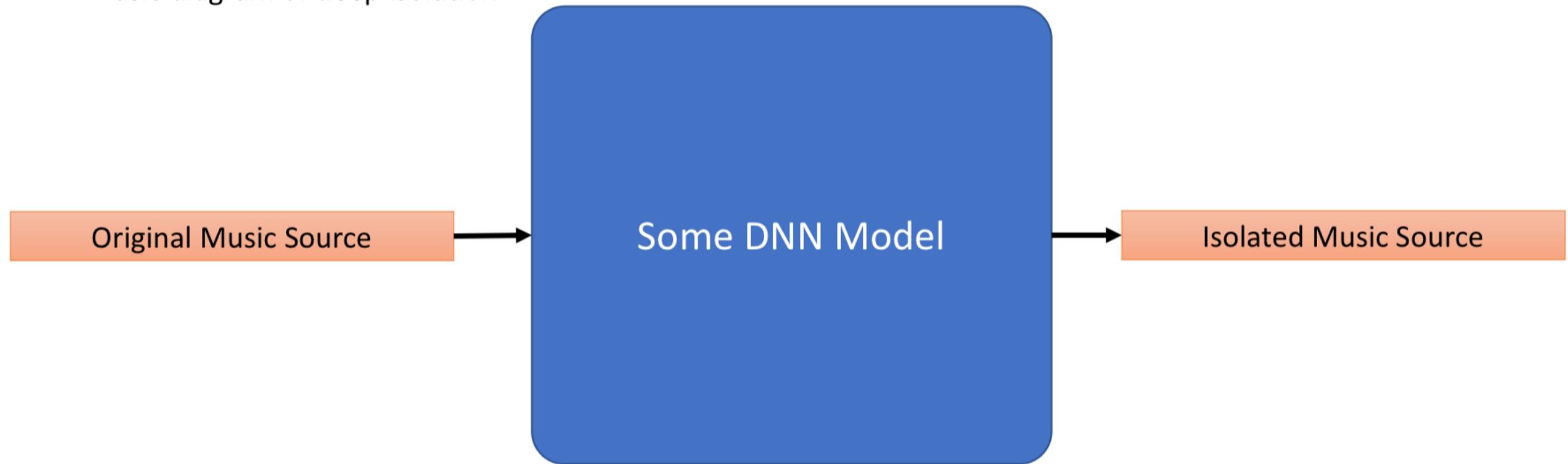
Discrete Fourier Transform

$$x[k] = \sum_{n=0}^{N-1} x[n] e^{\frac{-j2\pi kn}{N}}$$

Music Source Separation: Separating one music to different sources

Vocal Isolation: Remove other music source except voice

<Basic diagram of deep isolation>



Motivation

I LUV Music



Question: What is my need in music and how can I solve it?

Great 국악 Version of BTS Dance Choreography

But Too many noises



BTS 국악 버전 : <https://www.youtube.com/watch?v=ayGl-igrwy8>

GOAL : Let's make a successful DNN model that can isolate background music

But Why DNN?

Original Method

Method : Frequency reduction

By using DNN

Let AI decide which frequency to alter

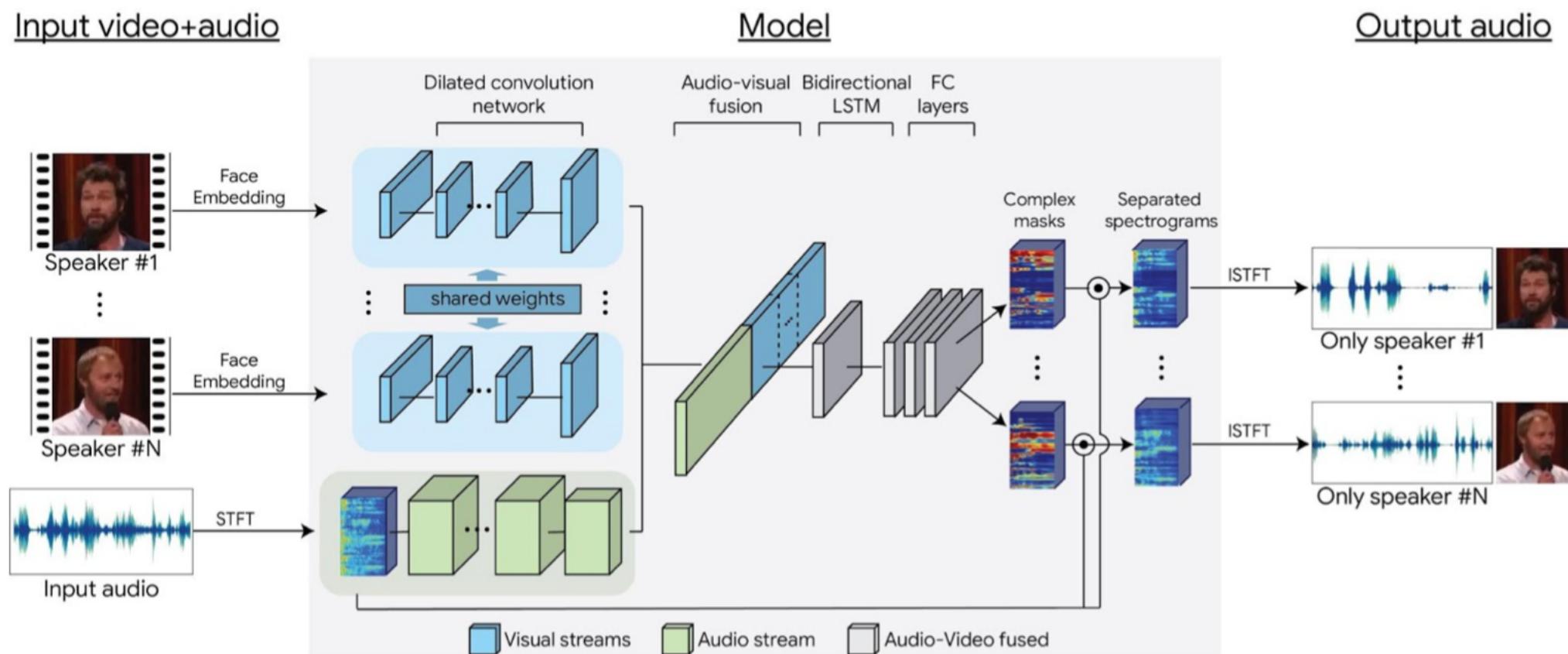
Done by Human

Done by AI (Based on possibility learned from dataset)

A Lot more precise (at least we wish lol)

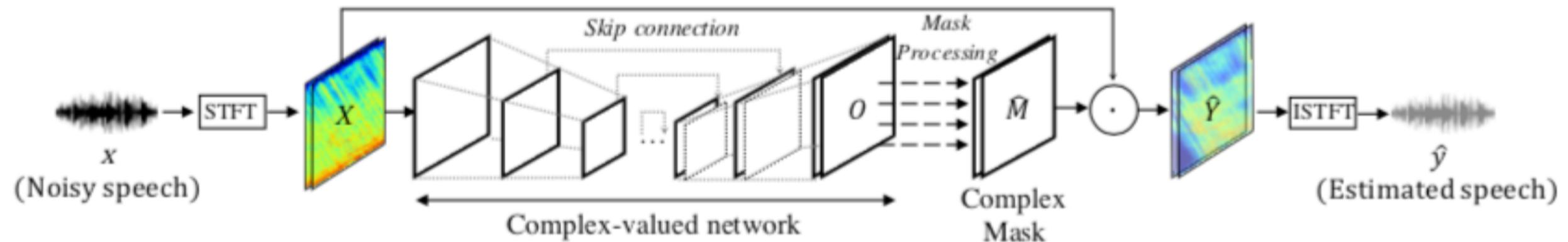
Previous Researches

Referenced [looking to listen \(by Google\)](#)

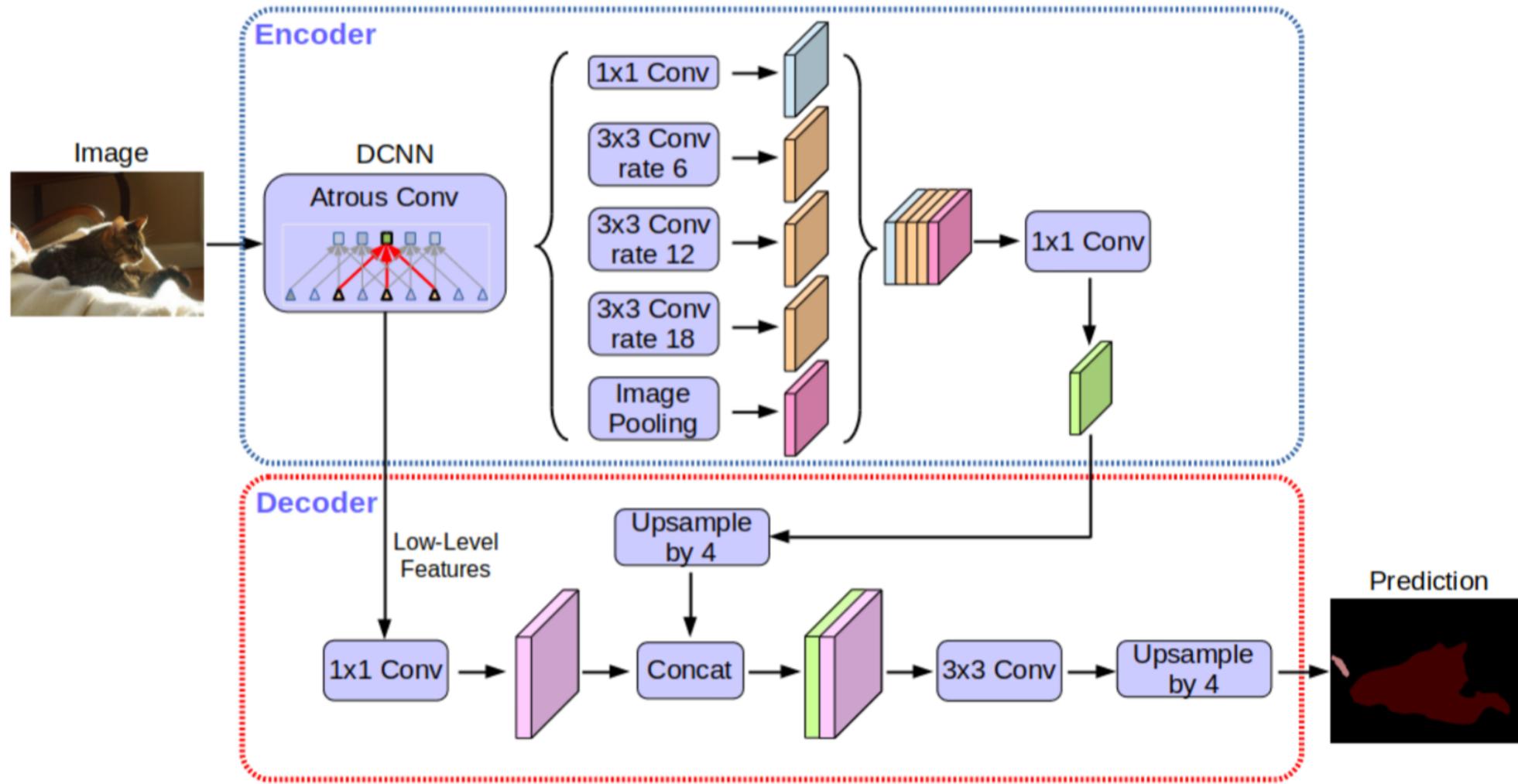


Previous Researches

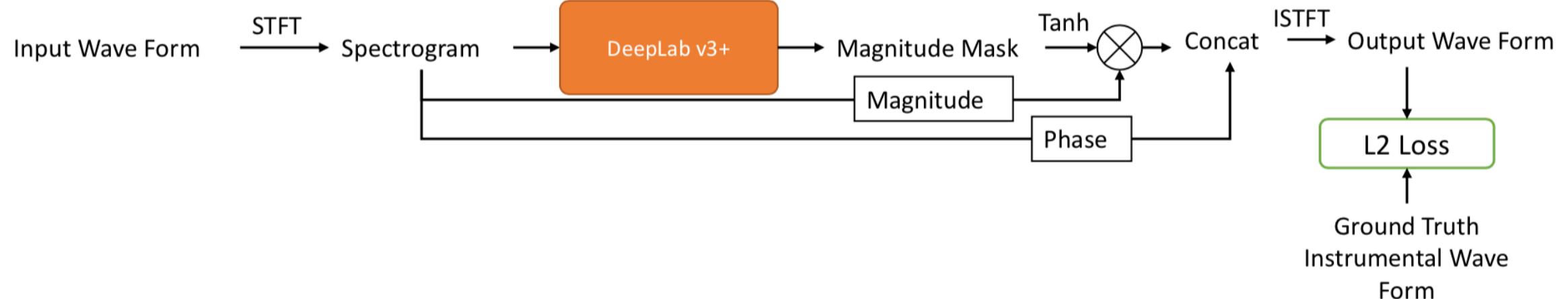
Referenced [Phase-Aware Speech Enhancement with Deep Complex U-Net](#)



What is Deeplab v3+



Model Overall



Q: What is the optimal Boundary (Activation Function)?

Function	Boundary
None	Infinity
Tanh	$-1 < \text{input} < 1$
Sigmoid	$0 < \text{input} < 1$