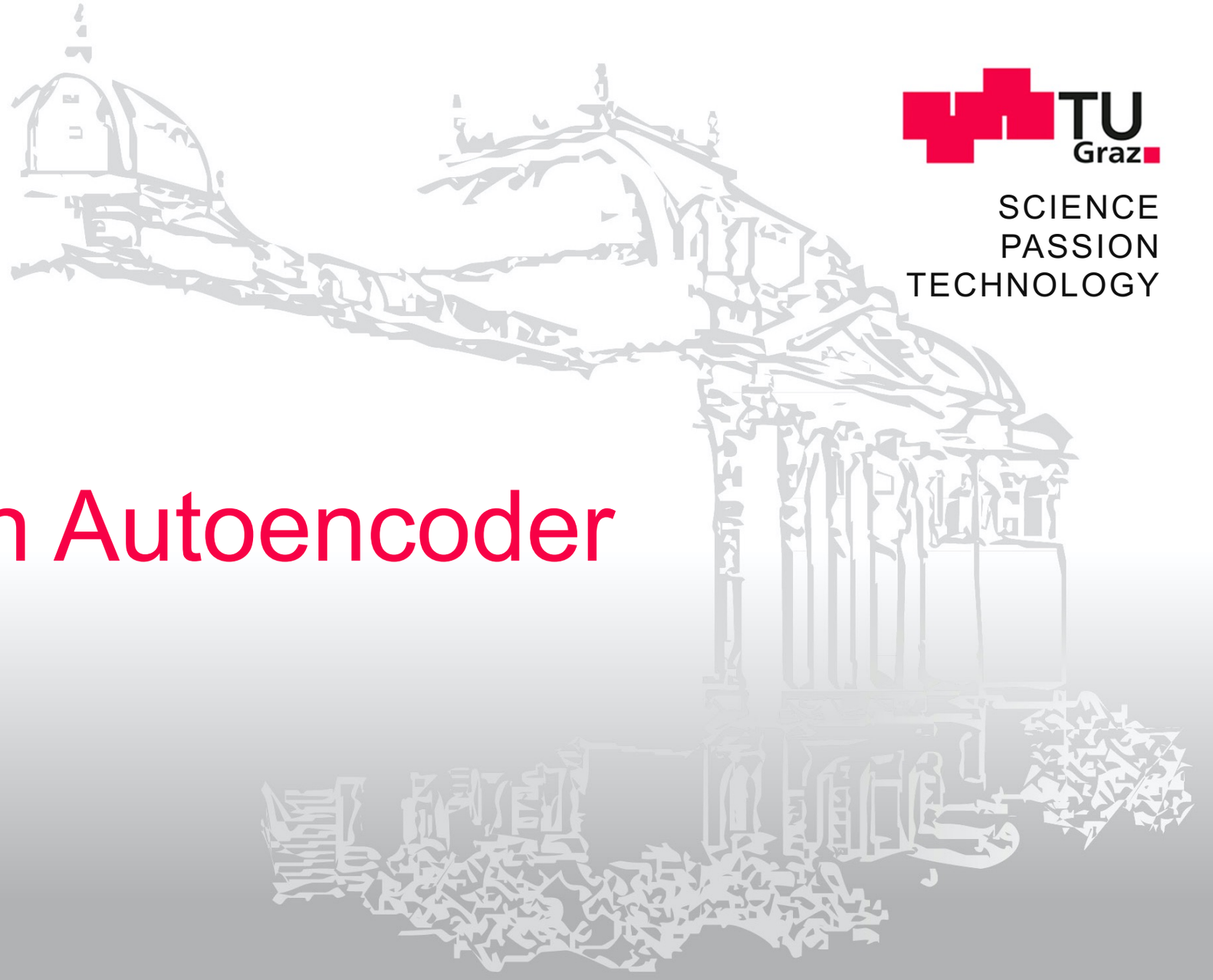


TU Graz

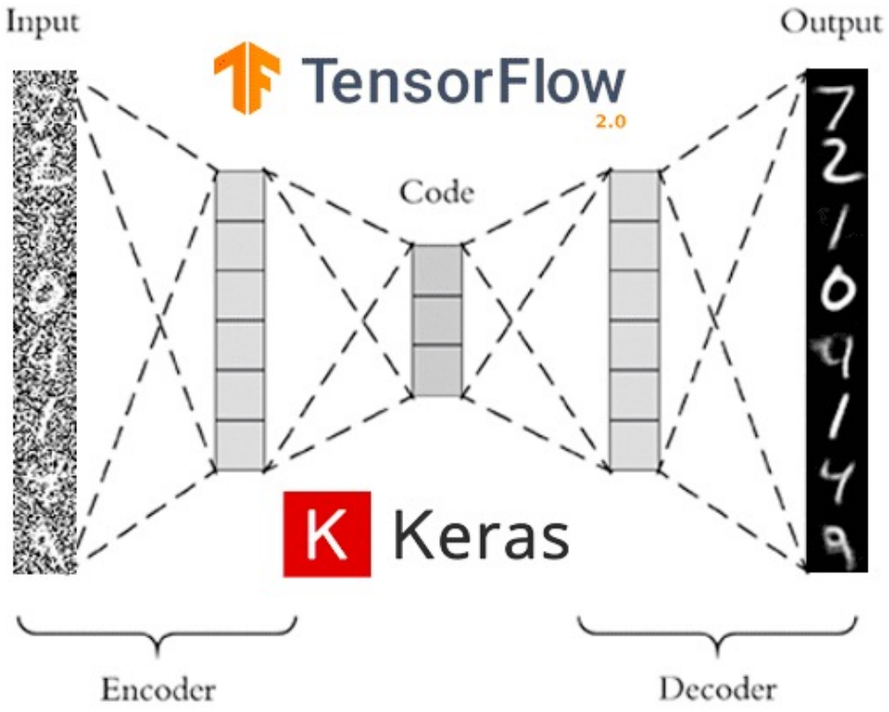
SCIENCE
PASSION
TECHNOLOGY

Reconstruction Autoencoder

Sebastian Scholl
Clemens Berger
Philipp Temmel

Group 10

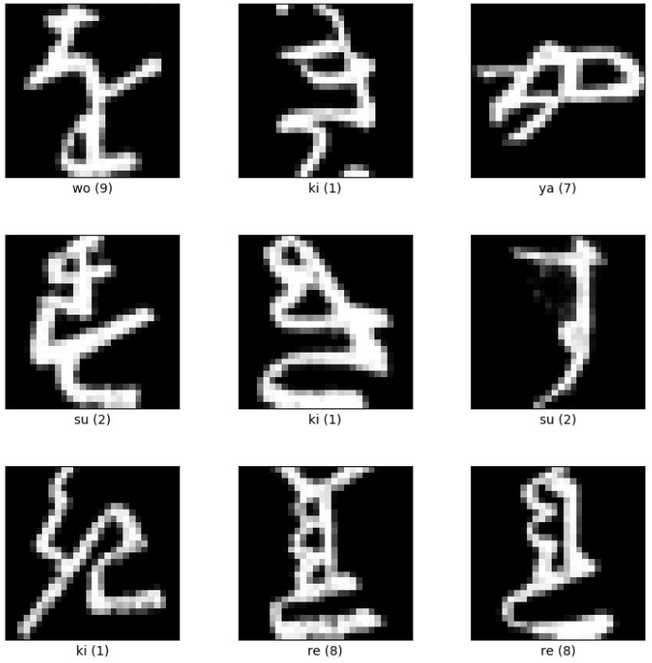
What is an autoencoder?



https://laptrinhx.com/denoising-autoencoders-with-keras-tensorflow-and-deep-learning-4086106458/

Training with Kuzushiji-MNIST dataset:

- 28x28 grayscale pixels
- 70.000 samples
- 10 different classes



https://www.tensorflow.org/datasets/catalog/kmnist

Perturbations

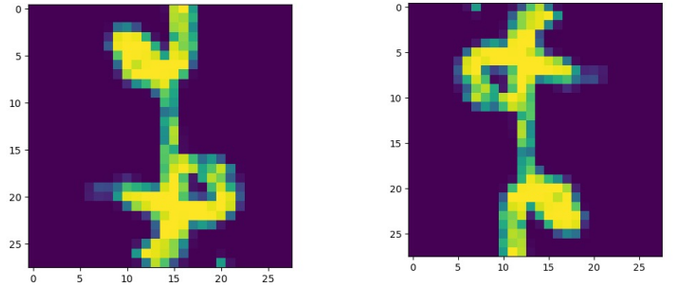
- black squares
- brightness
- rotations
- flipping
- gaussian noise

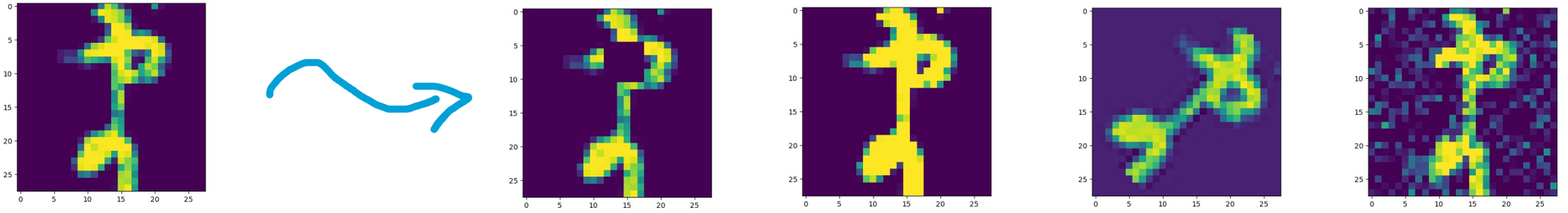
Models

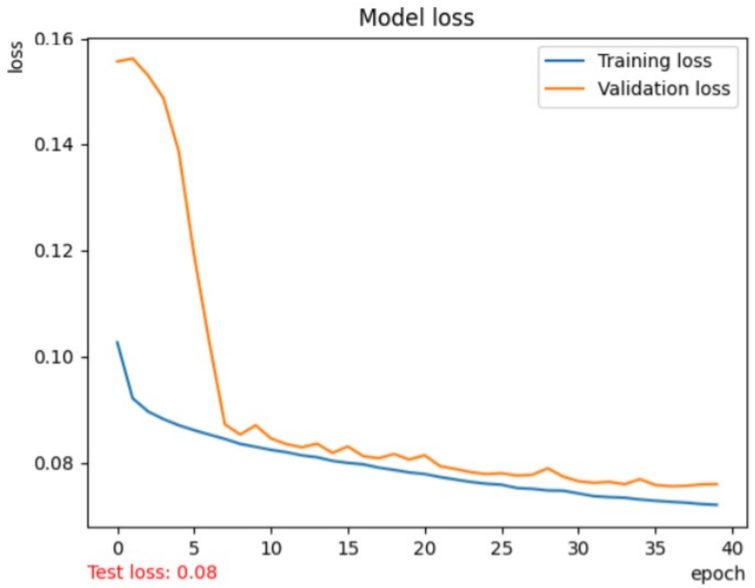
- 19 models
- vertical layer stacks
- regularizations
- best model

Key findings

- ”deeper” is better
- latent space dimensions



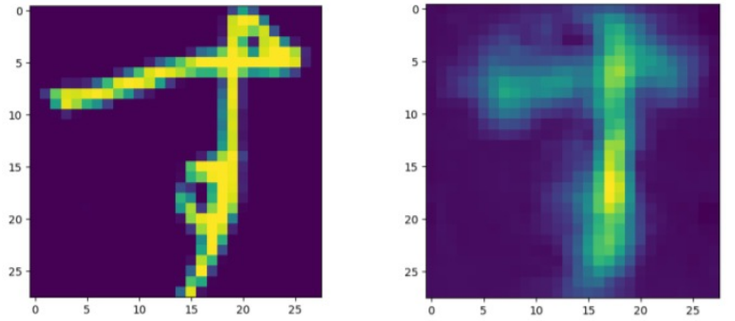




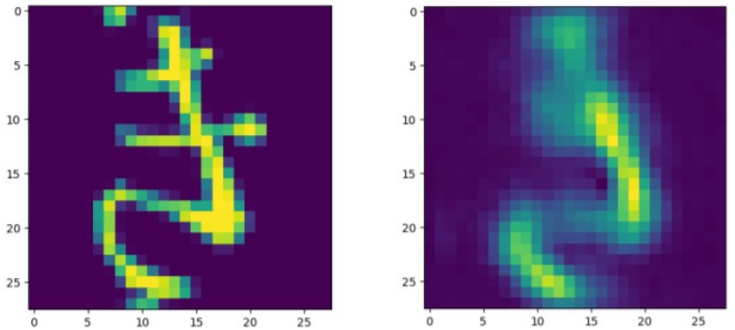
Training loss: 0.0717

Validation loss: 0.0756

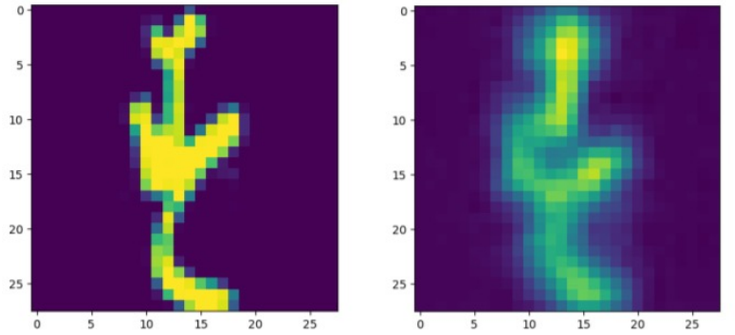
Training time: 2-3 hours



Best loss



Average loss



Worst loss

Questions