



MUSIC. ART. ML

Build Weird, Cool Things.
Forever



Hello!

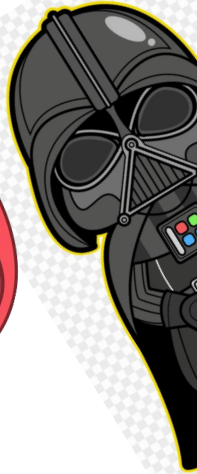
I am Shuvam.

@shuvam360

MAGENTA



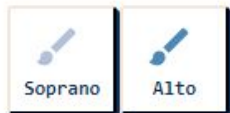
ExPlore the role of Machine Learning in the Creative Process



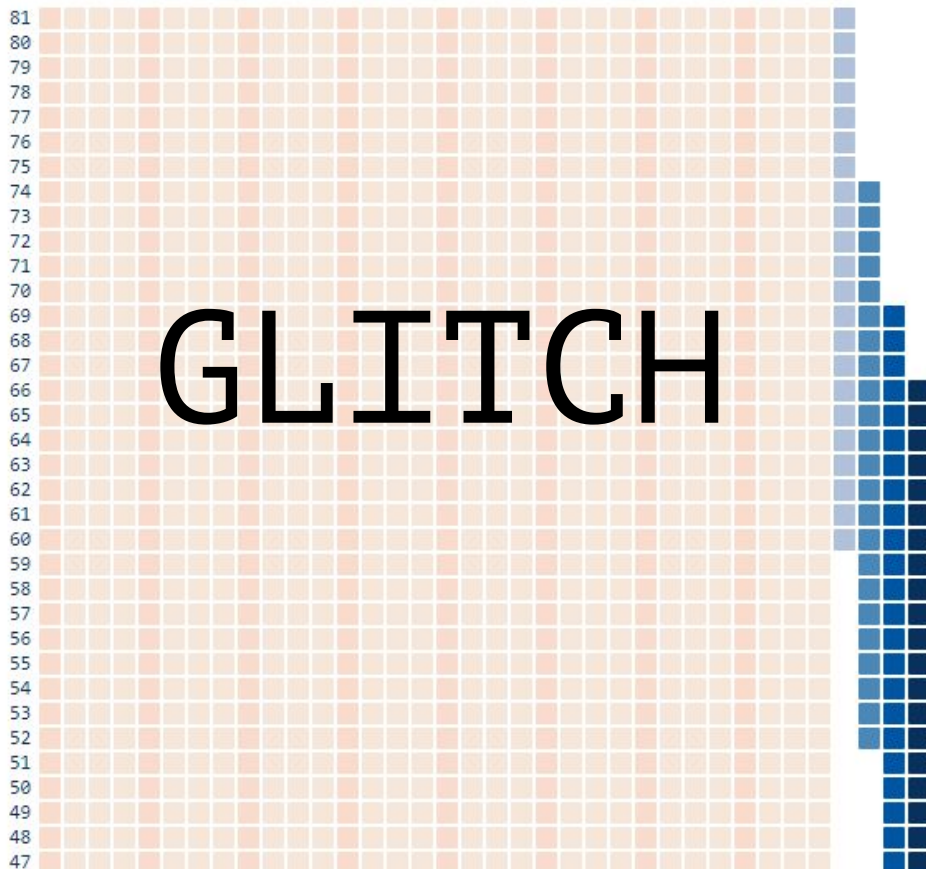
COUCOU



Instruments



Brush Size



Controls



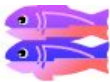
Temperature

<1 is more conservative, >1 is more random



Scale:






bots, apps, users

New Project

Resume Coding





Upload Avatar

Shuvam Manna

@GeekBoySupreme

Build weird, cool Stuff(?)! On a quest to make Machine Learning Mainstream!

Upload Cover

Clear Cover

Collections

Create Collection

PSST

Create collections to organize your favorite projects.

Recent Projects



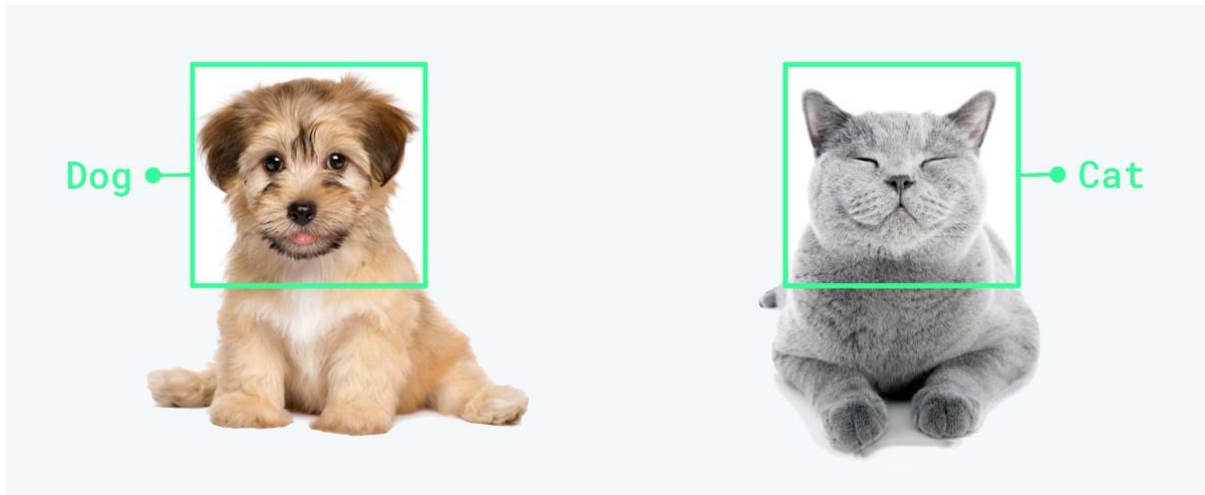
$$f(x) = 2 * x$$

Algorithms
are
functions



$f(\text{here}, \text{there}) =$

Bellman-Ford, Dijkstra, Floyd
Warshall

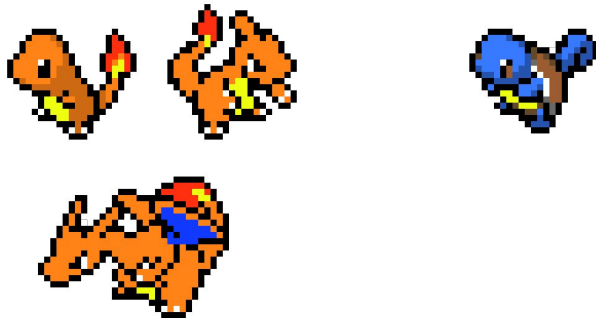


Is this a Dog or a Cat?

$$f(x) = ??$$

Machine Learning :

Let the machine figure out $f(x)$
based on examples



How did ml get so good?

Concepts (Deep neural Networks)

Methods (backpropagation, dropout)

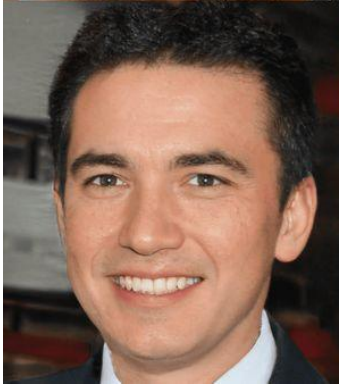
Compute (GPUs, TPUs)

Data (ImageNet, NSynth, AudioSet)

Generative models got soooo
good



thispersondoesnotexist.com





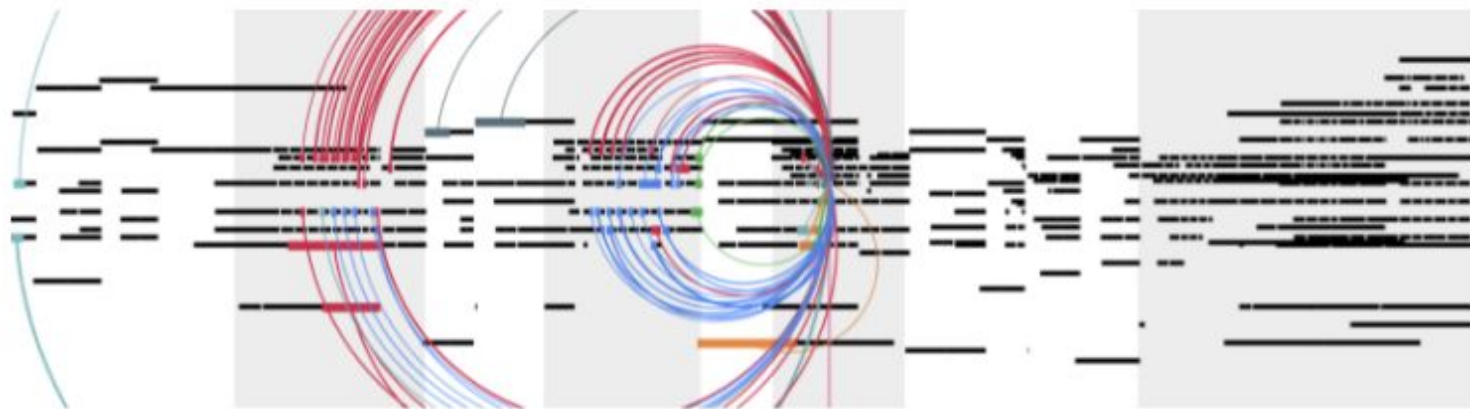
Music Transformer: Generating Music with Long-Term Structure

Dec 13, 2018

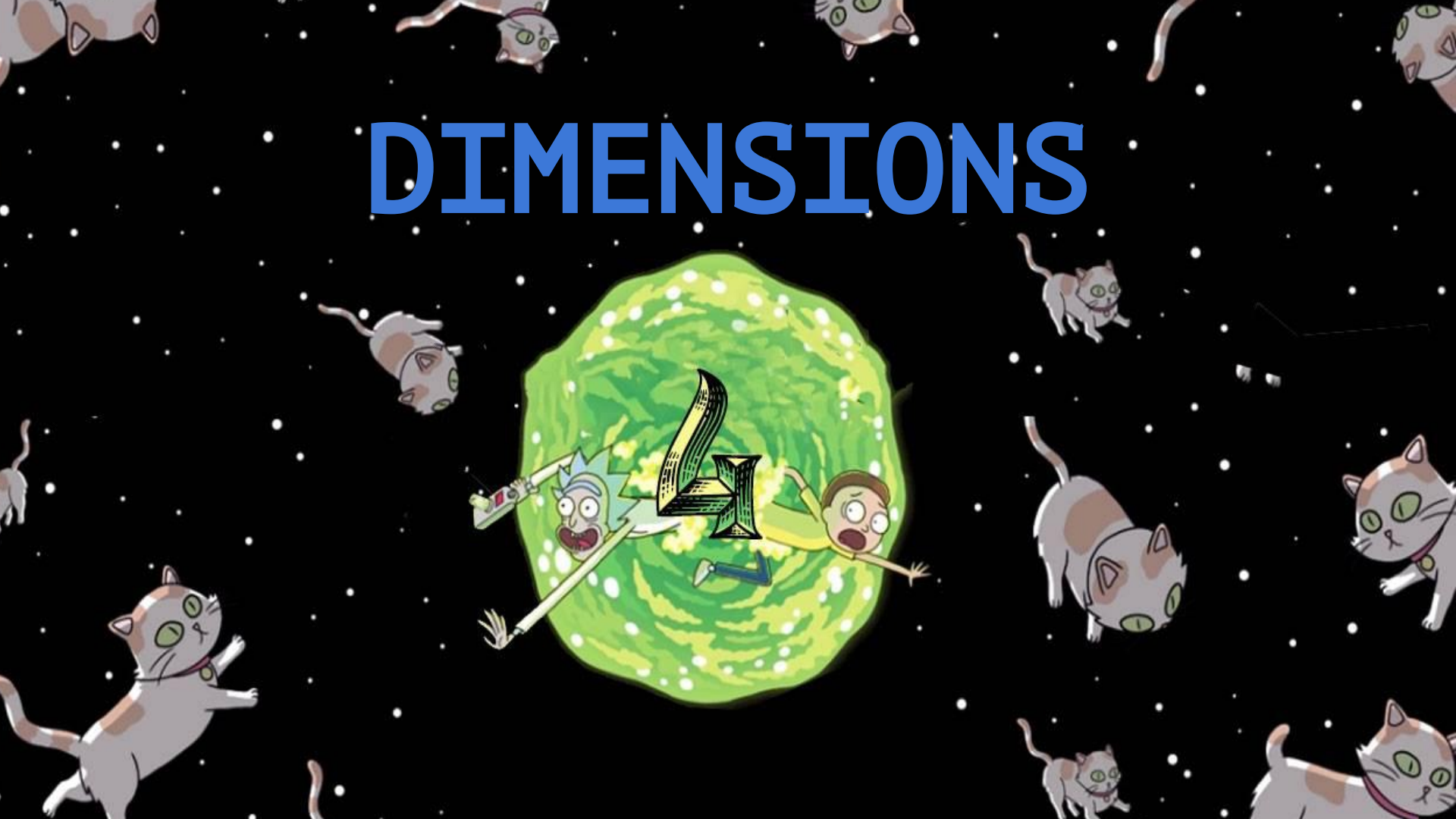
Cheng-Zhi Anna Huang  czhuang  huangcza

Ian Simon  iansimon  iansimon

Monica Dinculescu  notwaldorf  notwaldorf



DIMENSIONS



MATHEMATICAL PROOF OF THE EXISTENCE OF DONUTS

$$D = \frac{1}{c} \frac{1}{\ell} \frac{d\ell}{dt} = \frac{1}{c} \frac{1}{P} \frac{dP}{dt}$$

$$D^2 = \frac{1}{P^2} \frac{P_0 - P}{P} \sim \frac{1}{P^2} \quad (1a)$$

$$D^2 = \frac{K_0}{3} \frac{P_0 - P}{P} \sim \frac{1}{3} K_0 \quad (2a)$$

$$D^2 \sim 10^{-53}$$

$$c \sim 10^{-26}$$

$$P \sim 10^8 \text{ g/y}$$

$$\ell \sim 10^{10} (10^{11}) \text{ y} \quad \therefore D =$$



Latent Spaces

Latent space models embed nodes in the network in a latent space, where the likelihood of forming an edge between two nodes depends on their distance in the latent space.

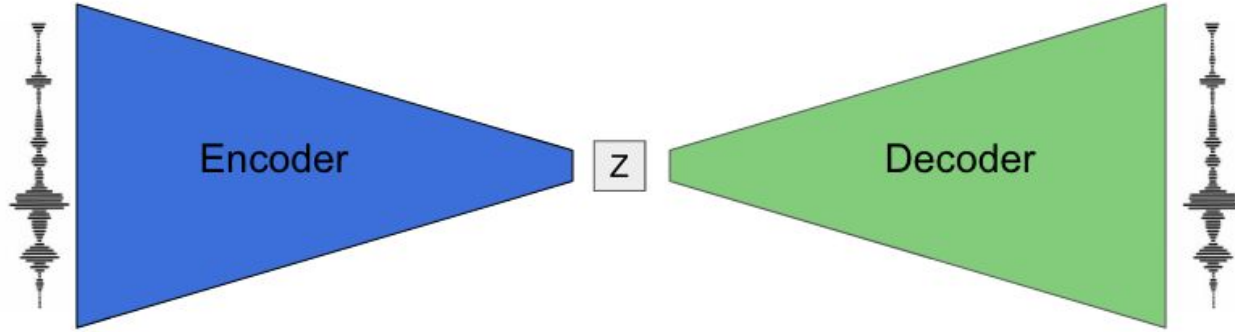
<http://edwardlib.org/tutorials/latent-space-models>



MusicVAE

Variational Autoencoders

Variational autoencoders (VAEs) are a deep learning technique for learning latent representations. They have also been used to draw images, achieve state-of-the-art results in semi-supervised learning, as well as interpolate between sentences.



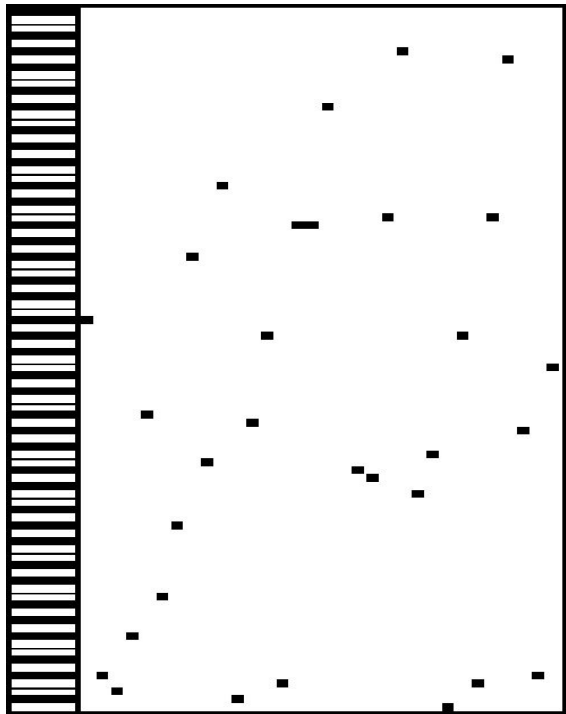
An **autoencoder** builds a latent space of a dataset by learning to compress (encode) each example into a vector of numbers (latent code, or z), and then reproduce (decode) the same example from that vector of numbers.

<https://magenta.tensorflow.org/music-vae>

Flaming Lips at Google I/O'19



Data Space Sample (not VAE)



Latent Space Sample (VAE)



Demos

<https://tall-fight.glitch.me/>

<http://coconet.glitch.me/>

<http://magic-sketchpad.glitch.me/>



Thanks : ')