SPTnet environment installation guide using Anaconda

1. Prerequisites

Before installing, ensure the following:

- Anaconda or Miniconda is installed on your system.
  Download from: https://www.anaconda.com/products/distribution
- You have the “SPTnet_environment.yml” file available (shared with this **software package**).
- A CUDA-capable GPU with driver support for PyTorch CUDA 11.8

2. Open Anaconda Prompt or Terminal

- On Windows: Click the Start menu, search for "Anaconda Prompt",
- On macOS/Linux: Open a terminal window.

3. Navigate to the Folder with environment.yml

Use the “cd” command to change to the folder where your “SPTnet_environment.yml” is located.

For example, if the folder is located in disk:D:

1. d:

2. cd “D:\SPTnet\Software\”

(For macOS/Linux, adjust the path accordingly.)

4. Create the Conda Environment

Run the following command to create the environment:

conda env create -f SPTnet_environment.yml

This will create a new conda environment named “SPTnet” and install all required packages, including:

PyTorch (with CUDA 11.8 support)

OpenCV (headless)

SciPy, h5py, tqdm, matplotlib, pandas, ipython, tifffile

Positional encodings for PyTorch

*This installation will take around 10 min depending on the internet speed.

5. Activate the Environment

Run the following command to activate the environment:

conda activate SPTnet

Your terminal should now show (SPTnet) at the beginning of the prompt.

Required MATLAB Packages

The following packages are needed to run the SPTnet training-data generator and visualization GUI:

1. Image Processing Toolbox

   MATLAB Add-On: https://www.mathworks.com/products/image-processing.html

2. DIPimage 2.9
   - Installation files for Windows and Linux are included in the software package.
   - Alternatively, download the installer from https://diplib.org/DIPimage.html
   - For the default installation path C:\Program Files\DIPimage 2.9\common\dipimage. "dipstart.m" (provided in DIPimage_2.9 folder) can be used to initialize DIPimage.

3. PSF-Toolbox
   - Before running any scripts, ensure that MATLAB's search path includes the PSF-toolbox folder.
   - For example: addpath('C:/your/path/to/PSF-toolbox')

* "noise" is a function in the DIPimage2.9 package, which is different than the MATLAB built-in function "imnoise"