Week 3

Generative Deep Learning with TensorFlow

Week 3

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Week 3: Variational AutoEncoders

This week you will explore Variational AutoEncoders (VAEs) to generate entirely new data. In this week's assignment, you will generate anime faces and compare them against reference images.

Learning Objectives

- Train your own VAE model
- Use a loss function to calculate the loss value
- Use a decoder to generate new data
- Use a sample layer to encode the architecture
- Describe the VAE architecture and code
- Define variational AutoEncoders (VAEs)

Less

Variational AutoEncoders

Video: Variational AutoEncoders Overview 2 min — Resume

Video: VAE Architecture and Code 2 min

Video: Sampling Layer and Encoder 3 min

Video: Decoder 2 min

Video: Loss Function and Model Definition 2 min

Reading: References: Kullback–Leibler divergence, Balancing reconstruction error and Kullback-Leibler divergence in Variational Autoencoders 10 min

Video: Train the VAE Model 1 min

Lab: MNIST Variational AutoEncoder 1h

Reading: Convolutional Variational AutoEncoders 10 min

Week 3 Quiz: Variational AutoEncoders

Quiz: Variational AutoEncoders 4 questions Due Apr 5, 1:59 AM CDT

Assignment: VAE Anime Faces

Programming Assignment: Anime Faces 1h Due Apr 5, 1:59 AM CDT