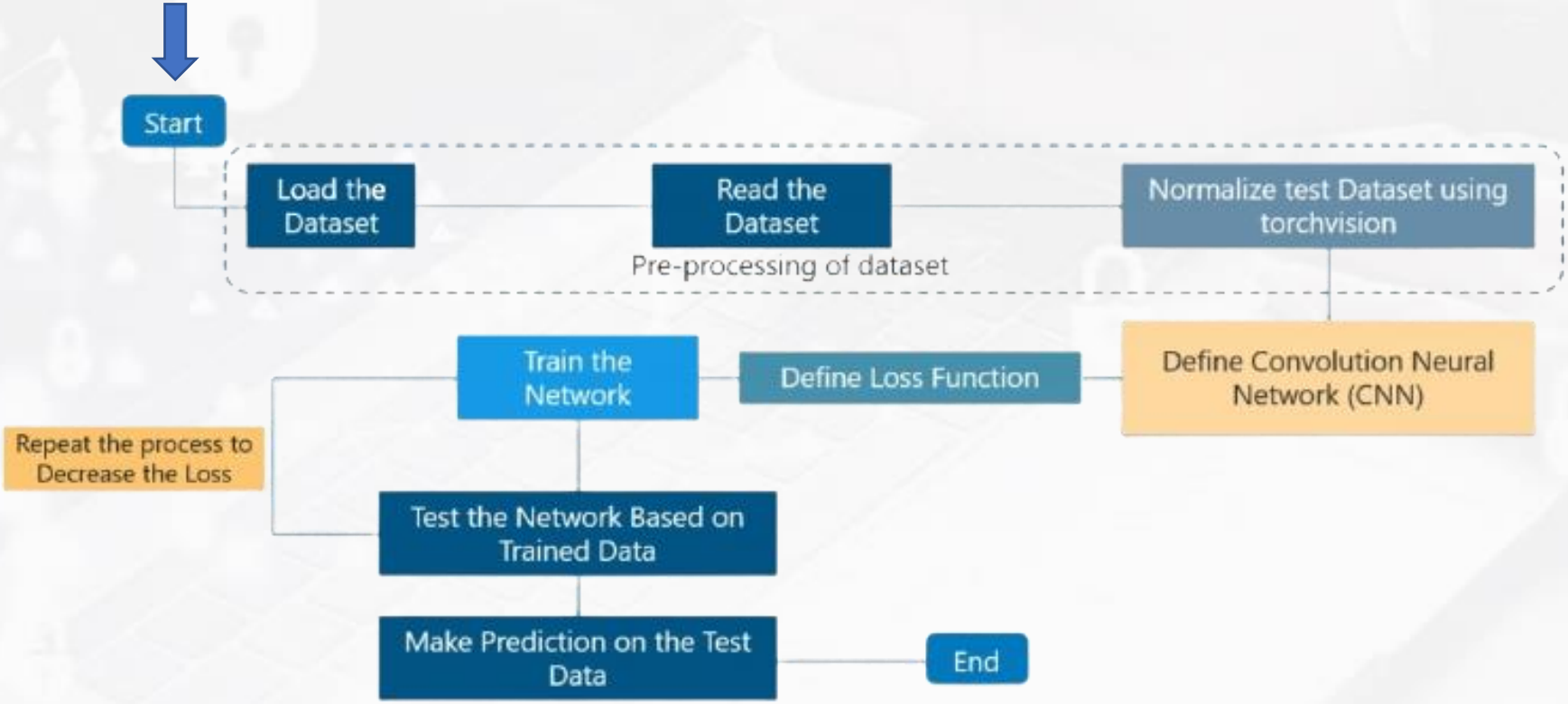
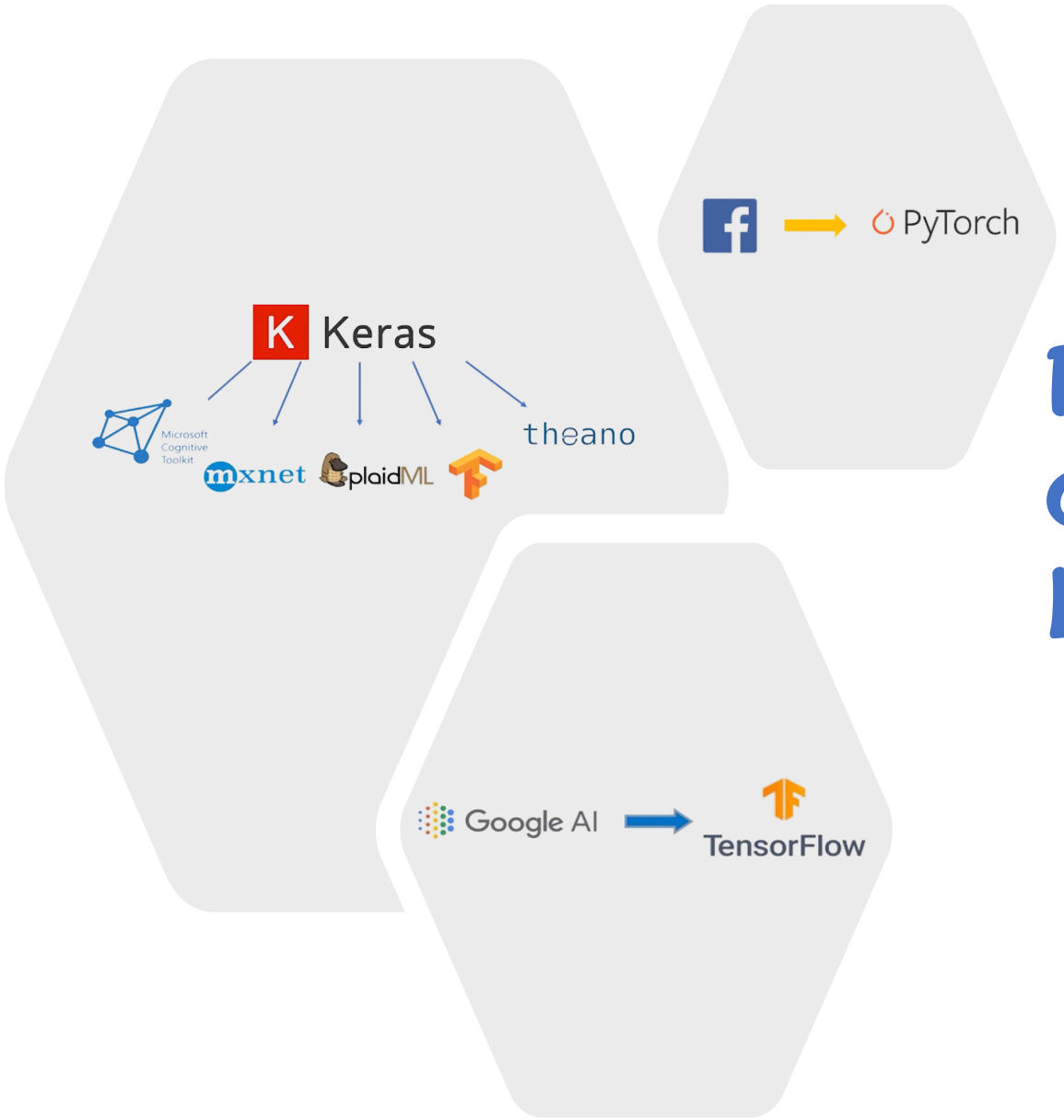
Deep Learning 1

Deep Learning

Result of Data Analysis





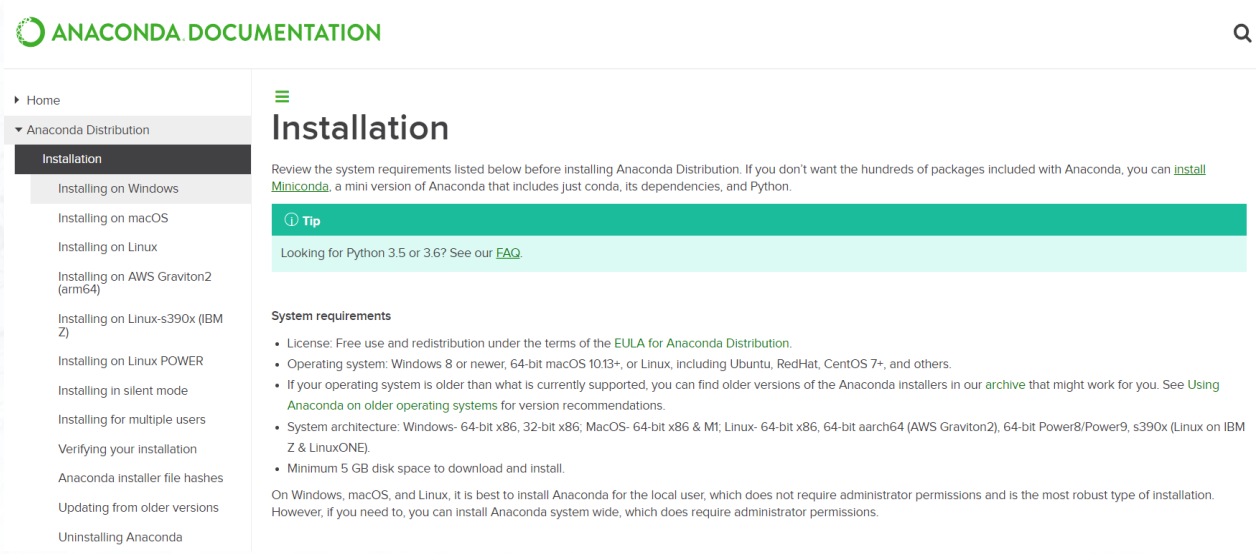
Playground of Deep Learning

TensorFlow	Keras	PyTorch
High- and Low-Level API	High Level API	Low Level API
Has a complex architecture and is hard to use	Has a simpler architecture as abstraction is used to make it simple to use	Has a complex architecture
		
Used for very high-performance models. Debugging is hard	Used for smaller datasets. Debugging is easy and less frequent due to smaller models	Used for large datasets. Easier to debug than TensorFlow
		

List of required Libraries

- Pandas
- Numpy
- Scipy
- Matplotlib
- Seaborn
- Xlrd
- Openpyxl
- Tensorflow
- Keras
- Scikit-learn
- Scikit-image
- Memory-profilter
- Pytest
- Pytest-cov
- Mypy
- Pyamg
- Lxml
- Theano
- Cython
- Pywavelets

https://docs.anaconda.com/anaconda/install/



Installation Libraries

Installing a conda package

Enter the command:

```
conda install package-name
```

Installing specific versions of conda packages

Include the desired version number or its prefix after the package name:

```
conda install package-name=2.3.4
```

To specify only a major version, run:

```
conda install package-name=2
```

These commands install into the environment that is currently active. To install into a named environment, run:

```
conda install package-name=2.3.4 -n some-environment
```

If the package is specific to a Python version, conda uses the version installed in the current or named environment. For details on versions, dependencies and channels, see

Environment

jupyter

spyder

ANACONDA

Microsoft Visual C++ 2015-2019 Redistributable (x64) - 14.28.29325

GPU

Version	Python version	Compiler	Build tools	cuDNN	CUDA
tensorflow_gpu-2.4.0	3.6-3.8	MSVC 2019	Bazel 3.1.0	8.0	11.0
tensorflow_gpu-2.3.0	3.5-3.8	MSVC 2019	Bazel 3.1.0	7.6	10.1
tensorflow_gpu-2.2.0	3.5-3.8	MSVC 2019	Bazel 2.0.0	7.6	10.1
tensorflow_gpu-2.1.0	3.5-3.7	MSVC 2019	Bazel 0.27.1-0.29.1	7.6	10.1
tensorflow_gpu-2.0.0	3.5-3.7	MSVC 2017	Bazel 0.26.1	7.4	10
tensorflow_gpu-1.15.0	3.5-3.7	MSVC 2017	Bazel 0.26.1	7.4	10
tensorflow_gpu-1.14.0	3.5-3.7	MSVC 2017	Bazel 0.24.1-0.25.2	7.4	10

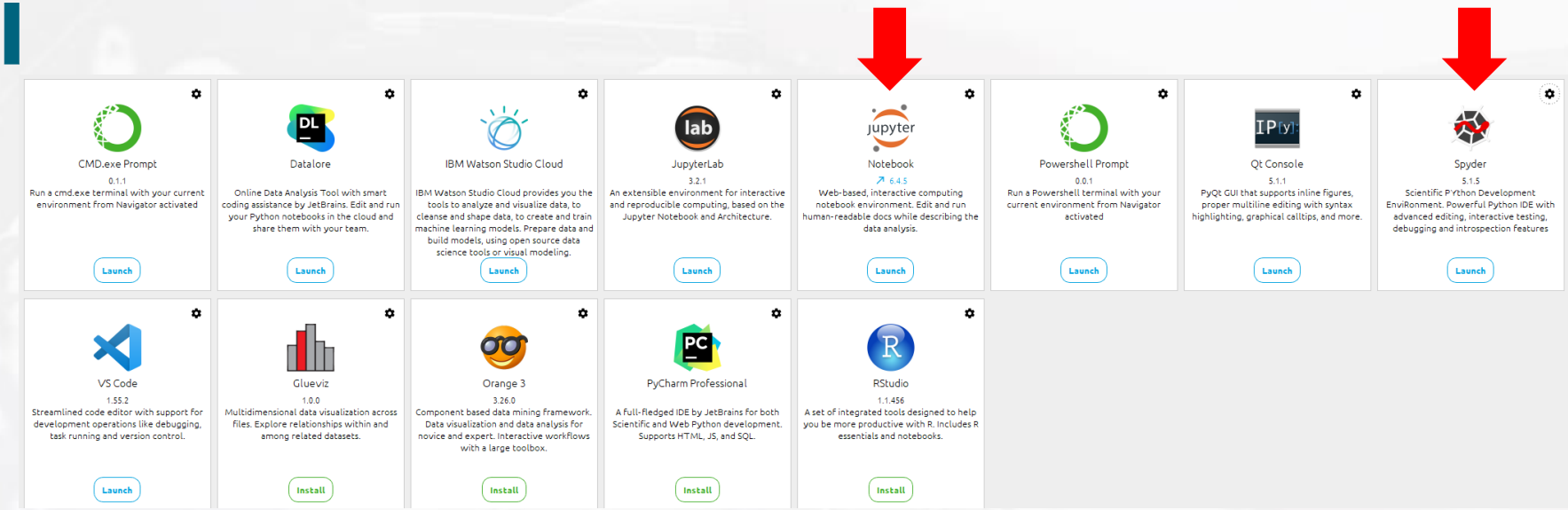
```
(base) C:\WINDOWS\system32>conda create -n tf_gpu python==3.8
```

```
(base) C:\WINDOWS\system32>conda activate tf_gpu
```

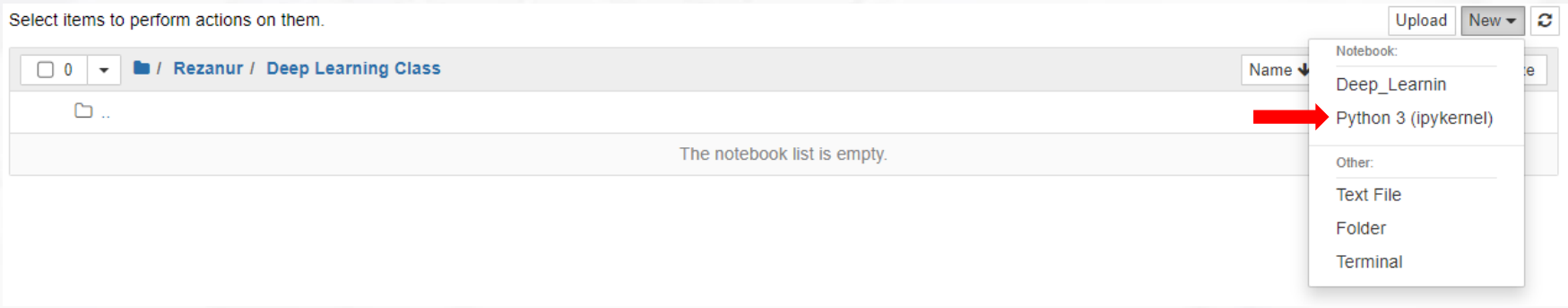
```
C:\WINDOWS\system32>conda install cudatoolkit=11.0 cudnn=8.0 -c=conda-forge
```

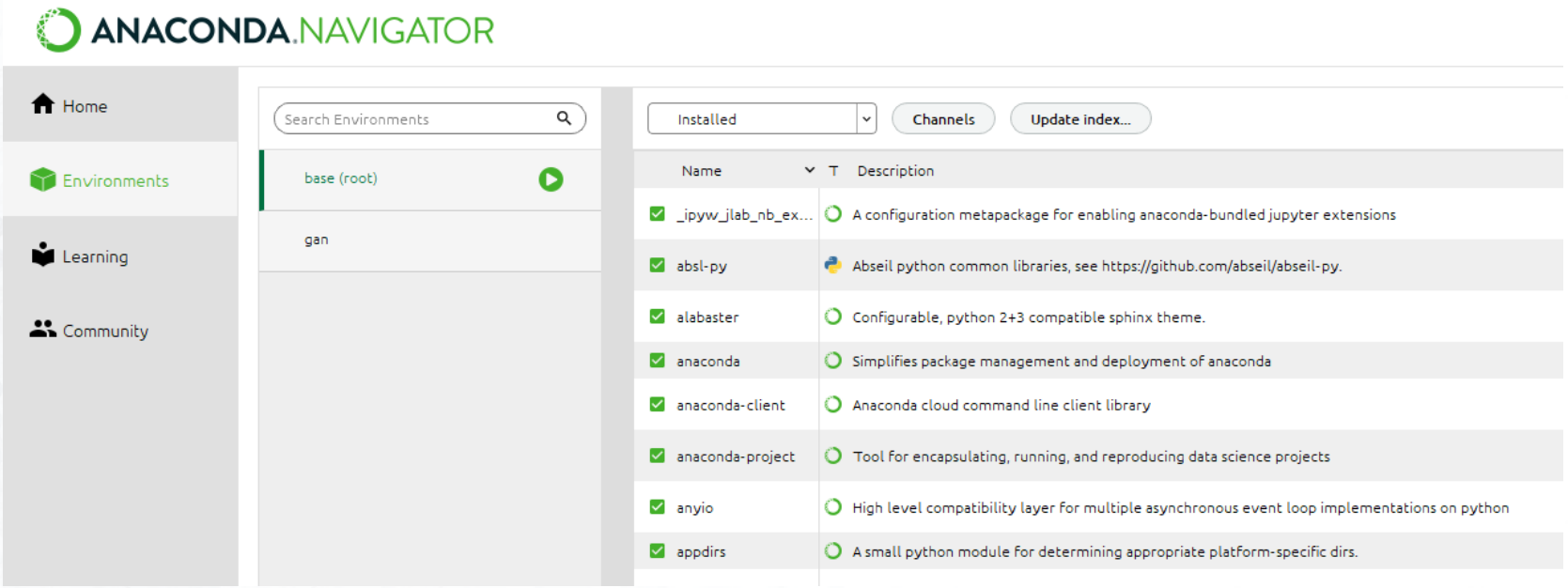
```
(tf_gpu) C:\WINDOWS\system32>pip install --upgrade tensorflow-gpu==2.4.1
```

https://www.tensorflow.org/install/source#gpu


CMD.exe Prompt
0.1.1
Run a cmd.exe terminal with your current environment from Navigator activated
Launch
Datalore
Online Data Analysis Tool with smart coding assistance by JetBrains. Edit and run your Python notebooks in the cloud and share them with your team.
Launch
IBM Watson Studio Cloud
IBM Watson Studio Cloud provides you the tools to analyze and visualize data, to cleanse and shape data, to create and train machine learning models. Prepare data and build models, using open source data science tools or visual modeling.
Launch
JupyterLab
3.2.1
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch
Notebook
6.4.5
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch
Powershell Prompt
0.0.1
Run a Powershell terminal with your current environment from Navigator activated
Launch
Qt Console
5.1.1
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Launch
Spyder
5.1.5
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
Launch
VS Code
1.55.2
Streamlined code editor with support for development operations like debugging, task running and version control.
Launch
Glueviz
1.0.0
Multidimensional data visualization across files. Explore relationships within and among related datasets.
Install
Orange 3
3.26.0
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.
Install
PyCharm Professional
A full-fledged IDE by JetBrains for both Scientific and Web Python development. Supports HTML, JS, and SQL.
Install
RStudio
1.1.456
A set of integrated tools designed to help you be more productive with R. Includes R essentials and notebooks.
Install

C:\Users\Lisa


Select items to perform actions on them.
Upload
New
0
/ Rezanur / Deep Learning Class
Name
..
The notebook list is empty.
Notebook:
Deep_Learnin
Python 3 (ipykernel)
Other:
Text File
Folder
Terminal


ANACONDA.NAVIGATOR
Home
Environments
Learning
Community
Search Environments
base (root)
gan
Installed
Channels
Update index...
Name
T
Description
_ipyw_jlab_nb_ex...
A configuration metapackage for enabling anaconda-bundled jupyter extensions
absl-py
Abseil python common libraries, see https://github.com/abseil/abseil-py.
alabaster
Configurable, python 2+3 compatible sphinx theme.
anaconda
Simplifies package management and deployment of anaconda
anaconda-client
Anaconda cloud command line client library
anaconda-project
Tool for encapsulating, running, and reproducing data science projects
anyio
High level compatibility layer for multiple asynchronous event loop implementations on python
appdirs
A small python module for determining appropriate platform-specific dirs.

Steps by Steps of Data Processing in Deep Learning Module

- Import required Libraries
- Data Importing
- Data joining
- Data Reshaping
- Data Scaling
- Specific Data Calling
- Categorical Data Handling

Data Analysis Example on CAN

https://github.com/Arupreza/Data-Analysis-Example-On-CAN

Tutorial Link

https://github.com/Arupreza/Deep-learning-Deployment-ON-CAN

Thank You

순천향대학교
SOON CHUN HYANG UNIVERSITY

LISA 순천향대학교 시스템보안연구실
LAB. OF INFORMATION SYSTEMS SECURITY ASSURANCE