



Variational Autoencoders GUI

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How to Run the GUI



First, browse to the directory "**vaes_gui**" of the thesis project and install the Python dependency libraries, by typing:

pip install -r dependencies.txt

Open a console (terminal) in Unix/Linux or a command prompt in Windows with Python 3 installed and run:

python gui.py

How to Run the GUI (part 2)

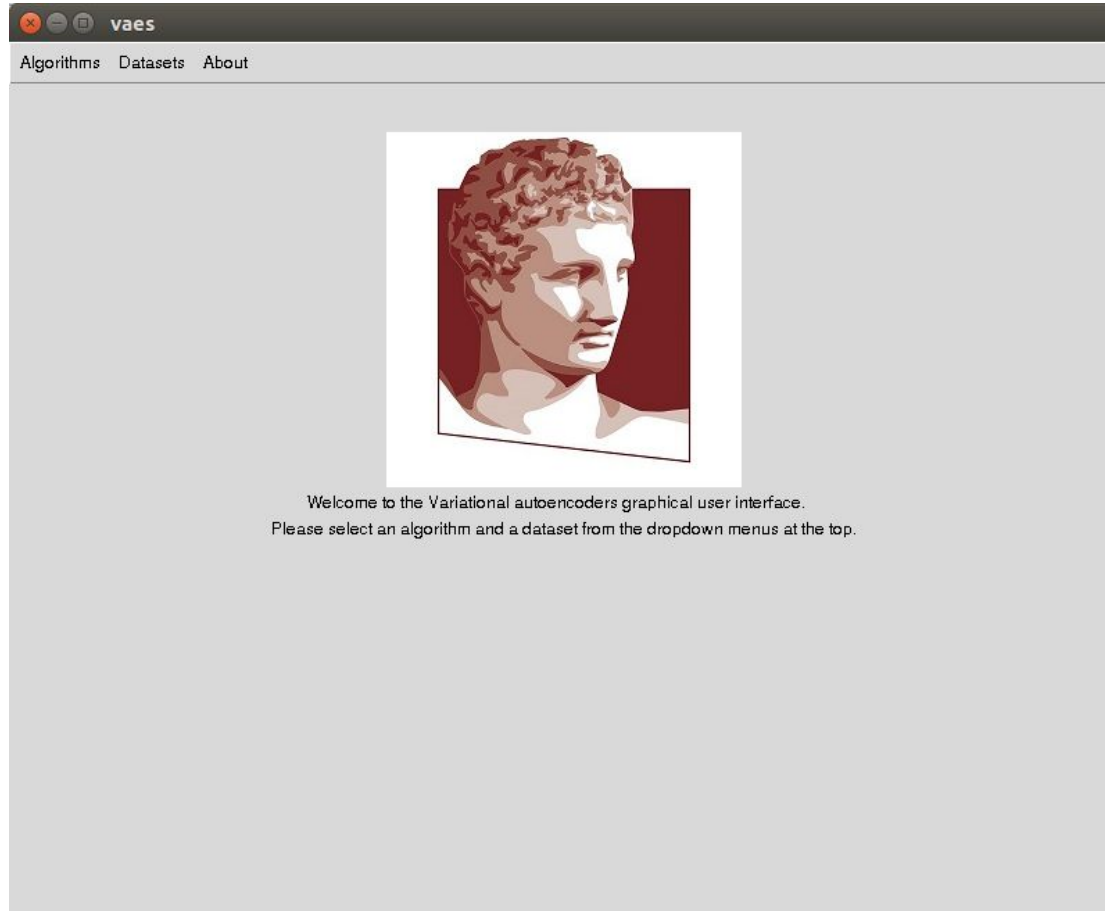


To create an executable file for the GUI (".exe"), which you can run anytime from a Windows environment, type:

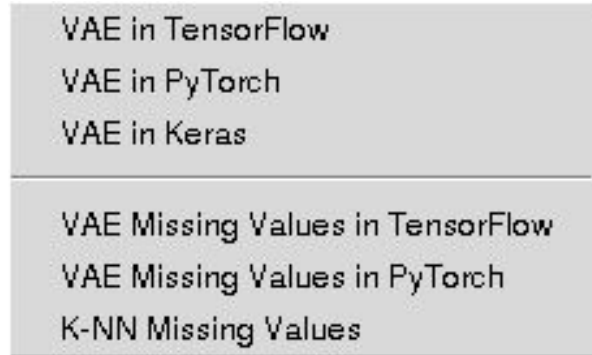
```
pip install pyinstaller  
pyinstaller gui.spec
```

Then, download all the datasets from the URLs in the file **"datasets_urls.txt"** and move them to the newly created **"dist"** folder. Inside, there should be a folder with the name **"vaes_gui"**, which contains the executable file **"vaes_gui.exe"**.

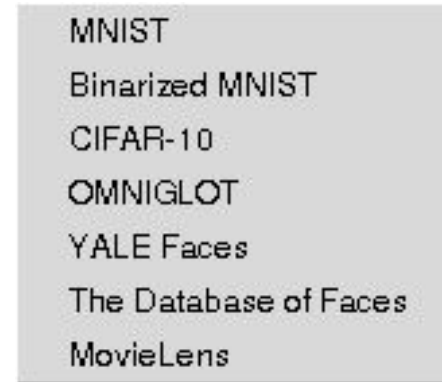
GUI Welcome page.



GUI Algorithms and Datasets dropdown menus.

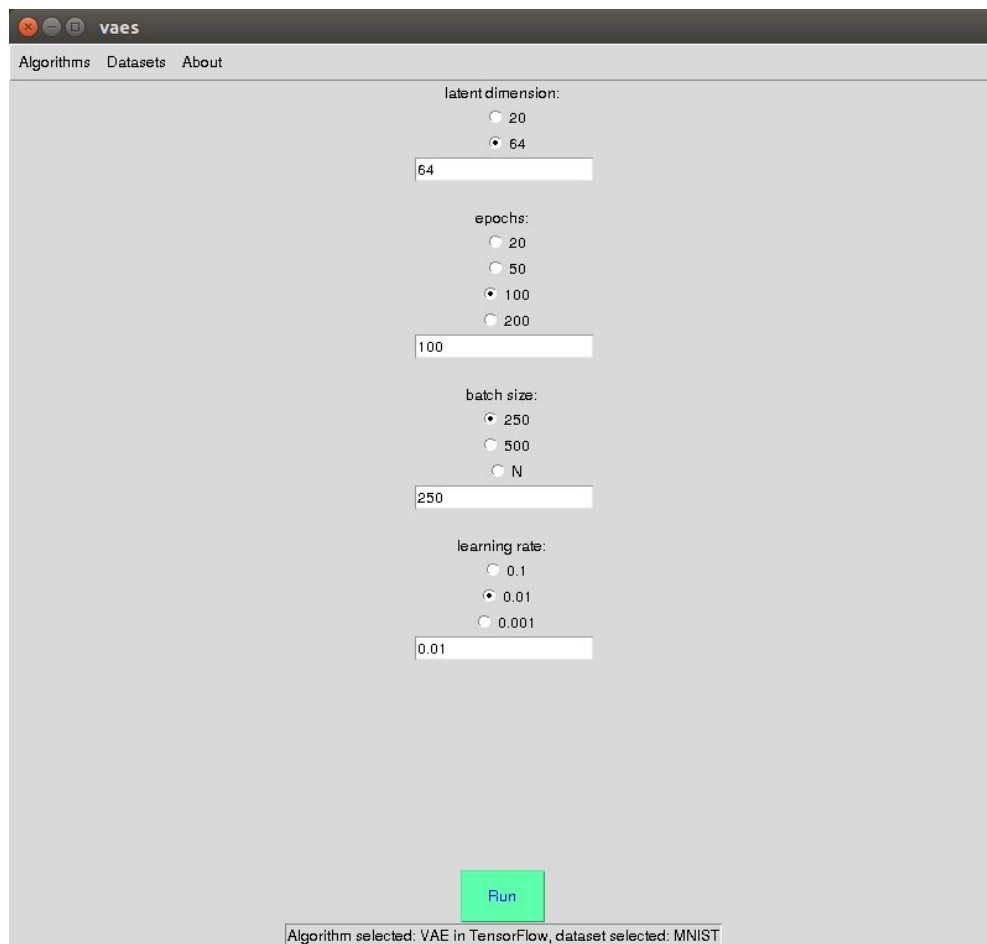


GUI Algorithms dropdown menu.



GUI Datasets dropdown menu.

GUI VAE in TensorFlow, MNIST dataset.



The image shows a web-based GUI for a Variational Autoencoder (VAE) in TensorFlow, titled 'vae'. The interface includes a navigation bar with 'Algorithms', 'Datasets', and 'About' tabs. The main configuration area contains several settings:

- latent dimension:** Radio buttons for 20, 64 (selected), and a text input field containing 64.
- epochs:** Radio buttons for 20, 50, 100 (selected), and 200, with a text input field containing 100.
- batch size:** Radio buttons for 250 (selected), 500, and N, with a text input field containing 250.
- learning rate:** Radio buttons for 0.1, 0.01 (selected), and 0.001, with a text input field containing 0.01.

A green 'Run' button is located at the bottom center. At the bottom of the window, a status bar displays: 'Algorithm selected: VAE in TensorFlow, dataset selected: MNIST'.

GUI VAE in TensorFlow, CIFAR-10 dataset.



vaes

Algorithms Datasets About

latent dimension:

☐ 20

☒ 64

64

epochs:

☐ 20

☐ 50

☒ 100

☐ 200

100

batch size:

☒ 250

☐ 500

☐ N

250

learning rate:

☐ 0.1

☒ 0.01

☐ 0.001

0.01

grayscale or RGB:

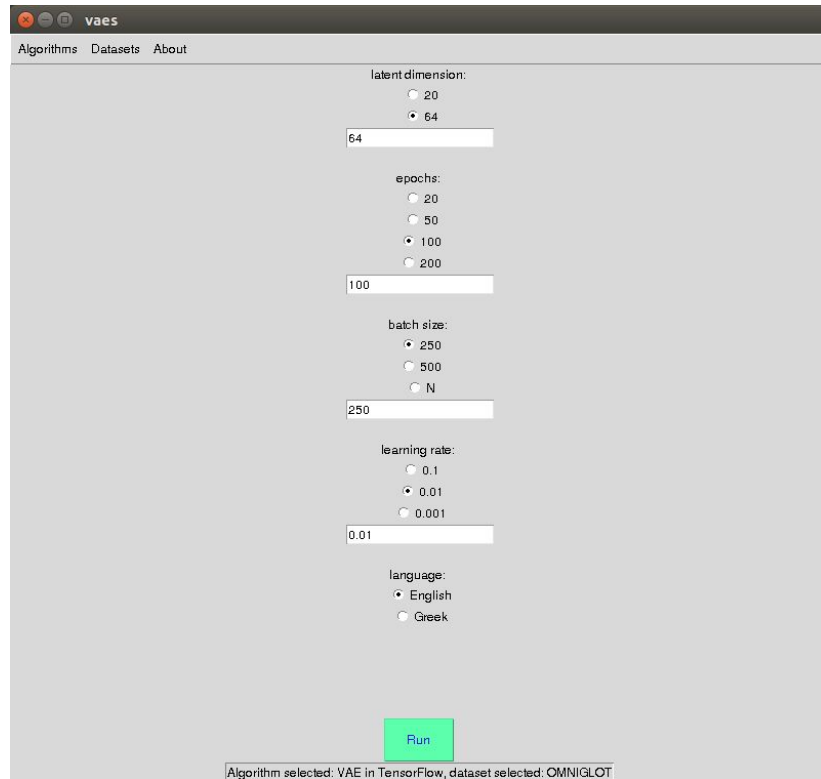
☒ grayscale

☐ RGB


Run

Algorithm selected: VAE in TensorFlow, dataset selected: CIFAR-10

GUI VAE in TensorFlow, OMNIGLOT dataset.



GUI K-NN Recommendation System, MNIST dataset.



vaes

Algorithms Datasets About

K:

☐ 1

☐ 3

☒ 10

☐ 100

construct missing values:

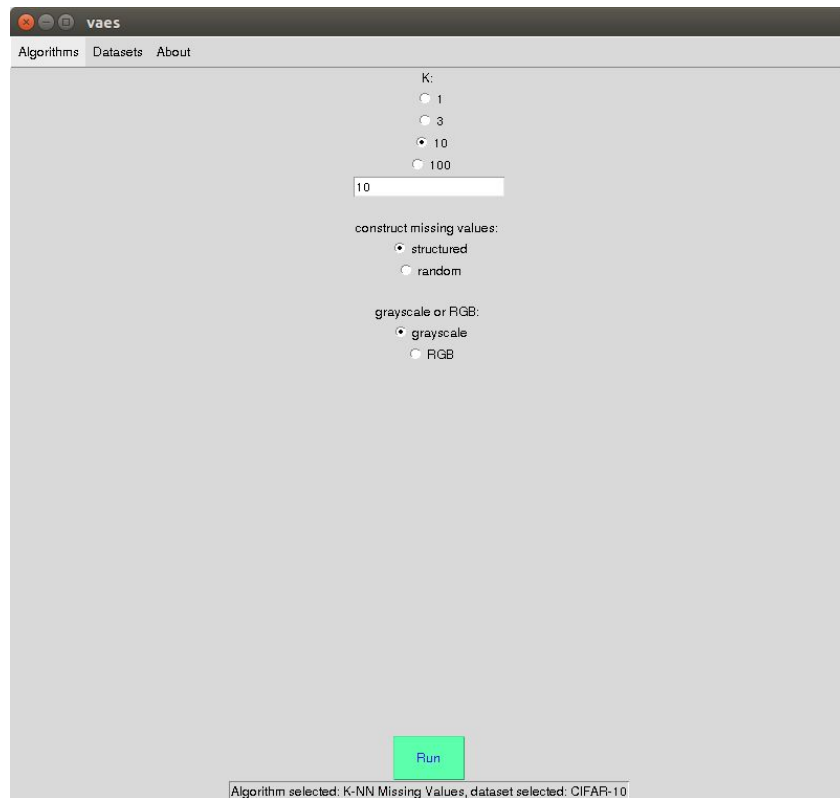
☒ structured

☐ random

Run

Algorithm selected: K-NN Missing Values, dataset selected: MNIST

GUI K-NN Recommendation System, CIFAR-10 dataset.



GUI K-NN Recommendation System, OMNIGLOT dataset.



vaes

Algorithms Datasets About

K:

☐ 1

☐ 3

☒ 10

☐ 100

10

construct missing values:

☒ structured

☐ random

language:

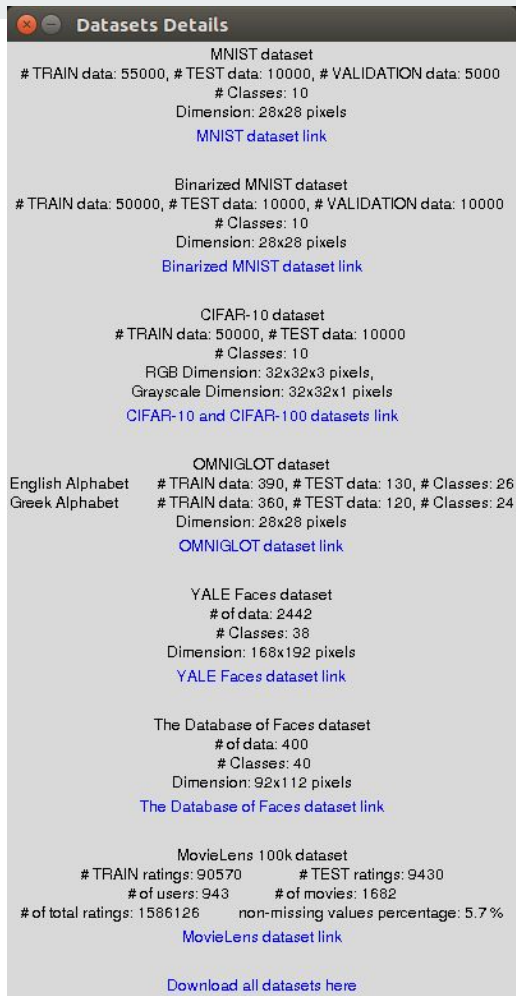
☒ English

☐ Greek

Run

Algorithm selected: K-NN Missing Values, dataset selected: OMNIGLOT

GUI datasets details.



Datasets Details

MNIST dataset
TRAIN data: 55000, # TEST data: 10000, # VALIDATION data: 5000
Classes: 10
Dimension: 28x28 pixels
[MNIST dataset link](#)

Binarized MNIST dataset
TRAIN data: 50000, # TEST data: 10000, # VALIDATION data: 10000
Classes: 10
Dimension: 28x28 pixels
[Binarized MNIST dataset link](#)

CIFAR-10 dataset
TRAIN data: 50000, # TEST data: 10000
Classes: 10
RGB Dimension: 32x32x3 pixels,
Grayscale Dimension: 32x32x1 pixels
[CIFAR-10 and CIFAR-100 datasets link](#)

OMNIGLOT dataset
English Alphabet # TRAIN data: 390, # TEST data: 130, # Classes: 26
Greek Alphabet # TRAIN data: 360, # TEST data: 120, # Classes: 24
Dimension: 28x28 pixels
[OMNIGLOT dataset link](#)

YALE Faces dataset
of data: 2442
Classes: 38
Dimension: 168x192 pixels
[YALE Faces dataset link](#)

The Database of Faces dataset
of data: 400
Classes: 40
Dimension: 92x112 pixels
[The Database of Faces dataset link](#)

MovieLens 100k dataset
TRAIN ratings: 90570 # TEST ratings: 9430
of users: 943 # of movies: 1682
of total ratings: 1586126 non-missing values percentage: 5.7 %
[MovieLens dataset link](#)

[Download all datasets here](#)

GUI About.

