Introduction

In this course you will work with a real case scenario and prepare an AI Solution for a company that aims to predict air temperature. It will be your assignment to analyze and to prepare a given dataset for an AI model. You will then choose an appropriate AI model to work with to solve this problem.

The course material will provide you with all basic tools you need to build a solution to this problem. Feel free to find other sources of knowledge or other datasets to work with if you want to. The aim with this course is to make a proper data analysis, prepare an AI model and create plots to present the results.

The course material will give you tools to prepare a dataset to fit as input for a neural network. In the given example we will work with a dataset from SMHI. We will train a neural network on this data and predict air temperature in Norrköping during 48h. You will be given a basic neural network that we will train with the dataset. This model is provided to give you an example on how to solve this problem. Feel free to try any other solution/AI model that you feel curious to learn more about!

When our trained neural network has made a prediction we will compare this predicted data with real data. We will draw a basic graph to look at our results. For this we use Matplotlib. If you want to work with another library - feel free to do so!

There will not be any time frames to relate to. I advise you to start to make your own notebook and create your own code. Do the course in peace and quiet and try to understand each step of the notebook. A copy / paste of the solution will not create the understanding needed to make this subject more fun!

There are some recommended readings in the code if you want to dive further into this subject.

Assignment #1 Environment setup

The first step is to set up the environment:

> Folder: hands-on-AI/Assignment #1 Environment setup/01 Environment setup

Follow this document to prepare your computer to be able to work properly with your AI model.

Assignment #2 Data analysis

The biggest and most important job while working with AI is to understand the given dataset. To do this we need to provide ourselves with proper tools that will simplify this process. This part of the course will show you the basic tools needed while getting to know your dataset.

Have fun in this part of the course and use your imagination. What do you want to learn about your dataset? How can you make this possible? Create your own notebook and start to walk your way through the steps that you feel necessary to get to know your dataset. Use the material given in the “Data analysis” folder to get inspiration of what you can do with the data.

All material you need for this section is found here:

Folder: hands-on-AI/Assignment #2 Data analysis

Assignment #3 Data visualization

In the previous part we worked mostly with arrays and digits. In this section of the course you will learn how to present your data in a more visual way. In the given examples we use Matplotlib to visualize data. If you want to work with another python library - feel free to do so!

All material you need for this section is found here:

Folder: hands-on-AI/Assignment #3 Data visualization

Assignment #4 Real case scenario

In this section of the course we are ready to get our hands dirty. In the previous parts you have provided yourself with all tools you need to build an AI solution that can predict air temperature.

All material you need for this section is found here:

Folder: hands-on-AI/Assignment #4 Real case scenario

In this folder you will find a jupyter notebook called “Code Walkthrough”. This walkthrough will give you an example of a solution. Feel free to build your own solution to this problem. The walkthrough is only created to give you an example of *one* possible solution to this problem.

Create a new jupyter notebook and start to build your own code solution! :)

1.) Start to make a data analysis and create graphs to get to know your dataset.
2.) Start to prepare your dataset to be able to be understood by an AI model
3.) Build you AI model
4.) Train your AI model
5.) Make a prediction with you AI model
6.) Create plots to present the results

Enjoy the journey!